

THE OPEN ACCESS INITIATIVE

HOUSING DEVELOPMENT COST BENCHMARKING IN KENYA



HOUSING DEVELOPMENT COST BENCHMARKING - KENYA

Housing Development Cost Benchmarking (HDCB) as conducted by the Centre for Affordable Housing Finance in Africa (CAHF) is an analytic tool which unpacks the typical, total development cost of various types of affordable housing products in detail. This analysis can improve stakeholders' awareness and understanding of real development cost and the critical cost drivers in the affordable housing development process. This understanding enables them to explore strategies and actions to mitigate (or leverage) the effects of these in favour of enhancing affordability.

1	INTRODUCTION AND BACKGROUND	3
1.1	WHAT IS HOUSING DEVELOPMENT COST BENCHMARKING AND WHY IS IT DONE?	3
1.2	BRIEF OUTLINE OF METHODOLOGY	5
1.3	DATA PROCESSING AND ANALYSIS	5
2	SUMMARY: OVERALL RESULTS FROM THE 2022 HDCB ANALYSIS	7
2.1	INTRODUCTION	7
2.2	SUMMARY RESULTS: ANALYSIS OF ALL THREE TYPOLOGIES BENCHMARKED.	8
2.3	COMPARING HOUSING DEVELOPMENT COST BENCHMARK OUTPUTS WITH MARKET DATA	13
3	SUMMARY OF MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND WORK AHEAD.....	17

The Open Access Initiative (OAI) aims to address information asymmetries in Africa's affordable housing market by harnessing the collective experiences and learnings produced by investors and developers through their investments in affordable housing. This report was written by Jacus Pienaar. For more information visit <https://housingfinanceafrica.org/projects/open-access-initiative/> or contact Allan Mutuma on allan@housingfinanceafrica.org

1 INTRODUCTION AND BACKGROUND

1.1 What is housing Development cost benchmarking and why is it done?

In a Professional Guidance Note¹, the Royal Institute of Chartered Surveyors (RICS) in the United Kingdom defines benchmarking generally as “...a systematic method of comparing the performance of your organisation against others, then using lessons from the best to make targeted improvements.” It lists the key steps in the process as:

- Data collection.
- Data comparison.
- Data analysis; and
- Action.

Housing Development cost benchmarking (HDCB) as conducted by the Centre for Affordable Housing Finance in Africa (CAHF) is an analytic tool, following broadly the above process steps. The tool unpacks the typical total development cost of various types of affordable housing products in great detail. This analysis can improve stakeholders’ awareness and understanding of real development cost and the critical cost drivers in the affordable housing development process and enables them to explore strategies and actions to mitigate (or leverage) the effects of these in favour of enhancing affordability.

The price of a completed product to the end user in the marketplace often obscures historic sunk costs and other hidden subsidies in cash or kind. This makes it difficult for governments and public agencies when they need to budget for housing programmes and when they need to assess the replicability and sustainability of housing projects. It also makes it difficult for investors who would like to invest in real estate but are not aware of what the hidden costs or subsidies are and can therefore, not develop a well-informed business case. These are difficult to quantify as little if any data is available, but the HDCB work attempts to raise awareness of these implicit, often ‘hidden’ costs, regardless of who pays, or paid at some time in the past.²

The intention of the HDCB studies carried out by CAHF in Kenya, is to further the understanding of how the delivery value chain impacts the affordable housing market in Kenya, and how this – in turn – impacts the Kenyan economy and its growth prospects. This understanding allows for the development of strategies that can be implemented to stimulate the housing sector in Kenya and assists in identifying potential areas of investment that can either fill existing gaps within the value chain or assist in reducing the costs of building materials and supporting services in ways that make housing affordable to a larger section of the Kenyan population.

¹ Royal Institute of Chartered Surveyors (RICS). (2013) Construction Cost Analysis & Benchmarking, Guidance Note, Global, 1st Edition. Pg.13

² CAHF has used the HDCB as input to its Housing Economic Value Chain (HEVC) studies conducted in several African countries. The various costs are assigned to a range of standard economic sectors, providing an alternative way of estimating the impact of affordable housing development on the economy. We refer to this as the “bottom-up” approach that is useful where we don’t have good national data. An HEVC study for Kenya was done in 2018/19, in partnership with the World Bank – see <http://housingfinanceafrica.org/documents/assessing-kenyas-affordable-housing-market/>. The analysis covered in this report benchmarks the housing construction costs as they existed in 2022.

Development cost benchmarking unpacks total development cost of various types of affordable housing products in detail under the following main headings:

1. **Land costs** – acquisition through purchase or leasehold and associated statutory and professional transaction costs and fees involved in securing rights to the land (titling).
2. **Infrastructure costs** - External infrastructure: costs of obtaining access to bulk or trunk external infrastructural services provided by local and other authorities and agencies, where available and with sufficient capacity to service the new development. This may take the form of development contributions paid to a public agency and/or upgrades to existing infrastructure charged to the project. Internal infrastructure: It also includes design, installation, and approval of internal reticulation services on the development land.
3. **Compliances and approvals** – Land conversion phase: Statutory and professional costs and fees involved in obtaining environmental approvals (NEMA EIA licence) and change of land use rights to develop the land for the intended purpose. Construction and pre-occupation phase also include building design in accordance with relevant building codes and standards, obtaining building plan approvals, construction permits and registration with construction regulatory bodies.
4. **Construction** of the housing top structures (buildings) and associated site works and services.
5. **Other development costs** - All other associated capitalised costs incurred during the development phase and up to off-take through sale or occupation by tenants, including land holding costs such as interim property rates and taxes, providing security, capitalised initial promotion, marketing and selling costs and fees, the cost of raising, securing, and drawing down on construction/development finance; and
6. A category for estimating **selling prices** has been added with recovery by the developer of overall development facilitation and management fees and costs, developer margin, and applicable taxes.

