Centre for Affordable Housing Finance in Africa

Terms of Reference

PILOT OPEN DATA PORTAL

&

Feasibility Study

Proposals due by 12 noon, 31 January 2018, by email to alfred@housingfinanceafrica.org

For more information, contact Alfred Namponya

alfred@housingfinanceafrica.org

CAHF is a not-for-profit company, registration number 2014/092722/08.
Board members: Paul Jackson (Chairman), Nomsa Ntsingila, Mathew Rudd, Kecia Rust (Executive)

1. About the Centre for Affordable Housing Finance in Africa

The Centre for Affordable Housing Finance in Africa (CAHF) has been operating as an independent think tank in South Africa since May 2014, pursuing its mission of making Africa's housing finance markets work. It grew out of the housing finance theme of the FinMark Trust, where its research and advocacy programme began in 2003. CAHF's work extends across the continent, and it is supported by and collaborates with a range of funders and partners.

CAHF brings information to the market place to enable stakeholders in the public and private sector to make policy and investment decisions in favour of improved access to affordable housing. Our emphasis is on the role that finance plays in realising this, and we champion market intelligence—data, market analytics and research—to stimulate investor interest and to support better policy. We are highly networked and engage with stakeholders at the local, national, regional, continental and global levels to support the realisation of investment towards affordable housing in Africa.

All of CAHF's work is directed at shifting investor interest towards the much larger market of the emerging middle class in urban areas across Africa, and using this to champion both improved housing conditions and economic growth, while also addressing inequality with the asset potential that housing offers.

As part of its mission to enhance and deliver data and analytics to the field, CAHF is commissioning the development of a pilot open data portal, together with a feasibility study for its growth.

CAHF Vision: An enabled affordable housing finance system in countries throughout Africa, where governments, business and practitioners work together to provide a wide range of housing options accessible to all.

Mission: To make Africa's housing finance markets work, with special attention to access to housing finance for the poor, through the dissemination of research and market intelligence, the provision of strategic support, and ongoing engagement in both the public and the private sector; supporting increased investment, cross-sector collaborations and a market-based approach.

Goal: To see an increase of investment in affordable housing and housing finance throughout Africa—more players and better products, with a specific focus on the poor.

This ToR includes:

- **Attachment 1 - CAHF Theory of Change**, providing an overview of market challenges and range of interventions to improve outcomes in the housing finance sector;
- **Attachment 3** - **CAHF data tracker**, used to monitor and report on the state of affordable housing finance in Africa.
- **Attachment 3** – **CAHF track record** of data-gathering and dissemination efforts.

2. Project Concept

As African cities continue to grow, investors, financiers and developers, as well as government at the national and local level, are increasingly interested in the opportunity. What does it look like? Where can it be found? What are the risks? And how can they be managed? On the demand side, the combination of economic growth and rapid urbanization are generating dramatic challenges and opportunities in the housing sector across the income spectrum. Housing backlogs suggest an overwhelming demand for housing investment in every country across the continent, with the bulk coming from lower and middle-income earners. Housing investment, however, is not even beginning to meet this demand, and while stakeholders are increasingly identifying the opportunity, levels of investment are still far below what may be possible.

In October 2017, CAHF published the eighth edition of its Housing Finance in Africa Yearbook. The yearbook outlines two main challenges that exist to deepening and broadening the investment landscape in Africa: the high cost of investor funds, and information asymmetry in the housing finance markets across the continent. These two problems are related: in the absence of sound data that adequately quantifies both the risks and the opportunities, investors hedge their bets by looking for higher returns, or look elsewhere entirely. Data shortcomings deprive market participants of the capacity to target, plan, cost and execute projects. This presents a specific problem for low cost and affordable housing, where thin profit margins offer inadequate cushion for investment decisions supported by weak data. Unfortunately, open data initiatives under way, for example, those among the development finance institutions, have not built data sets to respond to the housing sector's specific information deficiencies.

In all of its work, CAHF has emphasized the role of data, information and housing ecosystem-building in enabling market participants to articulate the challenges in these urban markets and to define and seek solutions in a systemic fashion. This project aims to improve the quality of and access to data and information currently available, and from this, to enable more accurate and targeted market analysis to help in scaling nascent investor interest.

