CAN AFRICA AFFORD GREEN AND RESILIENT HOUSING?

Creating Markets, Creating Opportunities

IFC'S COMPREHENSIVE APPROACH TO GREEN BUILDINGS

Further resource: [About IFC and Green Buildings]

THE CHALLENGE OF UNSUSTAINABLE CONSTRUCTION

Housing Demand → **Unsustainable Construction** → **Climate Challenges**

1.6 bn people in sub-standard conditions

Half of 2060 buildings are **not built yet**

18% of energy-related GHGs from residential buildings

10% of emissions from buildings construction

Speed of decarbonization is falling

140 million climate refugees by 2050 – need for resilience

Efficiency benefits end-users: low-income families spend **25%** of income on utilities and housing

Further resource: Global Status Report for Buildings and Construction

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

DRIVERS OF PROFITABILITY FOR GREEN AND AFFORDABLE HOUSING

1

Access to international green finance flows for better financing terms

2

Minimized incremental cost through early planning

3

Faster sales through market differentiation

4

Savings on utility bills for owners and renters

5

Lowered default rates and superior collateral value for green mortgages

6

Government incentives

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

DRIVERS OF PROFITABILITY FOR GREEN AND AFFORDABLE HOUSING

	Main stakeholder			
Profitability driver	**Government**	**Lender**	**Developer**	**Homebuyer**
Access to green finance	Attract better financing & increase access	Attract better financing	Attract better financing	Receive pass-through better financing terms
Minimized costs	Minimize costs for socialized housing		Minimize costs for a differentiated product	
Faster sales			Reduce total cost of financing	
Utility bill savings	Lower burden on utilities	Leads to lower default rates	Marketing for differentiated product	Increase in disposable income
Lowered default rates	Possibility for regulatory change	Possibility for financial innovation		Receive pass-through better financing terms

CASE STUDY: CAPE TOWN, SOUTH AFRICA

- Supported by South Africa's Green Fund

• MADULAMMOHO • HOUSING • ASSOCIATION •
"the heartbeat of affordable housing"

- **Public-Private Partnership** model: city made land available for social housing
- Rental costs at affordable $53-$158
- Significant **savings** in part due to lower utilities
- Profiled in **video by BBC**

Energy	Water	Materials
Reduced window to wall ratio, insulated roof and external walls, heat pump for hot water, energy-saving lighting and lighting controls for common areas and outdoors.	Low-flow showerheads, low-flow faucets for kitchen sinks and dual-flush water closets.	Hollow core precast slab for flooring, micro concrete tiles on steel rafters for roof construction and solid dense concrete blocks for internal and external walls.

Further resource:
BBC VIdeo – Building a Better Future
Belhar Gardens case study

IFC International Finance Corporation
WORLD BANK GROUP
Creating Markets, Creating Opportunities

CASE STUDY: REALL

A HOME FOR HUMAN POTENTIAL

Reall

- Development finance in Africa and Asia
- Commercially viable homes start at **$7,500**
- **Training** for developers for standardized and verifiable approach
- **Technical assistance** toward certification
- Finance offered at **preferential rates** compared to locally available loans

Further resource: Reall website

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

CASE STUDY: SHELTER AFRIQUE, AFRICA

SHELTER AFRIQUE
Financing Affordable Housing for Africa

- Partnership of African governments, created to provide affordable housing finance
- **Committed to certify** as green affordable housing units across Africa
- Will provide **education and technical assistance** to developers
- Possibility of finance through **green bonds**

Further resource: Shelter Afrique Recognized for Its Commitment to Build Green in Africa

IFC International Finance Corporation WORLD BANK GROUP
Creating Markets, Creating Opportunities

CASE STUDY: INTERNATIONAL HOUSING SOLUTIONS

SAVINGS ON UTILITY BILLS FOR RESIDENTS AND RENTERS

Development:	Ravenswood	Candlewood	Goedeberg
kWh savings	54%	68%	41%
Total savings per year ($)	$128	$181	$338

Energy

Roof insulation, reduced window to wall ratio, solar hot water collectors and smart meters.

Water

Low-flow showerheads, low-flow faucets and dual-flush water closets.

Materials

Hollow core precast floor slabs, steel sheets on timber rafters, facing brick and solid concrete blocks for external walls, and solid dense concrete blocks for internal walls.

Further resource: [Housing Finance International Journal]

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

CASE STUDY: BALWIN AND ABSA, SOUTH AFRICA

- Balwin properties in South Africa has the **largest EDGE registration in the world**: 13,000 units in 2019 and additional 12,000 units in 2021
- Balwin has **certified 1.5 million m2** of homes space
- Partnered with Absa Bank to launch a **EcoHome green mortgages scheme** in South Africa
- Absa provides a **rate concession** on customer's interest, 10% cash back on MyTelnet home connectivity product and service, and access to Absa financial planning consultants

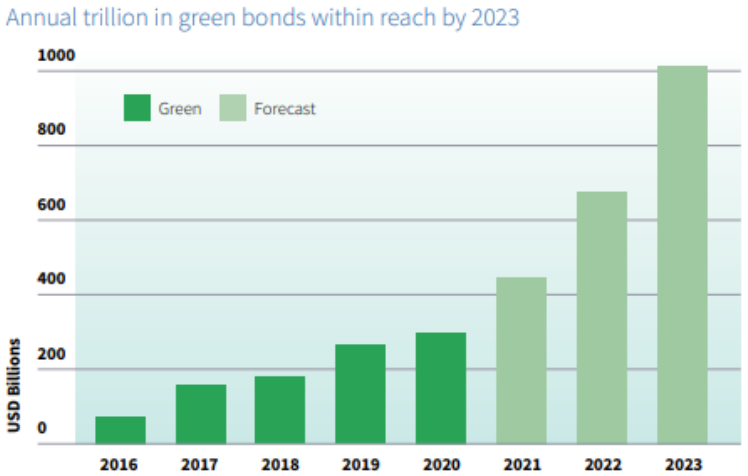
Further resource: South Africa's First EcoHome Loan

IFC International Finance Corporation WORLD BANK GROUP
Creating Markets, Creating Opportunities

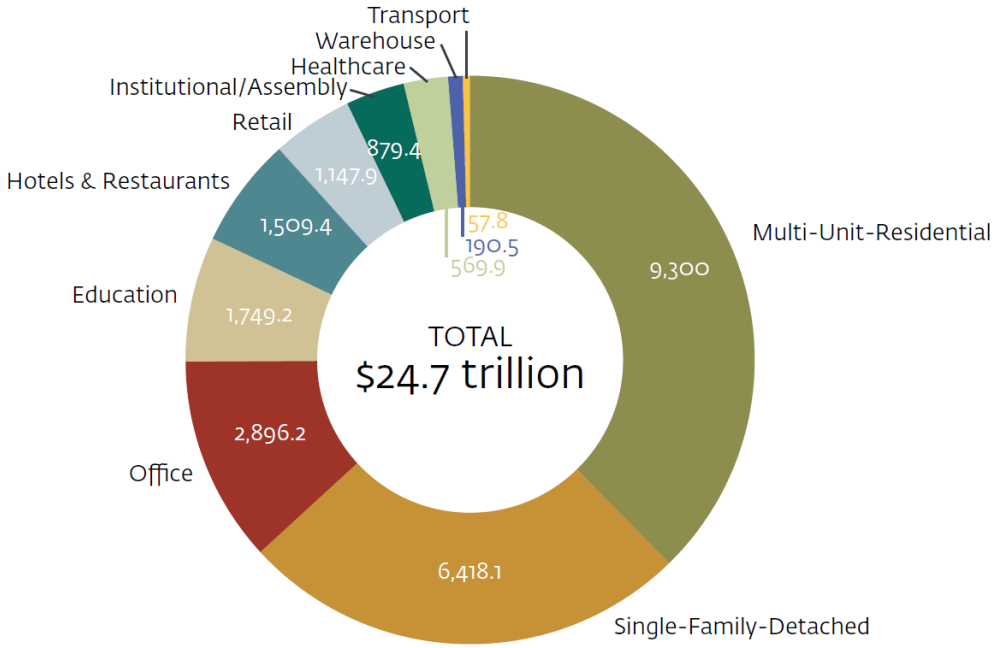
1 ACCESS TO INTERNATIONAL GREEN FINANCE FOR BETTER FINANCING TERMS

Investor Demand

- 1,100 investors with climate pledges
- 10,000 cities with green programs
- $9 trillion in assets committed to net zero