HDCB in Kenya was first undertaken in 2018. Benchmarking was done on a number of housing typologies, including standalone single-storey dwellings and apartments in low and medium-rise tower blocks, some of the products that existed at that time in the market, against a fictional, so-called “standard CAHF House” which is tested in all of the countries in which CAHF has undertaken the HDCB.³

Following further research undertaken before, during and immediately after a field visit to Nairobi in September 2022, this new edition of the Kenya HDCB was prepared, using data valid for quarter three of 2022. Given the pervasive apartment block style of development in Kenya, two-bedroom apartment-style products were costed in addition to the detached bungalow style CAHF house. These are considered to provide a representative cross-section of typical affordable urban housing typologies for meaningful analysis.

³ The “standard CAHF house” has been developed as a sort of a “Big Mac” comparator, modelled on a basic formal standalone dwelling. This ‘standard’ is in no way a comment on what should be available but is rather an effort to create a consistency in size, shape, and construction approach, for comparison purposes across countries. In this, it is indicative – a contribution to enable conversation – rather than representative. The additional analyses of locally specific products are then representative of what actually exists in the market. See <https://housingfinanceafrica.org/projects/housing-and-the-economy/>

1.2 Brief Outline of Methodology

1.2.1 Data Collection

Data was collected from as wide as possible a range of sources, including, but not limited to:

- Desk-top survey of websites of developers, contractors, materials suppliers, professional consultants, public and private institutes, and agencies.
- Desk-top survey of news and journal articles, project brochures and documentation, academic studies, reports by institutions such as the World Bank, Habitat for Humanity, results of cost surveys conducted by local property and construction groups, etc.
- Project data provided by participants in the FSD-K/CAHF Open Access (OAI) data sharing initiative,
- Insights provided by CAHF staff with development experience in Kenya.
- Interviews and a workshop with professionals, developers, contractors, government officials during the September 2022 field visit; and
- Site visits to affordable housing projects.

1.3 Data Processing and Analysis

CAHF developed a very detailed template (Excel Workbook) providing for data input, workings (throughput) and calculated results (output) for all the cost categories that make up total project development cost outlined in 1.1 above. The data input process is briefly as follows:

For the pre-construction activities of securing land, complying with statutory requirements in obtaining development rights, and land servicing:

- Select and insert appropriate estimated raw un-serviced land prices for the different typologies, including associated transaction costs.
- Estimate and insert the costs of applicable compliances and approvals including fees and disbursements for professionals involved in this stage of the process (architects, engineers, environmental experts, town planners, surveyors, valuers, notaries and other legal, etc.); and
- Estimate and insert the costs of providing infrastructure to the developments (land servicing).

For housing top structure construction cost:

- First step quantification - measured detailed Bills of Quantities (BoQ)-style items with quantities of all items of work for each typology.
- Second step quantification – breakdown of measured items of work into their constituent labour and materials quantities at the level of the individual resource, for instance task hours of unskilled, semi-skilled and skilled labour, number of masonry bricks or blocks, bags of cement, etc.
- The cost of each resource was then estimated by applying a unit rate to the measured quantity, for instance three hours of unskilled labour to perform a particular task multiplied by the all-in cost per hour of such labour, or a hundred 50kg bags of cement in foundations multiplied by the delivered cost per bag.
- After calculating the net cost of labour and materials, allowances were made for contractor preliminaries (site establishment, plant, security, insurances, site management, etc.) and contractor mark-up comprising overhead cost contribution expected from the project and gross profit margin.
- Allowances were then made for cost inflation up to anticipated completion in order to reflect the final completed total construction cost; and
- Professional fees and disbursements attributable to the construction supervision and management stage (architects, engineers, project managers and the like).

For other development costs:

- Construction finance costs - raising and securing (underwriting, commitment fees, registering collateral security, etc.), and using (capitalised interest on drawdowns/loss of interest on equity); and
- Land holding costs during development period – capitalised interim property rates, security, keeping site free of overgrowth and refuse).

The above all added together then amounts to total development cost (TDC) for each typology.

Estimating selling prices for market comparison, the following are added to the total development cost (TDC):

- Capitalised overhead and development management fees, developer margin and recovery of cost of sales (initial marketing, broker/agent fees); and
- Value added/sales taxes.

All of the above are presented in tabular form, reflecting:

- Total cost of the hypothetical development in local currency (KSh).
- Cost per dwelling unit in local currency (KSh) and US Dollar (US\$)
- Cost per m2 of net sales area in local KSh and US\$
- Cost of both un-serviced and serviced land (land, infrastructure, compliances) in KSh per acre
- Each element and sub-element as a percentage of total selling price

1.3.1 Validation of Results

To get a sense of the validity of benchmark results arrived at by building up totals from the bottom up, these are then in each case compared to figures for similar types of development published in surveys and reports by recognised industry groups in Kenya, and also where available, to cost estimates and cost reports obtained from developers in the field, some of whom are participants in CAHF's Open Access Initiative (OAI).⁴

⁴ The Open Access Initiative (OAI) aims to address these information asymmetries in the housing market by harnessing the collective experiences and learnings produced by investors through their investments in affordable housing. <https://housingfinanceafrica.org/projects/open-access-initiative/>

2 SUMMARY: OVERALL RESULTS FROM THE 2022 HDCB ANALYSIS

2.1 Introduction

For the 2022 benchmarking exercise updated cost and other relevant information was collected before, during and immediately after the September 2022 field visit to Nairobi by CAHF staff. This data was collated, processed, analysed, and are presented here under the following main categories as outlined in more detail in 1.1 above:

- Land - Land acquisition and associated statutory and professional transaction costs and fees.
- Infrastructure – external bulk/trunk and internal reticulation services.
- Compliances and approvals – statutory and associated professional charges, fees, and costs.
- Housing construction – top structures and associated site works and services and professional and project management fees.
- Other development costs – land holding costs, Initial promotion and selling/letting costs, construction finance costs,
- Estimated selling prices – developer recovery of overall development facilitation and management costs, margins and taxes, and cost of sales.