Through its various research initiatives, CAHF has developed and/or accumulated several datasets relevant to housing investment decision-making in Africa. These datasets exist in a variety of applications and levels of aggregation and disaggregation, and we are constantly accessing and building more, often as part of specific research projects, which might be broadened to more general application. In addition, housing-relevant data exists in a myriad of publicly available data sets that are regularly or periodically issued across the continent. CAHF wishes to highlight the housing relevant data in these databases in a manner that enables targeted and comparative analytics in support of housing market growth and increased investment, supporting both in-country and cross-country investigations and analyses. In making this information as accessible as possible to as many stakeholders as possible through a public data portal, we hope to stimulate further analytics, comparative analyses and links between these datasets in order to broaden and deepen the landscape of housing-relevant data across Africa.

The focus of this exercise, therefore, is on the development of a pilot data portal, drawing together and presenting for public analysis, useful public data sets relevant to housing from, first, CAHF's priority countries, and then others where data is available. The portal is expected to provide access to record level data from collected datasets, enabling detailed cross tabs within datasets and, where possible, links between datasets that enable further cross tabs and comparisons. Data sources would include public surveys including censes and sector-specific studies, macro-economic data, as well as datasets compiled through CAHF's own research.

The portal would have two overall objectives:

- first, to provide a platform on which to list, capture and showcase all relevant and useful datasets, to support greater data-led decision making; and
- second, to crowdsource analytics and data, encouraging investment analysts, and public policy makers, academics, and others to undertake analysis in support of affordable housing investment.

Outward facing, the portal would be a service to the housing and investment community, providing easier access to often hidden data. Inward facing, the portal would inform CAHF on the type of data collected and analytics undertaken and the potential to build indicators towards the broader objective of stimulating investment in affordable housing across the continent.

Audience

It is expected that the portal would engage with three audiences:

1) **The general public** – those with initial interest in housing markets in Africa, not sure what information is available, and considering a broad range of areas and purposes. In this, the portal becomes a gateway to housing market information collated from different sources, as well as a mechanism for identifying data and information gaps as they may exist at a local, national, regional or continental level.
2) **Expert users** – investors, lenders, developers; data and housing experts, students, research and industry analysts; government agencies and mission-aligned organizations, seeking data with which to complete specific analyses within specific areas, eager to apply their expertise to explore data for hidden understanding or innovative application, new indicators, relationships, and to share and learn with others. In this, the portal would offer a collaborative space for research and analysis among practitioners within and beyond CAHF itself, "crowd-sourcing" analytics (and possibly also datasets) for the benefit of sector development.
3) **Proprietary users** – very specific users within or representing specific interests, such as investors, governments, or consultancies, seeking reliable data to build and boost their own targeted analyses for their specific proprietary uses in affordable housing, or wanting to provide raw datasets to CAHF or others to be analysed for their specific, or broader stakeholder interests.

Key functional considerations

CAHF aspires to establish an open data portal with the following functions, requirements and characteristics:

- **Solid database architecture** - Solid back-end database design that allows for capturing, cleaning, linking and making datasets available to stakeholders;
- **Public portal interface** – attractive, user friendly interactive access to data and indicators as determined appropriate for publication on the CAHF website; range of functionalities, modes of interaction (i.e. dashboards, indicators and database files) as most appropriate and effective; means of uploading and downloading data extracts, images and analyses, securely, efficiently and easily; ability to cross-tabulate and drill down within the data, extracting user-defined subsets, tracking user activity to understand the areas of most interest; secure and hack-resistant; and some sort of mechanism to gather feedback;
- **Customer-responsive** – functionalities which drive market demand for data, such as search modes and levels of interaction; data format options, types and areas of interest; levels of aggregation, preferred geospatial features and visualizations; access to metadata and data background details; priority research interests; most likely target audiences, key partners and likely frequency of engaging the portal;
- **Geo-location and visualizations** – the data is place-based, whether record-level up to the country level for data coverage, visualization, merging and analysis;
- **A variety of download format options** – user options for download file formats (such as https://catalog.data.gov/dataset)
- **Internal Interconnectivity** – snag-free data workflows, feasibilities and compatibility between data, storage, data management, BI dashboards, geocoding systems software, licenses; appropriate firewalls; potential use of links to third-party websites;
- **Trusted data sources and quality control**– familiar sources (such as governments, academia, national or international development organizations and private companies) and criteria used to determine quality and usefulness of potential datasets (such as availability, applicability and accessibility, updateability, reliability);
- **Licensing and permissions** – user requirements to access data and functions, levels of user permissions, consents to track their usage; accessing user data (reciprocity); public domain license schemes for data providers;
- **User Registration, Security and backup** – secure upload/download and hosting processes, confidentiality, hack-proof data warehouse and backup storage. Registration and use should be able to be tracked to determine user types and data accessed.