Green Investment Opportunity



- Opportunity for growth: $423 billion green market out of $5 trillion investments in 2017

Further resources:

- *Global Climate Action*
- *Green Buildings – A Financial and Policy Blueprint for Emerging Markets*

GREEN BUILDING DEFINITIONS

Finance Standards

Reporting Standards

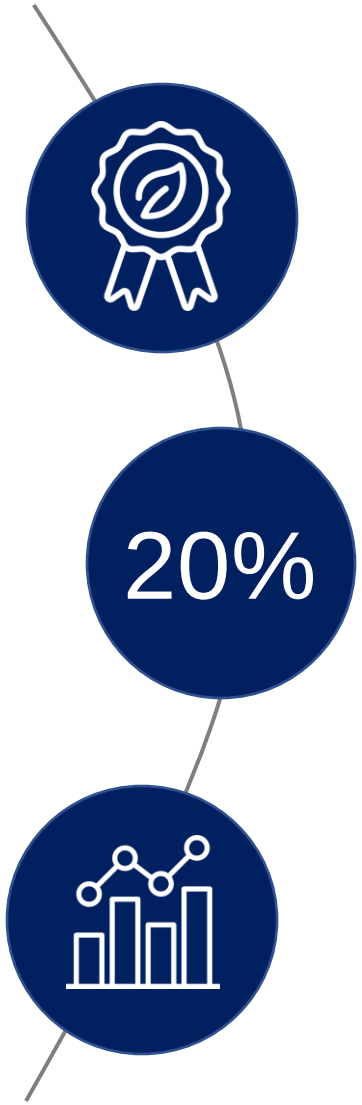
ICMA International Capital Market Association

Climate Bonds Initiative

GRESB

CDP Disclosure Insight Action

European Commission



CERTIFIED GREEN

20%

BETTER PERFORMANCE COMPARED TO BASELINE

IMPACT REPORTING

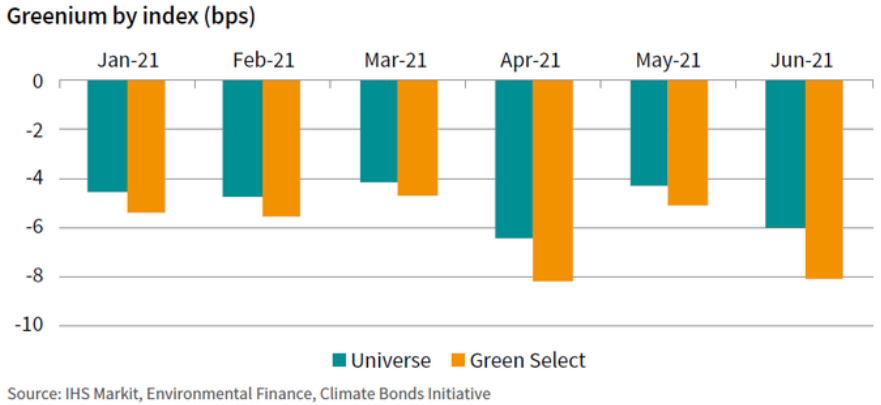
Further resource: [Green Buildings – A Financial and Policy Blueprint for Emerging Markets]

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

EXPERIENCE WITH GREEN BONDS

Greenium for Green Finance



Source: IHS Markit, Environmental Finance, Climate Bonds Initiative

Select Partner Case Studies

Bancolombia

Bond 2.7x oversubscribed, access to 72 new investors

Inmobiliaria Vinte

Bond 1.5x oversubscribed, access to institutional investors, DFIs, etc.

NHMFC
National Home Mortgage Finance Corporation

Issues green bond for secondary mortgage market

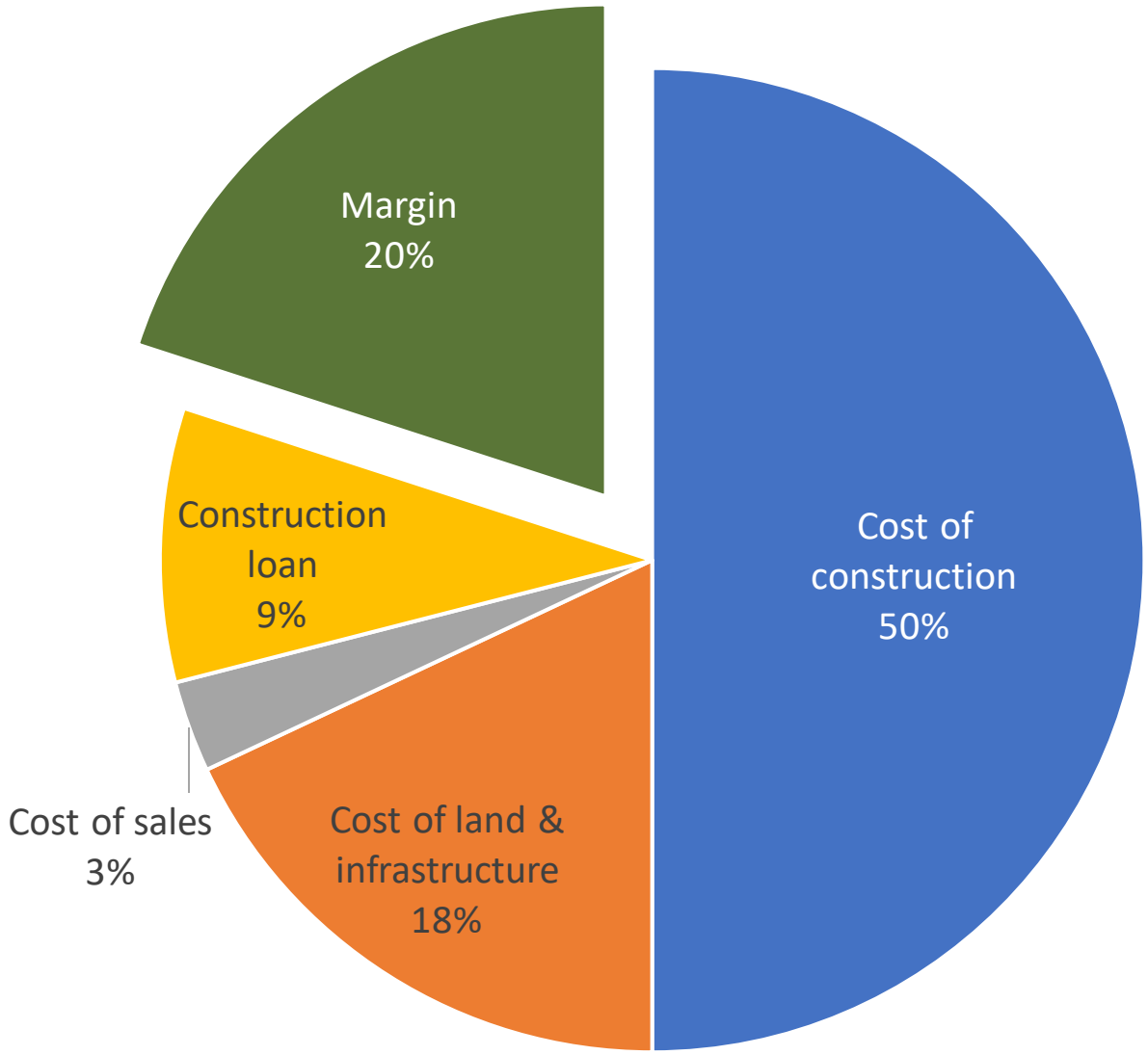
Further resources:

- *Climate Bonds Initiative – Green Bond Pricing*
- *Training: Green Bonds for Green Buildings*

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

HOUSING DEVELOPMENT – PROFIT AND LOSS



Indicative Numbers Only

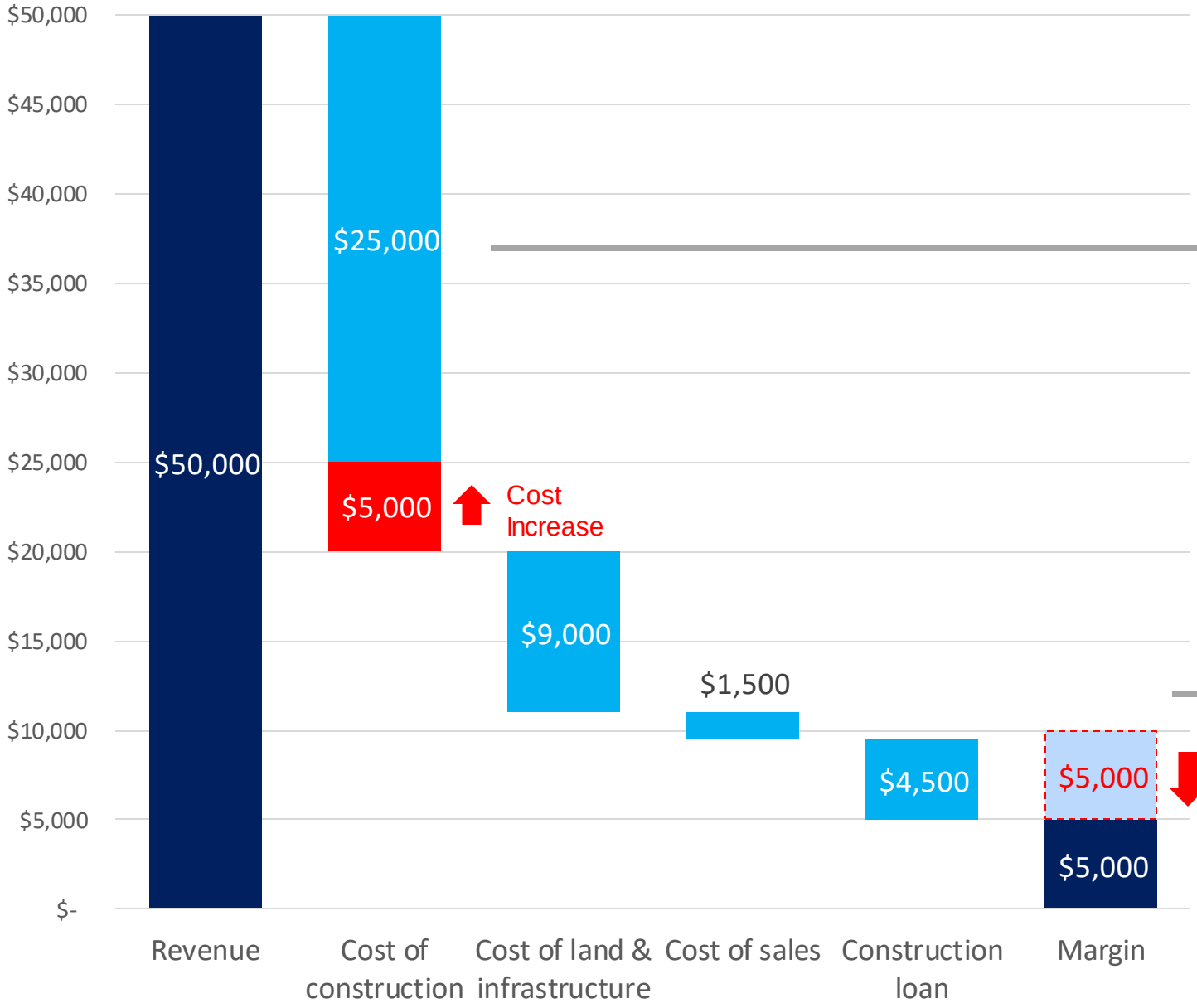
Developer Inputs Assumptions

Cost of land per m2	180
Cost of construction per m2	500
Green additional cost as % of total costs	1%
Sale price per m2	1,000
Construction Loan Interest Rate	10%
Construction Loan Term (years)	3
Marketing costs as % of revenue	3%
Size of unit in m2	50
Number of units	100