The following typologies were benchmarked:

1. **NAIROBI: 55m² Generic house** - 46m² two-bedroom, one bathroom house with 9m² covered veranda, a total floor area of 55m², in a hypothetical 20-unit development on typical 1/8th acre (approximately 506m²) individual plots; undertaken by a small-scale local contractor *cum* developer.
2. **NAIROBI: 240 two-bedroom** - one-bathroom apartments with Gross Lettable Area (GLA) 40m², and Net Sales Area of 44m² per unit in two five-storey walk-up blocks, on 1.5acre (6 070m²) plot, undertaken by a medium-sized commercial developer; and
3. **NAIROBI: 240 two-bedroom** - one-bathroom apartments with Gross Lettable Area (GLA) of 40m², and Net Sales Area of 44m² per unit in two ten-storey blocks with lifts, on 1.2acre (4 856m²) plot, undertaken by a medium-sized commercial developer.

For the apartment blocks a schematic floor layout of units arranged around a central courtyard was used. It is recognised that this may not be the most economical layout possible. For instance, a layout with unit on either side of a double-loaded corridor is probably more efficient, but it presents problems with direct access to natural light and ventilation for all bedrooms and living areas where all units are two-bedroom apartments.

Data sources, and how the data was applied in the costings, are set out in more detail in each of the typology analyses in the sections below.

Note: For all conversions from Kenya Shillings (KSh) to United States Dollar (US\$) below, the Central bank of Kenya rate of KSh121.9294 to one US\$ as of 16 November 2022 was used.⁵ At the time of the original 2018 study, the conversion rate was KSh100.800 to one US\$. The local currency over this time has therefore depreciated against the US Dollar by around 20%.

⁵ <https://www.centralbank.go.ke/rates/forex-exchange-rates/> (Accessed 16 November 2022)

2.2 Summary results: Analysis of all three typologies benchmarked.

Broad development parameters for each typology benchmarked are summarized in Table 1 below.

Table 1: Broad development parameters for each typology benchmarked.

ASPECT	55m ² CAHF HOUSE	LOW-RISE APARTMENTS	HIGH-RISE APARTMENTS
Dwelling unit	Two-bedroom, one-bathroom standalone single storey house of 46m ² with 9m ² veranda = total net sales area of 55m ² per unit	Two-bedroom, one-bathroom apartment of 40m ² internal area and 44m ² net sales area	Two-bedroom, one-bathroom apartment of 40m ² internal area and 44m ² net sales area
Hypothetical development configuration	20 Units, each on a 1/8 th acre (approximately 506m ²) plot arranged on either side of an internal access road, developed by a small-scale local contractor <i>cum</i> developer	240 Units in two five-storey blocks, developed by a medium-sized commercial developer	240 Units in two ten-storey tower blocks, developed by a medium-sized commercial developer
Net internal use area Or gross lettable area (GLA) – total and per unit	935m ² (46,75m ² per unit)	9 600m ² (40m ² per unit)	9 600m ² (40m ² per unit)
Gross construction area (GCA) – total and per unit	1 100m ² (55m ² per unit)	11 520m ² (48m ² per unit)	11 808m ² (49,2m ² per unit). Slightly larger than the low-rise block due to higher ratio of circulation space e.g., lift lobbies, etc.)
Design efficiency factor (internal use area to GCA)	85%	83,3%	81,3%
Total net sales area – total and per unit	1 100m ² (55m ² per unit)	10 560m ² (44m ² per unit)	10 560m ² (44m ² per unit)
Total gross development land area inclusive of access road where applicable	2.5 acres. 1.0117 hectares	1.5 acres. 0.607 hectares	1.2 acres. 0.4856 hectares
Residential density	8 Dwelling units per acre. 19.76 Dwelling units per hectare	160 Dwelling units per acre. 395 Dwelling units per hectare	200 Dwelling units per acre. 494 Dwelling units per hectare
Water supply	Borehole and storage tank on each plot	Borehole and storage tanks	Borehole and storage tanks
Sanitation (sewage disposal)	Septic tank and soakaway drain on each plot	Septic tank and soakaway drain	Septic tank and soakaway drain
Electricity supply	Connection to grid for each plot	Connection to grid with transformer on site	Connection to grid with transformer on site

Source: CAHF (2022). Own research. Data collected in June 2022.