3. Project Scope

The scope of work is the delivery of a **pilot open data portal** and a **feasibility study** directing CAHF on the means by which a fully-functioning open data portal might be accomplished. It is understood and appreciated that progress on the scope may depend on the quality and quantity of datasets obtained throughout the period of performance.

I. A functioning **pilot open data portal** which offers, or conceives of, the following functionalities, in order of priority, focused on CAHF's current priority countries, which are Tanzania, Uganda, Mozambique, Nigeria, Angola, Cote d'Ivoire, Senegal, and Cameroon:

- Proven functional hosting of multiple datasets from a variety of sources, within nine priority countries or more broadly across Africa, where feasible;
- Datasets organized by geography (country / province / city, etc) and housing finance themes (microfinance, mortgage markets, rental housing, etc);
- A user-friendly, web-accessible interface;
- Secure signup and login, user group categorisation, user permissions and privacy settings and utilisation reporting approach;
- A data analysis function
- Extractable charts, graphs and geo-visual interaction, i.e., a dashboard function;
- Crowd-sourcing analytics including interactive blog functions, user posts of sample analyses, and research topics of interest, as well as an internal monitoring function for CAHF to track the extent and nature of how the portal and its specific datasets are used;
- Data download function, with multiple formats;
- Search function;
- Usable through and by CAHF's preferred business intelligence and data visualization software, Tableau;
- Extendable over time to include more countries, more datasets, possible city-level drill downs, etc.
- Datasets hosted in alignment with CAHF theory of change (see Attachment 1);
- Dataset upload function;
- Dataset metadata and background information publicly available (depends on the data source);
- Other functions as recommended by the service provider.

II. A **feasibility study**, driven from the direct experience of creating the portal, advising CAHF on the following:

- A summary assessment of CAHF's **current state as a data repository**, its strengths and shortcomings, and its current trajectory given existing resources, partners and strategies;
- **A preliminary market study**, including potential target audiences and market potential; key partners and stakeholders; potential competitors and differentiation, functions and products and services;
- A scan of, and record of **key datasets and their current status** developed in collaboration with CAHF, both from external stakeholders and those developed by CAHF, in particular those datasets which respond to CAHF's current data tracking needs (Attachment 2). This should include potential data sources by country of origin, including ownership and contact information, an initial dataset assessment and scoring / ranking system that indicates the status, accuracy and readiness of the key datasets. This should include consideration of the potential of and approach to 'big data' analyses in this market;
- **Written documentation of the beta open data portal concept**, as hosted specifically by CAHF, organized by and incorporating CAHF's theory of change, including a vision or concept, workflow and proposed 'back-end' database architecture and 'front-end' customer-facing portal architecture; a data schematic and rollout strategy that connects data inputs to outputs and key touchpoints, with specifications, software and required functionalities;

- **A detailed systems architecture and specification**, including proposed database tool(s) / engine(s), analytic and reporting tools and customer-facing architecture. This must include consideration of how data in the database will interact with CAHF's most readily used data analytics tool, Tableau (www.tableau.com).
- **A data strategy,** informed by lessons learned from this effort, including strategy and criteria for obtaining data, key data gaps, metadata (fields and records), and assessment and applicability if possible, including geographic coverage, time period covered; formats and update protocols; data maintenance and management requirements.
- Scoping and recommendation on **international best practice / open data protocols** to be followed in order to best interact with other relevant open data networks and in order to ensure CAHF's data portal is geared for future growth (e.g. Open Data Network https://socrata.com/blog/socrata-introduces-open-data-network/). This should consider issues of interoperability, security, availability and access, re-use and redistribution and universal participation.
- **A resource & implementation plan**, including internal operating and oversight requirements, staffing roles and responsibilities, resource requirements and implications, and data management and security specifications; and revenue potential of the platform along the CAHF value chain.

4. Deliverables

Outputs from the project include[1]:

- An **inception report**, that defines the scope of the effort and includes:
  - Comprehensive but succinct review of other, relevant data portals, their strengths and weaknesses, and how this influences the current project;
  - An overview of key issues that the pilot portal should tackle;
  - Detailed work plan and proposed methodology, including data management schematics, identification of stakeholders for interviewing, to respond to the objectives of the study;
- An operable pilot **open data portal**, as conceived in project scope;
- A **feasibility study** which includes
  - Organizational assessment of current data;
  - Market Study;
  - Data scan, particularly of priority countries;
  - Conceptualization of a beta open data portal;
  - Data strategy;
  - Resource and implementation plan.