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

DEVELOPERS BELIEVE GREEN HOUSING MAKES NO RETURNS

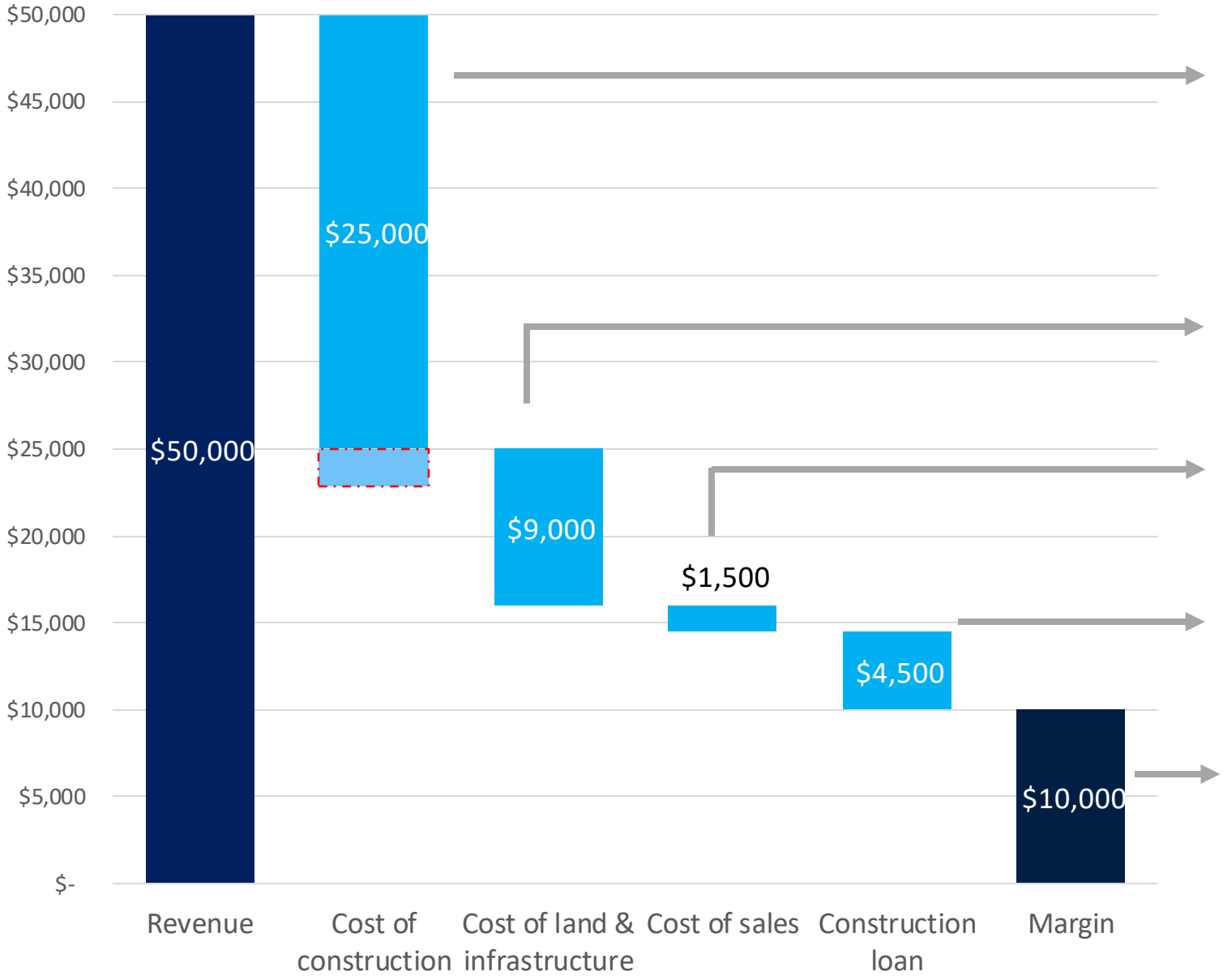


Perception is that green components can mean 10-20% extra in costs …

… negatively impacting the bottom line.

Indicative Numbers Only

BUT GREEN HOUSING CAN RETURN THE INVESTMENT



If a developer **adds green components** to the cost of construction …

… How can **costs be minimized?**

… How can **government incentives** bring down the cost of land?

… How can **differentiated marketing** increase the speed of sales?

… How can **green finance** decrease the cost of capital?

… Making green construction **more profitable** for the developer.

Indicative Numbers Only

2 MINIMIZED INCREMENTAL COST THROUGH EARLY PLANNING

PERCEPTION: ***Very high incremental costs, 20-30% additional***

REALITY: ***Less than 1% of total costs***

IHS South Africa	▪ Less than **1%** of total costs
VINTE Mexico	▪ About **1%** of total costs
CIPUTRA Indonesia	▪ **4.7%** of total costs
CAPITAL HOUSE Vietnam	▪ **1%** of total costs

Further resource: Green Buildings – A Financial and Policy Blueprint for Emerging Markets

International Housing Solutions

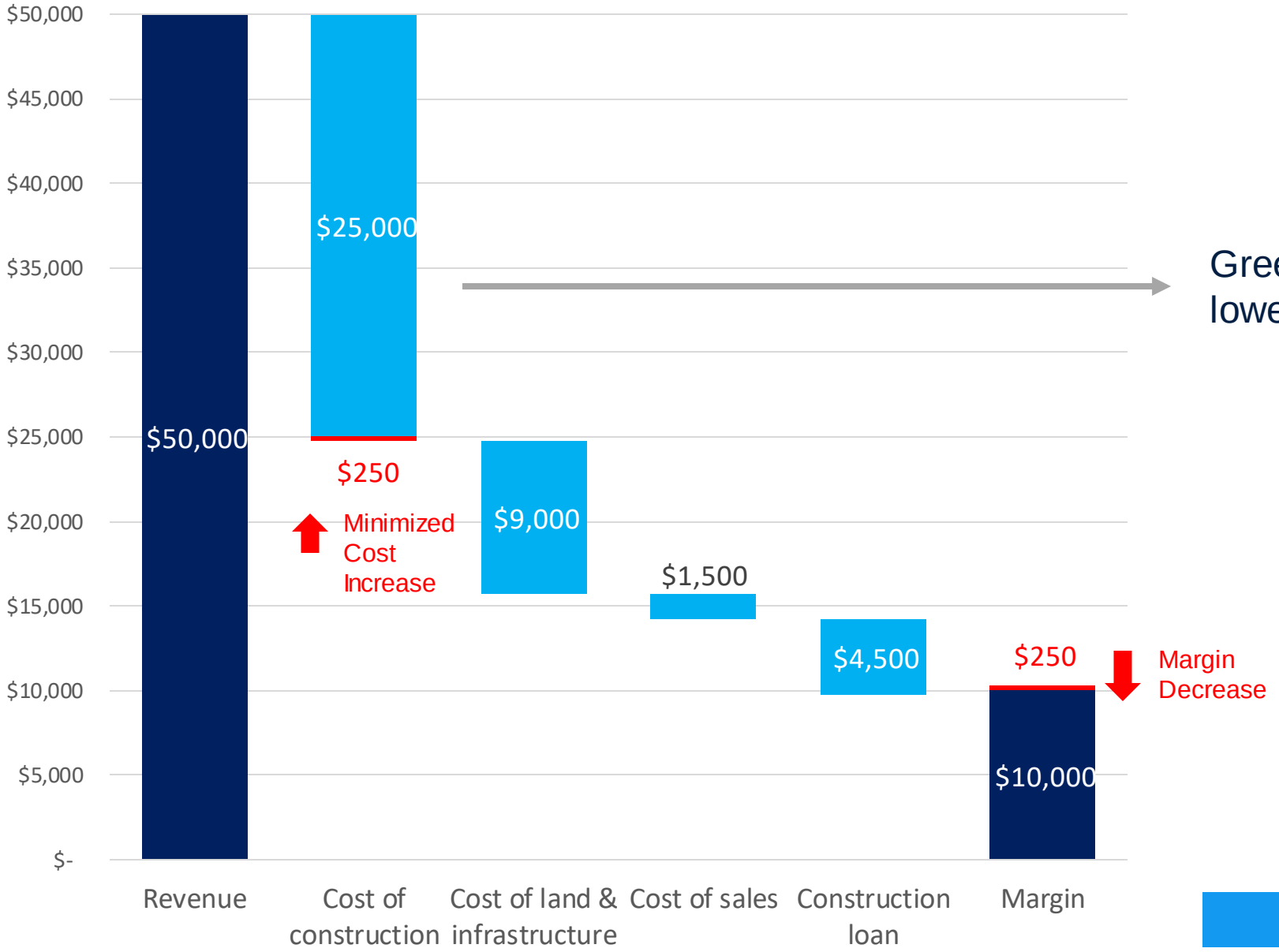
Inmobiliaria Vinte

CIPUTRA

CapitalHouse
KIẾN TẠO CUỘC SỐNG XANH

IFC International Finance Corporation
WORLD BANK GROUP
Creating Markets, Creating Opportunities

MINIMIZE INCREMENTAL COST THROUGH EARLY PLANNING



Green standard can be reached at much lower incremental costs.

Indicative Numbers Only

3 FASTER SALES THROUGH MARKET DIFFERENTIATION

Marketing Differentiation

EDGE marketing toolkit with templates for:

- model apartment showcase
- press coverage
- social media campaign, etc.