Table 2 below shows a high-level summary of 2022 third quarter costs in Kenya Shillings (KSh) and United States Dollar (US\$) for the three typologies benchmarked:

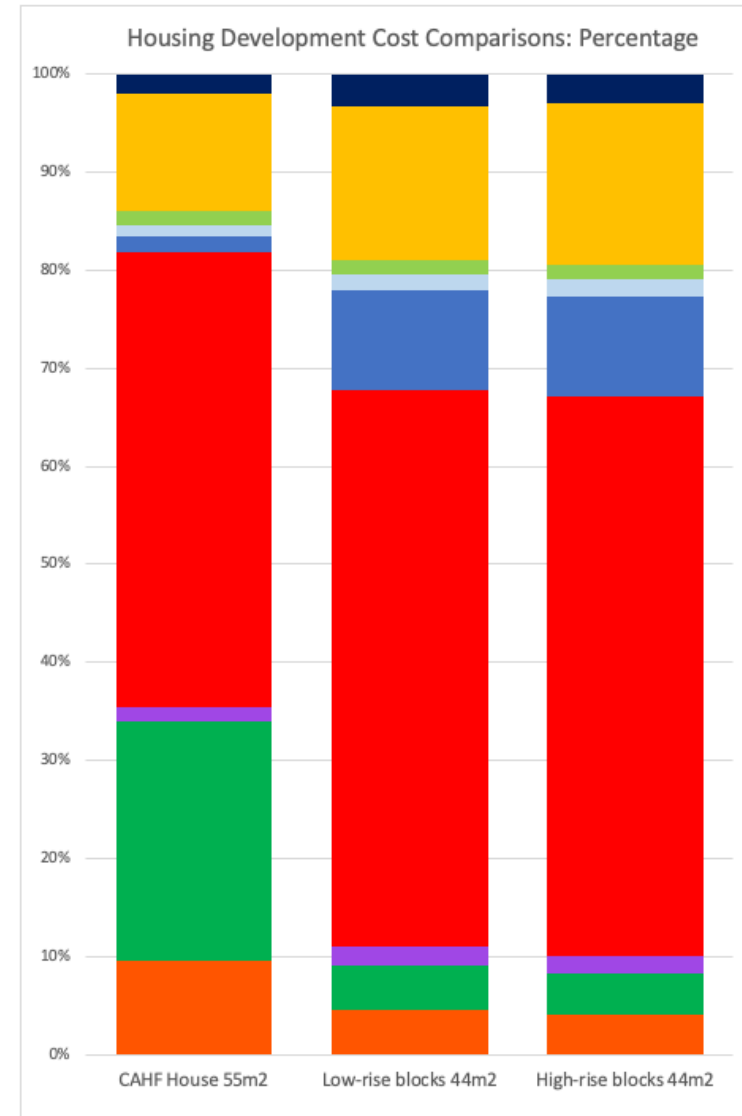
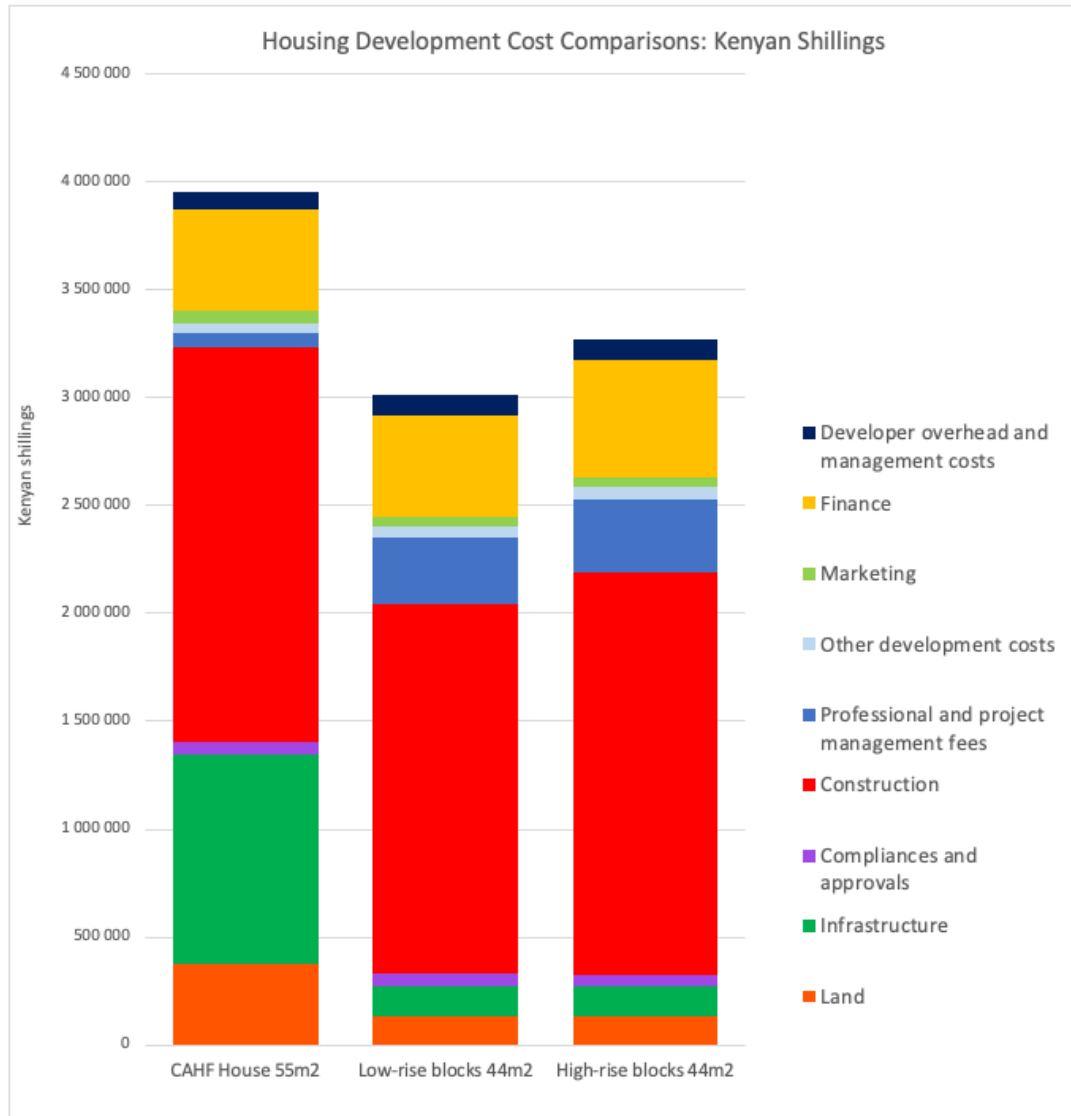
Table 2: High-level summary of development costs – all three typologies benchmarked. Figures are in KSh unless otherwise stated