A key requirement of the work is the delivery of the pilot data portal on or before 23 March 2018. A key consideration of the proposal is thus proven capacity to deliver by that date.

5. Project Milestones

The project should be completed within ten to twelve weeks of contracting.

Key dates:

SCHEDULE OF MILESTONES	TIMEFRAME	ESTIMATED DATE
Signing of contract, kick off meeting	One week after proposals due	7 February 2018

[1] All work, written or otherwise, submitted by the successful service provider is expected to be the result of his/her own work. The Centre for Affordable Housing Finance in Africa views acts of copyright infringement and plagiarism as a serious offence.

Inception Report	One week after kick-off meeting	13 February 2018
Demonstration of pilot data portal	**Six weeks after delivery of inception report**	27 March 2018
Draft Feasibility Study	Two weeks after draft feedback	17 April 2018
Signoff of Final deliverables	Two weeks	30 April 2018

A key requirement of the work is the delivery of the pilot data portal on or before 27 March 2018. A key consideration of the proposal is thus proven capacity to deliver by that date.

CAHF oversight

It is anticipated that the service provider will engage directly and frequently with CAHF staff, in particular its Data Architect. CAHF will collaborate on data collection, including providing potential datasets for consideration by the service provider. CAHF will review any datasets obtained for these purposes for applicability and adequacy, and approve the use of all datasets included in the portal, as quickly as possible. CAHF will also provide confidential access to existing data storage, website hosting, safety and security specifications and access to existing partners, as required or appropriate.

Service providers will be required to execute a Non-Disclosure Agreement (NDA).

6. Project Budget

Proposals of up to **ZAR 600 000**, including any possible V.A.T. and disbursements, will be considered. The scope of work should allocate at least 70% of work effort to development and implementation of the portal, and no more than 30% of work effort to the feasibility study.

For consultants operating from outside of South Africa, CAHF will assume the exchange rate risk from the date of contracting, as long as the assignment is carried out within the contract period.

7. Contents of Proposal

Proposals to undertake this project must demonstrate familiarity with the subject matter, expansion on the proposed methodology and key issues for consideration in the work. The proposal should show an understanding of the work to implement, deliver and manage an open data portal. Contents of the proposal should include:

i. A **detailed work plan**, demonstrating the feasibility of the proposal. The proposal should consider reasonable access to existing datasets, as well as obtaining and testing new datasets, particularly in the priority countries.
ii. **Statement of qualifications** of firm(s) as relevant to the project. Strong emphasis will be placed on technical experience and background in systems design and implementation, with verifiable project references.
iii. **Name and CV of staff members responsible** (i) for overseeing the work; (ii) for undertaking the work. A consortium of consultants is welcomed.
iv. **Fee proposal and costs estimate for each project deliverable**, indicating the basis of calculation of fees, including cost of travel if necessary.
v. **Capacity building and black economic empowerment** are key objectives of CAHF. In rendering the service, the consultant must endeavour to achieve these goals. South African consultants must

report on their BEE accreditation. Other capacity building efforts can also be proposed. The proposal must comment on the manner in which the consultant intends to give effect to the capacity empowerment objective.

vi. **Familiarity with the Centre for Affordable Housing Finance in Africa's work** is fundamental. See www.housingfinanceafrica.org.

8. Proposal Evaluation

Proposals will be assessed according to:

i. Relevant, demonstrated competence of firm in this area: 30 percent.
ii. Demonstrated expertise of key individuals to be involved in this project: 20 percent.
iii. Content and quality of proposal, including innovation in and feasibility of approach: 35 percent.
iv. Affirmative action scorecard (if South African firm) or use of local service providers: 15 percent.

9. Proposal Submission

Proposals should be submitted in electronic format, by email, to Alfred@housingfinanceafrica.org The deadline for submission is at 12h00 on 30 January 2018. Once the selection process has been completed, CAHF will issue a contract confirming the appointment of the service provider.