Government Incentives

- Lower down payment requirements for green homes.
- Case study of Indonesia: 5% lower loan-to-value ratio.

QUICKER SALES CYCLE

FASTER LOAN REPAYMENT

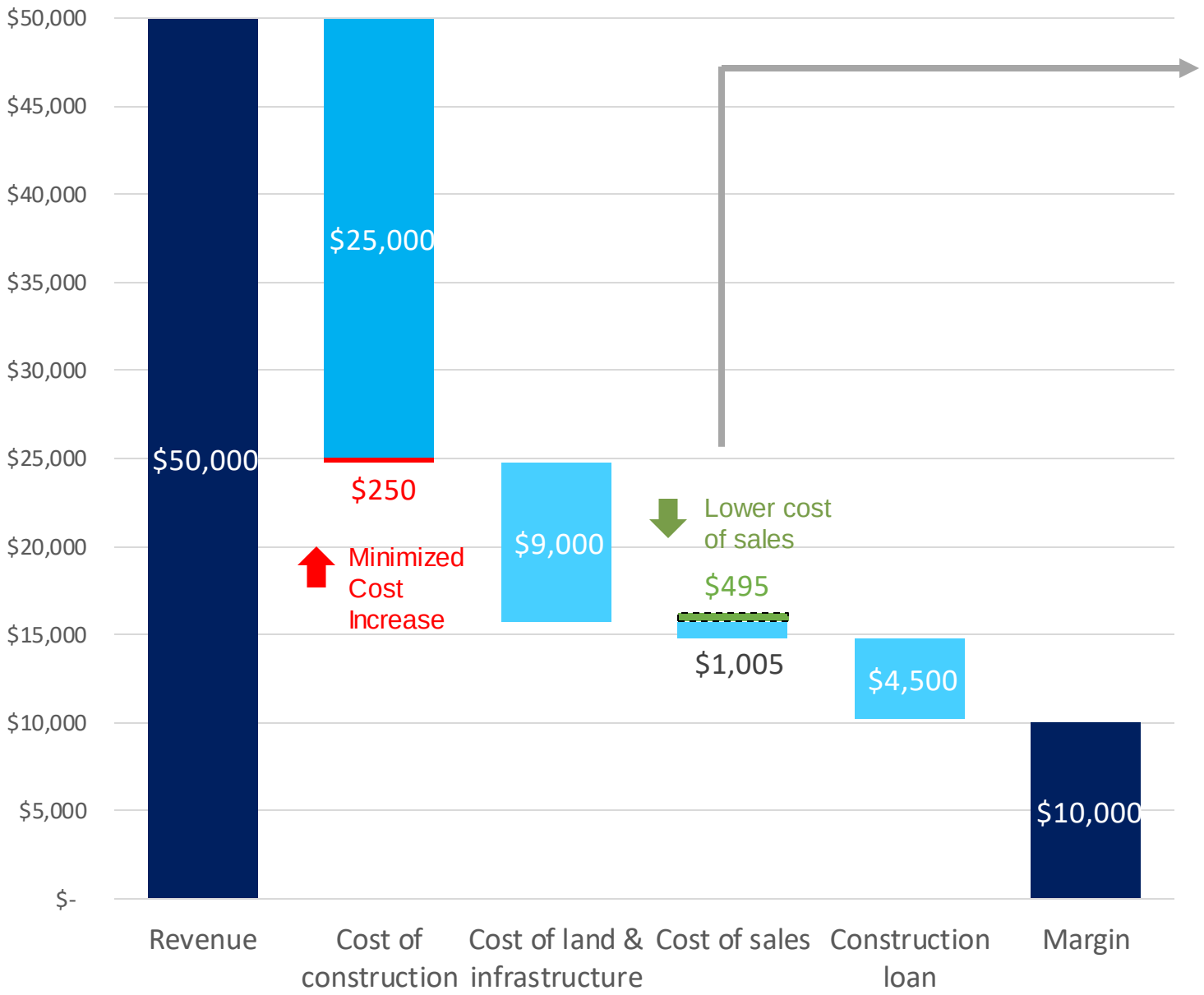
LOWERED COST OF FINANCING

Further resource: EDGE Marketing Toolkit

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

FASTER SALES THROUGH MARKET DIFFERENTIATION



IFC's marketing channels and World Bank brand affiliation can help boost sales and reduce marketing costs.

Indicative Numbers Only

CASE STUDY: REHOBOTH, GHANA

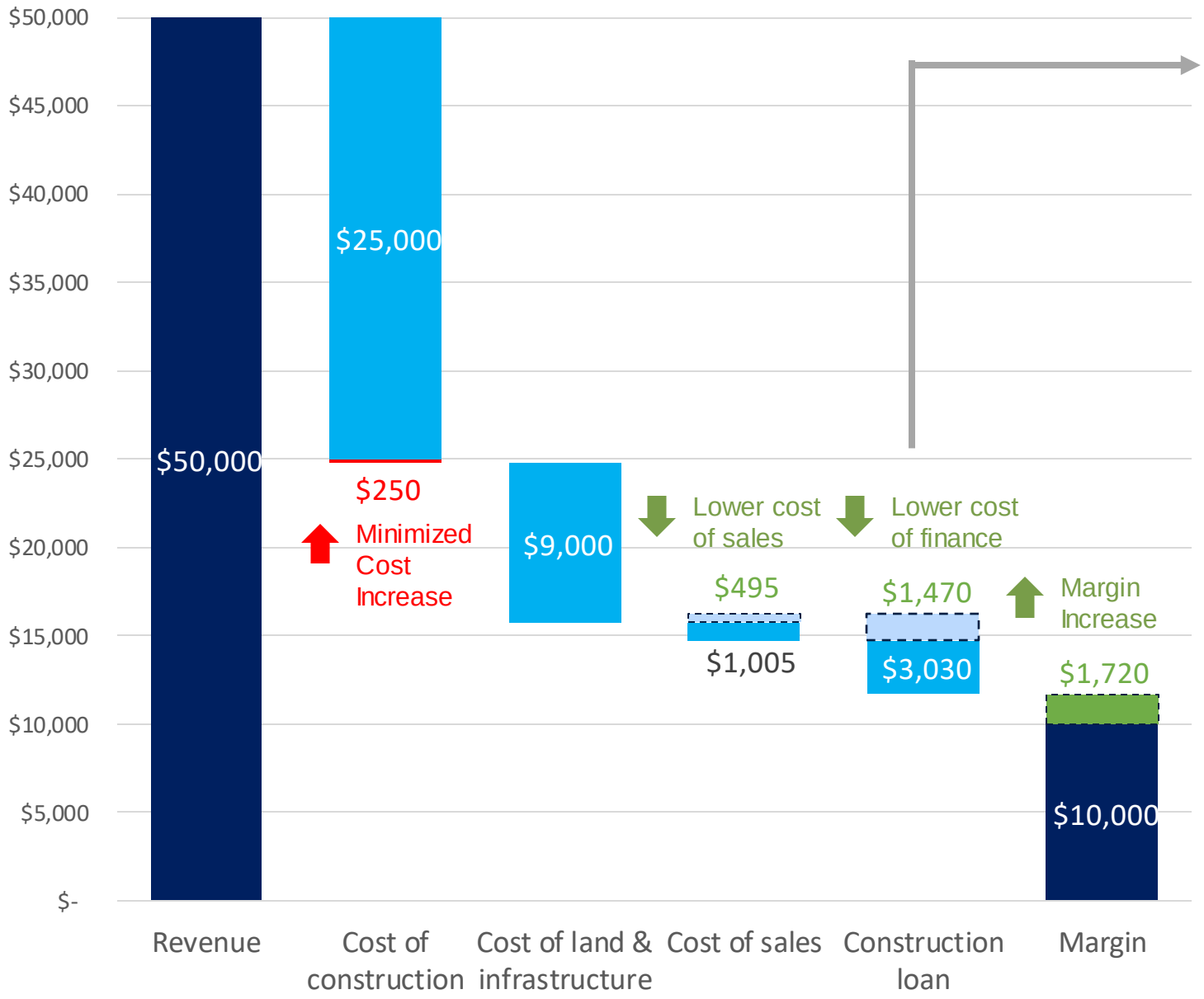
- **1,400** homes certified as green
- **Marketing partnership with IFC**, including on-site billboard, project study, and social media
- CEO believes that "soon green building considerations will rank high on purchases and lettings decisions of prospective buyers. **The future we see is green."**