COST ELEMENTS Description	55m ² CAHF HOUSE			LOW-RISE APARTMENTS			HIGH-RISE APARTMENTS		
	Per dwelling unit	Per m ² of net sales area per unit (55m ²)	% of total cost	Per dwelling unit	Per m ² of net sales area per unit (44m ²)	% of total cost	Per dwelling unit	Per m ² of net sales area per unit (44m ²)	% of total cost
Land	378 575	6 883	9,57%	135 226	3 073	4,48%	130 617	2 969	3,99%
Infrastructure	966 150	17 566	24,43%	139 228	3 164	4,62%	140 461	3 192	4,30%
Compliances and approvals	57 750	1 050	1,46%	56 514	1 284	1,87%	56 514	1 284	1,73%
Construction	1 833 013	33 328	46,36%	1 711 501	38 898	56,76%	1 866 445	42 419	57,08%
Professional and project management fees	64 155	1 166	1,62%	308 070	7 002	10,22%	335 960	7 635	10,27%
Other development costs	43 161	785	1,09%	51 345	1 167	1,70%	55 993	1 273	1,71%
Marketing	58 102	1 056	1,47%	43 175	981	1,43%	46 936	1 067	1,44%
Finance	475 691	8 649	12,03%	469 686	10 675	15,58%	543 058	12 342	16,61%
Developer overhead and management costs	77 470	1 409	1,96%	100 742	2 290	3,34%	93 871	2 133	2,87%
Total development costs	KSh3 954 067	KSh71 892	100,00%	KSh 3 015 486	KSh 68 534	100,00%	KSh 3 269 856	KSh 74 314	100,00%
In United States Dollar	US\$32 429	US\$590		US \$24 731	US\$ 562		US\$ 26 818	US\$ 609	

Source: CAHF (2022) Own Research. Data collected in July 2023

The figures in Table 2 above can also be graphically presented in the form of a bar chart similar to those used in other HDCB/HEVC studies carried out by CAHF.⁶ The bar chart vertically stacks the cost of each element making up the total for each typology in a different color, making comparison visually easy to read. The bars are shown in both KSh and US\$, facilitating possible future benchmark comparisons with other cities and regions within Kenya, or even with other countries.

⁶ See <https://housingfinanceafrica.org/projects/housing-and-the-economy/>



Source: CAHF (2022). Own research. Data collected in June 2022

Table 3: Summary of benchmark selling prices for the three typologies benchmarked.

	CAHF House - 55 SQM			Low-rise blocks 44 SQM			High-rise blocks 44 SQM		
	Per unit	Per m2	%	Per unit	Per m2	%	Per unit	Per m2	%
Land	378 575	6 883	9.57%	135 226	3 073	4.48%	130 617	2 969	3.99%
Infrastructure	966 150	17 566	24.43%	139 228	3 164	4.62%	140 461	3 192	4.30%
Compliances and approvals	57 750	1 050	1.46%	56 514	1 284	1.87%	56 514	4 254	1.73%
Construction	1 833 013	33 328	46.36%	1 711 501	38 898	56.76%	1 866 445	42 419	57.08%
Professional and project management fees	64 155	1 166	1.62%	308 070	7 002	10.22%	335 960	7 635	10.27%
Other development costs	43 161	785	1.09%	51 345	1 167	1.70%	55 993	1 273	1.71%
Marketing	58 102	1 056	1.47%	43 175	981	1.43%	46 936	1 067	1.44%
Finance	475 691	8 649	12.03%	469 686	10 675	15.58%	543 058	12 342	16.61%
Developer overhead and management costs	77 470	1 409	1.96%	100 742	2 290	3.34%	93 871	2 133	2.87%
Total development cost	3 954 067	71 892	100.00%	3 015 486	68 534	100.00%	3 269 856	77 284	100.00%

Source: CAHF (2022) Own Research. Data collected in July 2023.

Results for benchmark selling prices for the three typologies are summarized in Table 4 below.

Table 4: Brief explanation of the differences in costs per element between the three types as observed above:

COST BUCKET	DIFFERENCES – COST PER UNIT, PER m ² AND AS % OF TOTAL COST	EXPLANATIONS
Land	Highest for CAHF House, decreasing as height (density) increases	Each CAHF house on its own 1/8 th acre plot. Even though the land price per acre is higher for the apartment blocks, this is more than offset by the much smaller land parcels needed for the blocks
Infrastructure	Highest for CAHF House, decreasing as height (density) increases	Each CAHF house has its own electrical connection, and on-site borehole and septic tank. The apartment blocks have one set of shared installations per site and even though the capacity is larger than for the CAHF house, the cost does not increase proportionately
Compliances and approvals	Small differences. The apartment blocks are slightly higher than the CAHF house	For instance: Statutory costs such as building plan approval fees are based on percentages of deemed construction costs, and these are higher for multi-storey buildings
Construction	The CAHF house is highest per unit. simply due to larger size. The costs per m ² of apartments are higher and increases with height	The CAHF house is highest per unit simply due to larger size. The costs per m ² of apartments are higher and increases with height due to more complex structures and vertical transportation of labour and materials the higher it goes.
Professional and project management fees	These are significantly higher for the apartment blocks.	Architect's design fees for the CAHF house are lower than for the blocks due to a reduction for repetitive use of the same design for all 20 houses in the case study. Structural engineer fees (framed structures) and electrical and mechanical engineer fees (more expensive electrical installations, lifts, etc.) are also higher in the case of the apartment blocks
Other development costs	Small differences. The apartment blocks are slightly higher than the CAHF house	Land holding costs higher for the blocks due to longer development periods
Marketing	Highest per unit for CAHF house; square metre rates very similar	Higher value of CAHF house due to larger size of buildings and land, and more expensive infrastructure
Finance	Higher square metre rates for apartments	Due to more interest on drawdowns because of longer development periods
Developer overhead and management costs	Higher square metre rates for apartments	In the case of the CAHF house the developer and contractor was assumed to be one entity, and overheads are accounted for as contractor overheads under construction cost
Total development costs	CAHF house is highest, followed by high-rise and then low-rise the lowest	Higher value of CAHF house due to larger size of buildings and land, and more expensive infrastructure