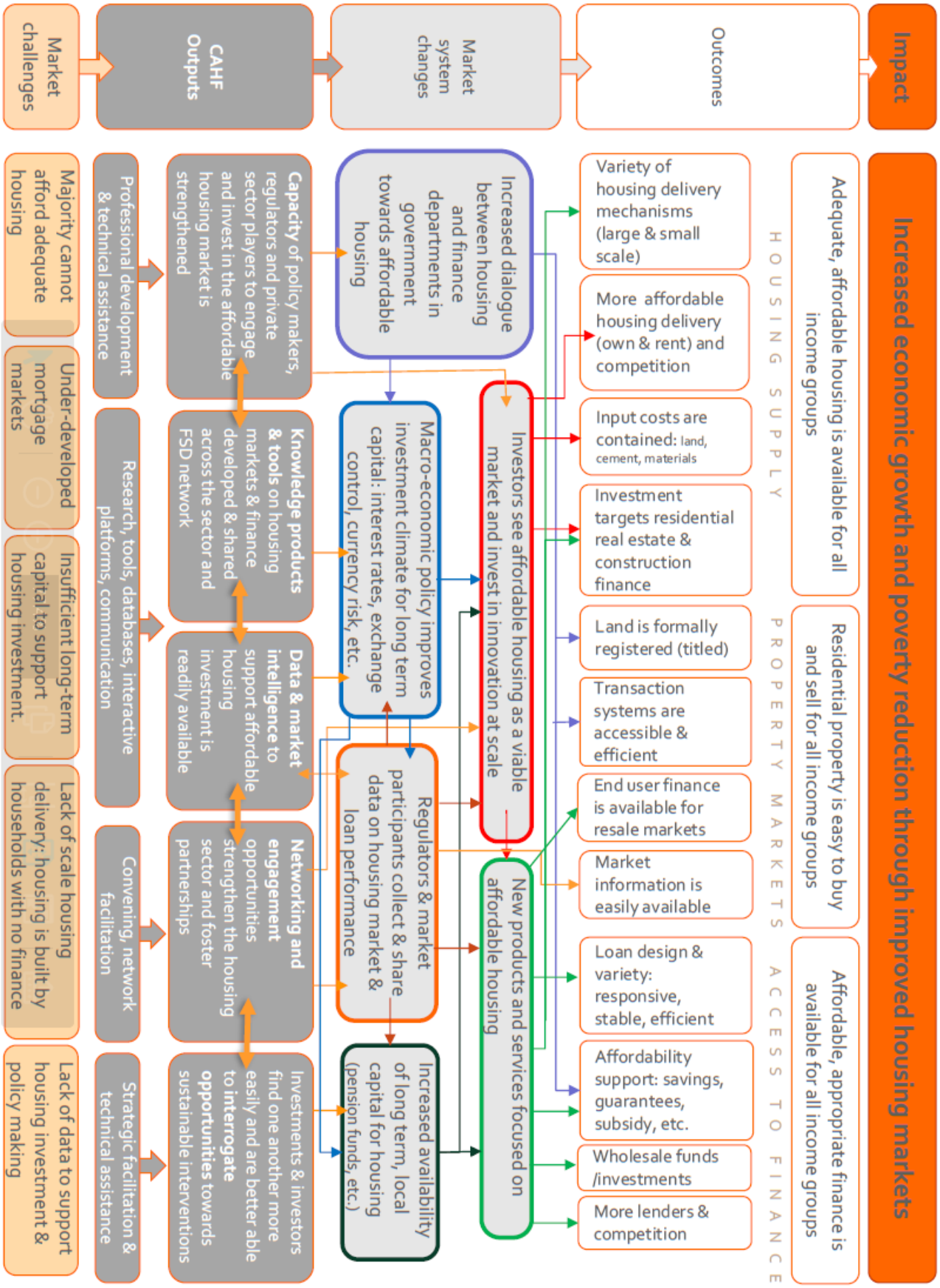
Any queries should be directed to Alfred Namponya, who can be contacted at alfred@housingfinanceafrica.org.

10. Guidance Note to Bidders

- Centre for Affordable Housing Finance in Africa reserves the absolute right to use its discretion in the interpretation of these award criteria. The following notes are intended to provide broad guidance only on how proposals will be evaluated. Bidders may be required to clarify their proposals by way of a telephone call or presentation.
- "Relevant, demonstrated competence of firm(s) in this area" - You should aim to demonstrate how the firm's collective past experience can be applied (or adapted) to address the specific brief set out in the terms of reference. You are welcome to describe the firm's general experience of financial sector development issues (e.g. in other geographies or topical areas) but the evaluation will focus particularly on the application of that experience for the specific task at hand.
- "Demonstrated expertise of key individuals to be involved in this project" – The evaluation places considerable emphasis on the role and demonstrated expertise (i.e. track record) of the key individuals to be involved on the project rather than on the expertise of the firm itself.
- "Use of local professional capacity (consulting, analysis, coordination etc.)" – The Centre for Affordable Housing Finance in Africa wishes to ensure that local capacity is used and developed. International firms are therefore encouraged to partner with local organisations.