Energy	Water	Materials
Reduced window to wall ratio; natural ventilation with operable windows and no A/C; ceiling fans in all habitable rooms; energy-saving light bulbs in internal and external spaces.	Low-flow showerheads and faucets for kitchen sinks and washbasins, dual flush for water closets.	In-situ reinforced concrete slabs in floors and roof construction; aluminum sheets on timber rafters in roof construction; medium weight hollow concrete blocks in internal and external walls; UPVC window frames.

Further resource: Rehoboth Case Study

IFC International Finance Corporation
WORLD BANK GROUP
Creating Markets, Creating Opportunities

FASTER SALES LEAD TO LOWERED COST OF CAPITAL



With faster sales, developers can repay their construction loan more quickly, and save on their cost of finance.

CASE STUDIES:

Inmobiliaria Vinte

CapitalHouse
KIẾN TẠO CUỘC SỐNG XANH

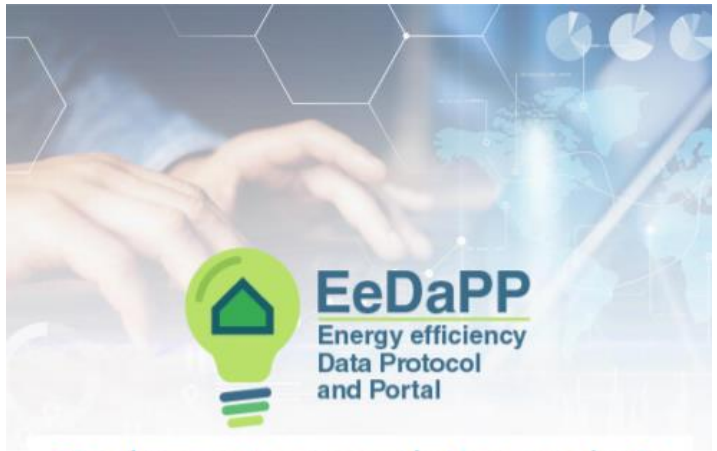
Indicative Numbers Only

5 LOWERED DEFAULT RATES FOR GREEN MORTGAGES

RESEARCH REPORT March 2013

Home Energy Efficiency and Mortgage Risks

Research funded by the Institute for Market Transformation



Final report on correlation analysis between energy efficiency and risk

Default risks on average 32% lower in energy-efficient homes

More efficient homes are at **lower risk** of default

Home owners use **utility savings** toward **mortgage repayment**

Further resources:

- *Home Energy Efficiency and Mortgage Risks*
- *Correlation analysis between energy efficiency and risk*

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

Green Mortgage Scenarios	Base Case: Conventional Home, Conventional Mortgage
Price of conventional home	15,000
Incremental cost of green measures	-
Price of green home	15,000
Down payment (% of price)	20%
Down payment ($)	3,000
Loan amount	12,000
Interest rate	18%
Term (years)	10
Monthly mortgage	216
Monthly utility savings	-
Monthly cost of ownership	216

Green Mortgage Scenarios	Base Case: Conventional Home, Conventional Mortgage	Scenario 1: Green Home, Conventional Mortgage
Price of conventional home	15,000	15,000
Incremental cost of green measures	-	**150**
Price of green home	15,000	15,150
Down payment (% of price)	20%	20%
Down payment ($)	3,000	3,030
Loan amount	12,000	12,120
Interest rate	18%	18%
Term (years)	10	10
Monthly mortgage	216	218
Monthly utility savings	-	**-15**
Monthly cost of ownership	216	203
Change in resident's monthly cost of ownership	-	**-6%**
Change in bank's monthly income	-	**1%**

Price Increase

Mortgage Increase

Lower utility bills

Lower cost of ownership

The larger monthly mortgage is offset by lower utility bills for lower overall monthly cost of ownership.

Green Mortgage Scenarios	Base Case: Conventional Home, Conventional Mortgage	Scenario 1: Green Home, Conventional Mortgage	Scenario 2: Green Home, Developer Absorbs Incremental CapEx	Scenario 3: Green Home, Lower Mortgage Down Payment	Scenario 4: Green Home, Lower Mortgage Interest Rate
Price of conventional home	15,000	15,000	15,000	15,000	15,000
Incremental cost of green measures	-	150	150	150	150
Price of green home	15,000	15,150	**15,000**	15,150	15,150
Down payment (% of price)	20%	20%	20%	**15%**	20%
Down payment ($)	3,000	3,030	3,000	2,273	3,030
Loan amount	12,000	12,120	12,000	12,878	12,120
Interest rate	18%	18%	18%	18%	**17.5%**
Term (years)	10	10	10	10	10
Monthly mortgage	216	218	216	232	214
Monthly utility savings	-	-15	-15	-15	-15
Monthly cost of ownership	216	203	201	216	199
Change in resident's monthly cost of ownership	-	**-6%**	**-7%**	**0%**	**-8%**
Change in bank's monthly income	-	**1%**	**0%**	**7%**	**-0.8%**

INVESTOR-LED INCENTIVES FOR GREEN BUILDINGS

BANCO PICHINCHA

- 0.1% lower interest rate
- 50% of certification costs covered
- Training

BANCO PROMERICA

- 0.5% lower interest rate
- Extended grace period and tenor
- Training

PROCREDIT

- 0.5% lower interest rate
- Technical assistance
- Extended tenor
- Training

ASIA GREEN REAL ESTATE

- In-house technical assistance

INTERNATIONAL HOUSING SOLUTIONS

- Training and technical assistance

REALL

- Preferential finance
- Training, auditing, certification

IFC - MAGC

- Preferential finance
- Training, auditing, certification

GLOBAL CLIMATE PARTNERTSHIP FUND

- Technical assistance
- Auditing

Further resource: [EDGE website for Banks]

PREFERENTIAL FINANCING

TECHNICAL TRAINING

TECHNICAL ASSISTANCE

SUBSIDIZED AUDITING

SUBSIDIZED CERTIFICATION

INVESTOR-LED INCENTIVES FOR GREEN BUILDINGS

Further resource: [EDGE website for Banks]

IFC International Finance Corporation
WORLD BANK GROUP
Creating Markets, Creating Opportunities

6 GOVERNMENT INCENTIVES: NATIONAL GOVERNMENT OPTIONS

REGULATIONS

FINANCIAL SECTOR
Green Taxonomy
Capital Adequacy
Prudential Norms
(Loan to Value / Income Ratios)