2.3 Comparing Housing Development Cost Benchmark Outputs with Market Data

2.3.1 Comparing Benchmark Costs with Market Prices from selected sources

Advertised price ranges based on a survey of properties for sale by agents and realtors operating in the lower mid-end parts of suburbs and satellite towns such as Syokimau, Kipande, Pipeline (Embakasi), Ngara, Pangani, South B, South C, Imara Daima, Dagoretti, Kileleshwa, Langata, Kitengela, Kangundo Road, and Ngong, are shown in Table 5 below.

The agent websites surveyed include those of EstateKe⁷, Kenyans⁸, Optiven⁹, Premieragent¹⁰, Jumia Deals – Houses for sale¹¹, Jumia Deals – Apartments for sale¹², Buyrentkenya.com¹³, Property 24¹⁴, Kenyapropertycentre.com¹⁵, KnightFrank¹⁶, and PropertyPro¹⁷.

Table 5: Check of HDCB prices against market prices from selected sources

55m ² CAHF HOUSE			LOW-RISE APARTMENTS			HIGH-RISE APARTMENTS		
Market low KSh/unit	Market high KSH/unit	HDCB KSh/unit	Market low KSh/unit	Market high KSH/unit	HDCB KSh/unit	Market low KSh/unit	Market high KSH/unit	HDCB KSh/unit
3 600 000	5 280 000	4 650 507	2 266 000	3 849 120	3 706 138	3 136 000	4 260 000	4 010 815
HDCB position between low and high (Quartile above low)		2nd	HDCB position between low and high (Quartile above low)		3rd	HDCB position between low and high (Quartile above low)		2nd

Source: CAHF (2022). Own research. Data collected in July 2022.

The HDCB prices are therefore, positioned well within the ranges of market prices for all three typologies benchmarked. It should be noted though:

- That these are advertised prices, and that actual sales are sometimes closed at less than the advertised price.
- Due to the many variables of location, specification, unit sizes, unit mix within developments, scale of projects, and more, not always clearly discernible from a reading of the advertisements, the market price ranges above should be considered indicative only, and not taken as conclusive validation of the HDCB prices; and
- Due to the very large size of sources surveyed, coupled with a degree of uncertainty about the variables mentioned above, it fell outside the scope of this exercise to compile meaningful statistical analyses such as distribution curves, medians, etc.

⁷ <https://www.estatecentre.co.ke/cost-of-building-a-house-in-kenya-12345-bedroom/> (Accessed 16 September 2022). All pages

⁸ <https://www.kenyans.co.ke/news/70604-areas-buy-houses-below-ksh-4m-nairobi-metropolis>; (Accessed 16 September 2022). All pages

⁹ <https://www.optiven.co.ke/properties/> (Accessed 16 September 2022). All pages

¹⁰ <https://www.premieragent.co.ke> (Accessed 20 September 2022). All pages

¹¹ <https://deals.jumia.co.ke/houses-for-sale> (Accessed 22 September 2022). All pages

¹² <https://deals.jumia.co.ke/apartment-for-sale> (Accessed 22 September 2022). All pages

¹³ <https://www.buyrentkenya.com/property-for-sale/nairobi/>? (Accessed 24 September 2022). All pages

¹⁴ <https://www.property24.co.ke/property-for-sale-in-nairobi-c1890> (Accessed 24 September 2022). All pages

¹⁵ <https://kenyapropertycentre.com/for-sale/houses/nairobi/showtype> (Accessed 28 September 2022). All pages

¹⁶ <https://www.knightfrank.co.ke/residential-property-for-sale-nairobi> (Accessed 28 September 2022). All pages

¹⁷ <https://www.propertypro.co.ke/property-for-sale/flat&apartment/in/nairobi/2-bedroom> (Accessed 29 September 2022). All pages

For further validation the figures in Table 5 above are compared with typical market prices from the Nairobi Metropolitan Area Residential Sector Q3'2022 Review Note¹⁸ published on 30th October 2022 by Cytonn Property Group in Table 6 below.

Table 6: Comparison of benchmark selling prices with typical Cytonn market prices for typologies comparable to the three typologies analyzed.

MARKET COMPARISONS: Market rate per m ² applied to net sales area of HDCB units to arrive at comparable cost per dwelling unit	DETACHED UNITS IN LOWER MID-END SEGMENT		LOW-RISE APARTMENTS IN LOWER MID-END NAIROBI SATELLITE TOWNS		HIGH-RISE APARTMENTS IN LOWER MID-END NAIROBI HIGH-RISE SUBURBS	
	KSh/unit	US\$/unit	KSh/unit	US\$/unit	KSh/unit	US\$/unit
Market average	4 036 945	33 109	3 545 212	29 076	4 062 388	33 318
Market low	3 271 015	26 827	2 560 756	21 002	3 206 896	26 301
Market high	5 220 765	42 818	4 757 148	39 016	5 060 440	41 503
HDCB price	4 650 507	38 141	3 706 138	30 396	4 010 815	32 895
HDCB position between low and high (Quartile above low)	2nd		2nd		2nd	

Source: Cytonn (2022). Research and CAHF (2022). Own research. Data collected in October and November 2022.

The Cytonn report included results from low-to-high in the following areas:

- For detached units in lower mid-end segment: Ngong, Thika, Kitengela, Ruiru, Juja, Syokimau/Mlolongo, Rongai, Athi River, Donholm and Komarock.
- For low-rise apartments in lower mid-end Nairobi satellite towns: Athi River, Kitengela, Ngong, Syokimau, Kikuyu, Ruiru, Rongai, and Ruaka; and
- For high-rise apartments in lower mid-end Nairobi high-rise suburbs: Donholm and Komarock, Kahawa West, Imara daima, Dagoretti, Wayaki Way, Racecourse/Lenana, South B, South C and Langata.

Although the HDCB selling prices compare well with those in the Cytonn report, the comparison should not be considered conclusive validation of HDCB figures, but rather as indicative only. The purpose of the Cytonn report was to reflect on a selection of best performing properties as of quarter three of 2022, and the report does not provide detail on the selection

¹⁸ <https://cytonn.com/uploads/downloads/nairobi-metropolitan-area-residential-sector-q32022-markets-review-note.pdf> (Accessed 2 November 2022). Pgs. 1-3

and assessment methods. Research for the HDCB exercise, in contrast, focused on figures considered typical in relation to affordability. Also, the averages in the Cytonn report are simple numerical averages and not weighted in any way.

Furthermore, the Cytonn report provides no details regarding the many parameter variations pertaining to properties surveyed, making it impossible to confirm absolute comparability with the HDCB units.

For yet further validation, the HDCB prices are checked against data provided by some developers active in Nairobi in the section below. Data was provided by developers participating in the CAHF/FSD Open Access Initiative (OAI) – check and see previous ref footnote 4, and by developers visited and interviewed during the CAHF September 2022 field trip to Nairobi.

2.3.2 Check against data provided by some developers active in Nairobi.

As before it should be noted that project parameters for the HDCB benchmark analyses and the developer projects below are not exactly similar, and results of comparisons should therefore, taken as indicative only, and not as conclusive validation of HDCB results. The relative closeness of the figures nevertheless provides a degree of comfort about the validity of the HDCB results.

Table 7 below shows selling prices for affordable apartments in a 143-unit project by Developer A. No detailed cost breakdown was provided.

Table 7: Developer A – Selling prices for 143 affordable apartment development in Wangige next to the Western Bypass, currently under construction.

Five, six and seven-storey blocks	Price/unit - KSh	Unit size - sq. ft	Unit size - m2	KSh/m2	Price/unit - US\$	Price - US\$/m2
Studio	1 700 000	215	20	85 111	13 942	698
One-bedroom unit	2 500 000	325	30	82 800	20 504	679
Two-bedroom unit	3 400 000	440	41	83 176	27 885	682
Two-bedroom duplex unit	3 550 000	440	41	86 846	29 115	712
HDCB 44m ² Two-bedroom unit in low-rise blocks	3 706 138		44	84 230	30 396	691
HDCB unit price compared to Developer A equivalent unit price	9% more expensive					

Source: Developer A (2022). Interview and sales brochure, and CAHF (2022). Own research. Data collected in July 2022.

Table 8 below shows the development costs and selling prices for affordable apartments in a 232-unit project by Developer B and a 220 unit-project by Developer C. A high-level partial breakdown was provided by the developers as set out in the Table 8 below.

Table 8: Comparison of Development Costs and Selling Prices of Developer B, Developer C and the HDCB High-Rise Apartment Block

Description	Total cost - KSh	No. of Units	Average Cost Per Unit	Land Size (Acres)	Units/acre	Units/hectare	Parking ratio (bays/unit) ¹	
Total development cost (incl. VAT) Developer B	861 000 000	232	3 711 207	1.18	196.61	485	0,6 (144 bays)	Note 1: Parking ratio low. According to developer tenants have access to other parking in the precinct.
Total development cost (incl. VAT) Developer C	857 000 000	220	3 895 455	0.80	275.00	680	0,4 (90 bays)	
HDCB high-rise apartment block	653 971 200	200	3 269 856	1.00	200.00	494	1.0 (240 bays)	Assumed a parking bay for each unit and no access to other parking in the precinct

Developer B						
Sales pricing	Price/unit	m2/unit	Price/m2	No. of units	Total Sale Price	
One-bedroom units – in KSh	3 750 000	35	108 696	104	390 000 000	40,91%
One-bedroom units - in US\$	30 756	35	891			
Two-bedroom units – in KSh	4 400 000	50	88 000	128	563 200 000	59,09%
Two-bedroom units - in US\$	36 086	50	722			
Developer C						
Sales pricing	Price/unit	m2	Price/m2	No. of units	Total-KSh	
One-bedroom units – in KSh	3 750 000	41	91 463	100	390 000 000	37,68%
One-bedroom units - in US\$	30 756	41	750			
Two-bedroom units – in KSh	5 039 634	58	86 890	120	645 073 152	62,32%
Two-bedroom units - in US\$	41 332	58	713			
HDCB high-rise apartment units						
Sales pricing	Price/unit	m2	Price/m2	No. of units	Total-KSh	
Two-bedroom units – in KSh	4 010 815	44	91 155	200	802 163 000	100,00%
Two-bedroom units - in US\$	32 894	44	747.5967031			

Source: Developer B, Developer C (2022). Project Development Proposals

With densities very similar, the HDCB high-rise apartment of unit of 44m² net sales area is 88% the size of the developer B's 50m² two-bedroom unit and is priced at a profit margin of 18%. On the other hand, with densities substantially lower, the HDCB high-rise apartment of unit of 44m² net sales area, Developer C's project has a 76% bigger unit size 58m² for the two-bedroom unit and is priced at 30% profit margin.