ENERGY SECTOR
Net Metering

REAL ESTATE SECTOR
Green Building Codes
Carbon Tax

POLICIES

PUBLIC ADVOCACY

WORKFORCE CAPACITY BUILDING

NATIONAL INCENTIVES
Income / Sales Tax Breaks
Preferential Funding Sources

SUPPORT FOR LOCAL GOVERNMENT

Further resource: [EDGE website for Governments]

IFC International Finance Corporation WORLD BANK GROUP
Creating Markets, Creating Opportunities

GOVERNMENT INCENTIVES: LOCAL GOVERNMENT OPTIONS

FISCAL INCENTIVES

- **TAX BREAKS**
- **GRANTS / SUBSIDIES**
  E.g. to partly cover incremental capex or certification costs
- **PERMIT FEE DISCOUNTS**

NON FISCAL INCENTIVES

- **PUBLIC ADVOCACY**
  Awareness Raising
  Awards
- **REGULATORY FLEXIBILITY**
  Density Bonus
  Height Bonus
  Set-Back Reduction
  Footprint Increase
  Minimum Unit Size Reduction
- **Expediting Permits**
- **Technical Support**

Further resource: [EDGE website for Governments]

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities

GOVERNMENT-LED INCENTIVES FOR GREEN BUILDINGS

ARGENTINA

- Exclusion of VAT (10%)

BRAZIL: SALVADOR

- Points based system for discount on property taxes

COLOMBIA

- Exclusion of VAT (19%) and income tax deduction for technical solutions

GHANA: TAKORADI

- 30% reduction in permit fees

INDIA: PUNE

- 3-7% extra floor ratio for 30-50% efficiency improvement

INDONESIA

- 5% lower loan to value ratio

KENYA

- Tax exemption for green bonds
- Free land for social housing

PERU: SEVERAL MUNICIPALITIES

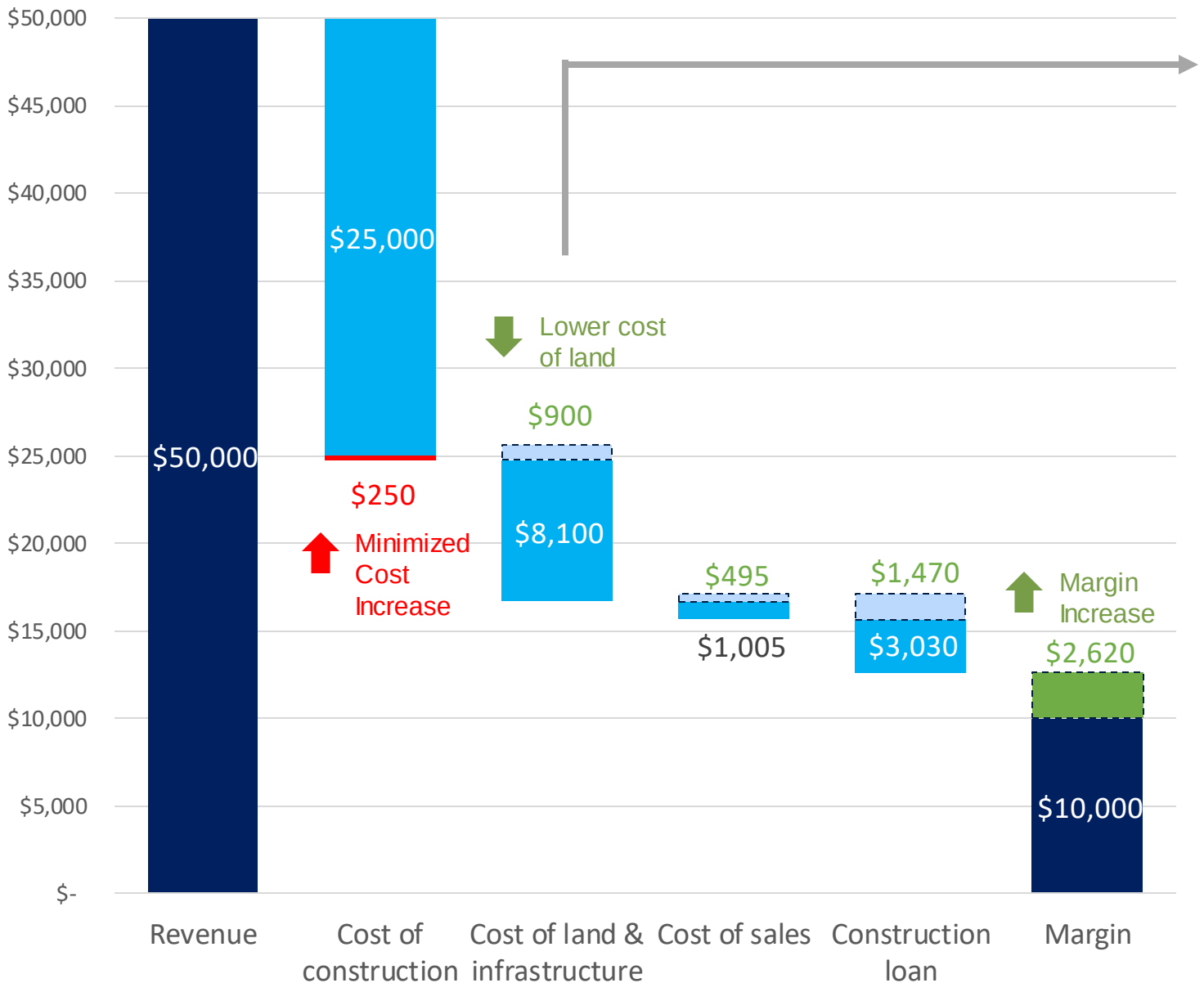
- Height bonus or extra floor ratio

Further resource: [EDGE website for Governments]

FISCAL INCENTIVE

NON-FISCAL INCENTIVE

GOVERNMENT INCENTIVES BRING DOWN COSTS



Governments can provide incentives, including non-fiscal ones such as bonus density, in order to bring down the cost of construction.

CASE STUDIES:

Indicative Numbers Only

CASE STUDY: KENYA

KENYA GREEN BUILDING SOCIETY
Build Green Save Kenya

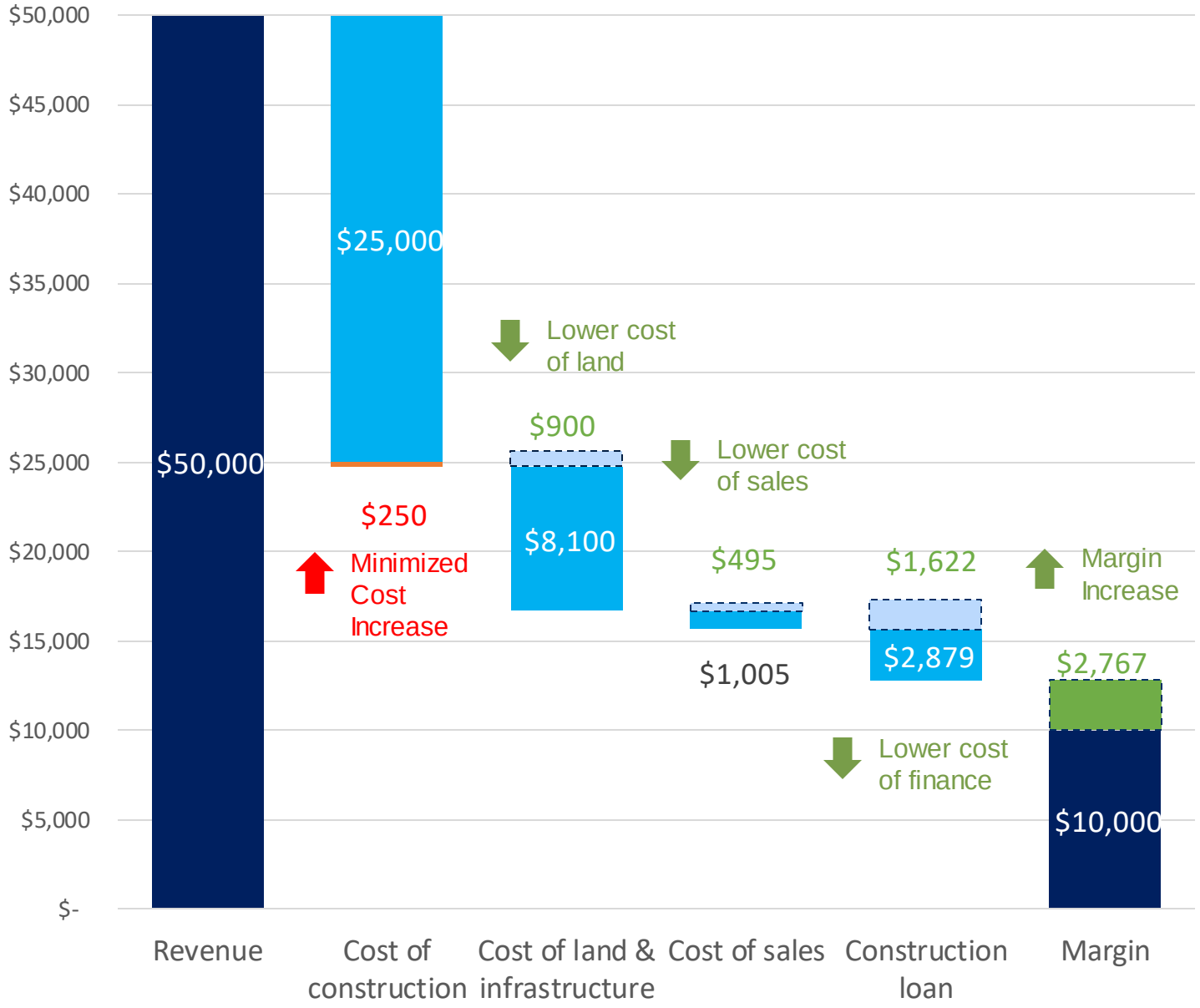
MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING & URBAN DEVELOPMENT.
State Department for Housing and Urban Development.

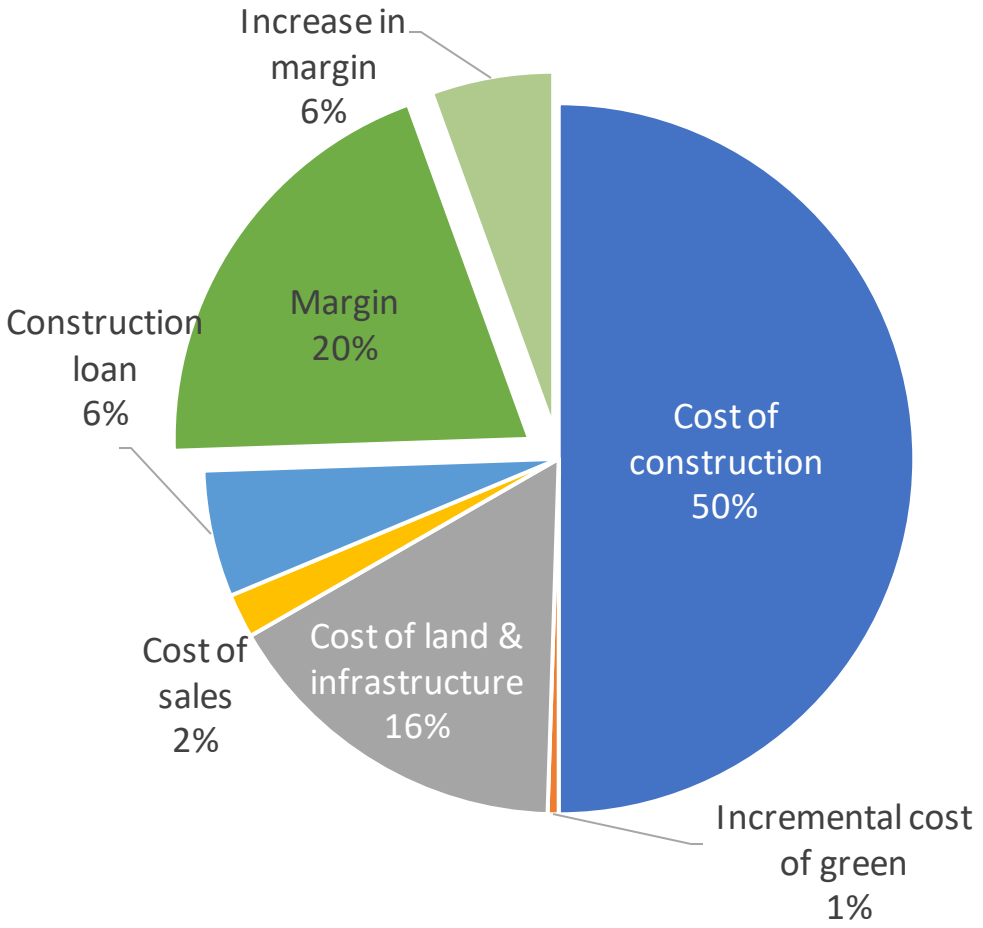
- **Public-private partnership model** for procurement of socialized housing
- Government is providing **free land** to developers of green and affordable housing
- Collaboration between Kenya Green Building Society and Department of Housing and Urban Development

Further resource: EDGE Standard Provides Key Benefit for Kenya's Affordable Housing Developers

IFC International Finance Corporation
WORLD BANK GROUP
Creating Markets, Creating Opportunities

INVESTING IN GREEN HOMES BRINGS MULTIPLE RETURNS





Indicative Numbers Only

GLOBAL RESULTS (as of June 2023)

Focus Countries	Residential Space in the Affordable Housing Segment Certified by EDGE (million m²)	Number of Units in the Affordable Housing Segment Certified by EDGE	All Residential Floor Space Certified by EDGE (million m²)	All Residential Units Certified by EDGE
Colombia 	7.24	116,200	11.64	16,000
Indonesia 	0.41	8,500	0.82	13,000
Mexico 	1.36	17,500	2.36	27,500
Peru 	0.20	2,500	1.56	15,000
Philippines 	0.22	3,000	0.25	4,000
South Africa 	0.65	11,000	3.61	48,000
Vietnam 	1.86	18,000	2.53	22,500
Other Countries	2.88	33,300	6.40	224,000
Global Total	**14.81**	**210,000**	**29.17**	**370,000**

Numbers as of February 2021. Further resource: [EDGE website]

IFC HAS FREE TOOLS TO HELP PROJECTS

GREEN BUILDINGS

Excellence In Design For Greater Efficiencies

Edge

https://edgebuildings.com/

RESILIENCE

Building Resilience Index

https://www.resilienceindex.org/homepage

GREEN CITIES

Apex

Advanced Practices for Environmental Excellence in Cities

https://www.apexcities.com/

IFC International Finance Corporation WORLD BANK GROUP

Creating Markets, Creating Opportunities