The HDCB average construction cost per unit is cheaper in comparison to Developer B and C. Developer B is delivered a unit at KSh. 3.7 million, compared to Developer C at KSh. 3.8 million and a HBCB delivery cost of KSh. 3.2 million per unit. However, since the size of the 2-bedroom unit vary in size, on a per square meter basis of net sale area, developer B 3,58% higher than the HDCB benchmark cost and Developer C is 4.9% higher than the HDCB benchmark cost, bearing out the general understanding that larger floor areas for similar units has lower square meter cost and selling rates.

3 SUMMARY OF MAIN FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND WORK AHEAD

In the HDCB analyses costs and selling prices are estimated by building up totals from detailed inputs into individual items, from land acquisition, infrastructure installations, compliances and approvals, construction through to developer fees, mark-ups, and taxes, the so-called "bottom-up" approach described earlier in the introduction. The process of validating the results was done by comparison against typical values in the marketplace obtained through reports by industry specialists and project costing and pricing figures provided by a0 small sample of developers. The HDCB results are within the ranges observed and appear to be realistic.

Taking due cognizance of some shortcomings in the data collected, briefly summarized below, it is considered reasonable therefore, to conclude that the Housing Development Cost Benchmarks established through this study could confidently be used by developers and other interested parties to measure their own efforts against. Additionally, the Benchmark should be viewed as a starting point for further exchanges with the opportunity to build on it further, bearing in mind also that the analysis is a snapshot providing a limited picture at a certain point in time while the real world of development is a dynamic melting pot of internal and external drivers. Also, it has produced a set of single benchmarks where a range may be more appropriate.

Some of the challenges encountered when developing the benchmark are briefly discussed below:

1. *Inconsistent and Non-Standardization of Construction Data collected.*

The housing landscape, especially at a project level, is data scarce, because private players rarely do share their project data with the public, which leads to the provision of incomplete contextual meta data by the existing data aggregators and published industry. From the HDCB experience, we found that it is not always clear granular breakdown of data sources are, when data was obtained and what criteria and methods were used for sample selection. The challenges encountered under this data pillar underscore the importance of the Open Access Initiative which is geared to addressing the information asymmetries that existing in the housing landscape by aggregating project level data from investors and developers. This initiative will help standardise the data collection process and thereby aide in the validation process.

Another difficulty is the variety of formats in which developers and contractors report on costs and project financials, and once more the absence of detailed breakdowns of inclusive lump sum allowances for certain cost elements, making comparison with the detail HDCB breakdowns challenging. The main challenge (which is presently being addressed by Open Access Initiative) is to motivate sources (developers and others) identified to share data at the desired level of detail, often because they have the detailed data, but it is disorganised and tedious to extract from their records, collate, process and present in comparable formats. It then required the HDCB to make assumptions on critical cost drivers to enable comparisons to be drawn.

2. *Comprehensive data on land prices in Nairobi*

Comprehensive, reliable, and categorized data on land prices is not readily available from the public sector in Kenya. In order to use land cost comparisons in the benchmark, our methodology had to select close comparable location and a degree of averaging to approximate the land input costs. This approach while sufficient needs further interrogation since land is a critical input cost in the total development cost calculation. Land prices may be surveyed across areas typically suited for affordable housing development, but prices are not necessarily uniform within such an area, often influenced by very specific local factors such as proximity to paved arterial roads or availability of grid-connected services, rendering the selection and averaging process to some extent subjective. Intimate understanding of the factors influencing land prices would require a more in-depth land and property market analysis that fell out the scope of this study.

3. *Ensuring all real costs of development are captured and accounted for in benchmarks:*

It is hoped that this analysis can improve stakeholders' awareness and understanding of real development cost and the critical cost drivers in the affordable housing development process and enable them to explore strategies and actions to mitigate (or leverage) the effects of these in favour of enhancing affordability. However, the price of a completed product to the end user in the marketplace often obscures historic sunk costs and other hidden subsidies in cash or kind. This makes it difficult for governments and public agencies when they need to budget for housing programmes and when they need to assess the replicability and sustainability of housing projects. It also makes it difficult for investors who would like to invest in real estate but are not aware of what the hidden costs or subsidies are and can therefore, not develop a well-informed business case. These are difficult to quantify as little if any data is available, but the HDCB work attempts to raise awareness of these implicit, often 'hidden' costs, regardless of who pays, or paid at some time in the past. The general view expressed in selected literature and during discussions with officials and developers during the CAHF field visit to Nairobi in October 2022 seems to be those existing mechanisms such as charges for construction permits, water, sewer, and electrical connections, etc., fall short of adequately recovering the capital outlays involved in providing these grid services.

Suggestions and recommendations for further work:

- **Insufficient Project Level Data** is a key constraint and is presently being addressed through the Open Access Initiative.
- **More developers should be brought into the process** in order to analyse a wider range of projects comprising more representative typologies in different contexts and configurations. This could assist in providing benchmarks as a more flexible range rather than fixed single points.
- **Closer alignment of the HDCB work with CAHF's Open Access data sharing initiative (OAI)** to broaden the scope of analysis and sharing of lessons learnt towards greater efficiency in project planning and execution, and improved sector performance; and
- **Effective dissemination of the HDCB report** and subsequent exchanges to important stakeholders and interested parties.