- "Content, quality and originality of proposal" – Proposals should address the brief set out in the terms of reference in a comprehensive manner. Bidders should aim for innovation as well as professional presentation. Whilst similar, relevant experience in other markets will be an advantage for a bidder, each market is different and so proposals need to reflect the particular characteristics of that market, as well as the challenge set by the terms of reference.
- "Affirmative action scorecard"- Ownership, management, staff development.
- "Value for money" – breadth and depth of the deliverable, as well as expected quality, relative to the absolute cost, will be taken into account.

Attachment 1 CAHF Theory of Change



Attachment 2 – CAHF Data Tracker

These measurements are used to track the state of affordable housing finance in targeted African countries. This is compiled (or to be compiled) on an annual basis, by CAHF using a wide range of third-party data sources, and our own surveys, and is used as a reporting mechanism to our key partners. Datasets with these key indicators are priority.

Increased housing delivery by private sector	# housing projects delivered by private sector developers
	# housing units delivered by private sector developers
	% increase in formal housing supply
Increased affordable housing delivery by private sector	% of the urban population that can afford the cheapest newly built house
	# housing projects / units delivered to bottom 50% of the urban population
Increased Tenure diversity	% rental as a proportion of all housing stock
Improved household living conditions	% population living in slums
Growth in market participation in the housing finance sector	% FSPs providing mortgage loans and other relevant financial products to the under-served.
Growth in housing finance	% of households who took a housing finance product in the last year *To the extent possible, type of FSP, socio-economic status of product user, frequency of use, gender, location of HH (rural or urban) provided in supplementary report.*
	Ratio of mortgages to GDP (%)
	# mortgages in the country
	Value of mortgages in the country (US$)
	# housing microloans in the country
	Value of housing microloans in the country (US$)
	# pension-secured housing loans in the country
	Value of pension-secured housing loans in the country (US$)
New product development and market diversity	# new relevant products and services focused on affordable housing. Supplementary information to describe by: Stage of development (Fully developed, under development); type of service
Increased investment into affordable housing	Value in US$ capital (investments) flowing into affordable housing Disaggregate by: Source (Foreign, domestic), type
	% change on previous year
	$ other capital invested in residential real estate
	$ DFI funding invested in residential real estate
	$ private equity invested in residential real estate
	$ pension funding invested in residential real estate
Prevailing mortgage rate	prevailing mortgage rate
	% change on previous year
	prevailing housing microlending rate
	% change on previous year
Increase in the number of housing finance enabling policy and legislation	# times housing finance referenced in policy and legislation
Housing policies are updated more frequently	Date of existing housing policy

Duration for property registration decreases over time	# days to register property
Cost to register a property decreases over time	Cost to register property (% of total cost of property)
Increase in publicly available housing finance data from Central Banks	# data sets / data sources in total; with supplementary annex outlining detail about the sources. From Central Bank / government departments / regulator reporting on housing finance
Housing market activity is tracked and publicly reported on an ongoing basis	# sources for housing market activity with supplementary annex outlining detail about the sources.
Lending activity is tracked and publicly reported on an ongoing basis	Yes/no answer per country with annex tracking domestic housing lending data exists. Overall, # countries that we have found, with this data, will also be noted in overall report.
Increase in publicly available housing related data from in country FSPs	% of FSPs per country that publish housing-related data

Attachment 3: CAHF track record of data-gathering and dissemination efforts

This attachment provides an overview of CAHF's background and track record in making its data publically available, in ways to promote development of affordable housing and the affordable housing sector. In 2010, several research reports led to the creation of the Affordable Land + Housing Data Centre (www.alhdc.org.za), a portal for geo-located housing data taken from the South African deeds registry (http://www.deeds.gov.za/ITSODeedsWebB/deedsweb/welcome.jsp), one of the most highly regarded property registries in the world[2]. While the data centre has not been updated since 2012, this portal allows users to download suburb-level data for their own analysis and interaction.

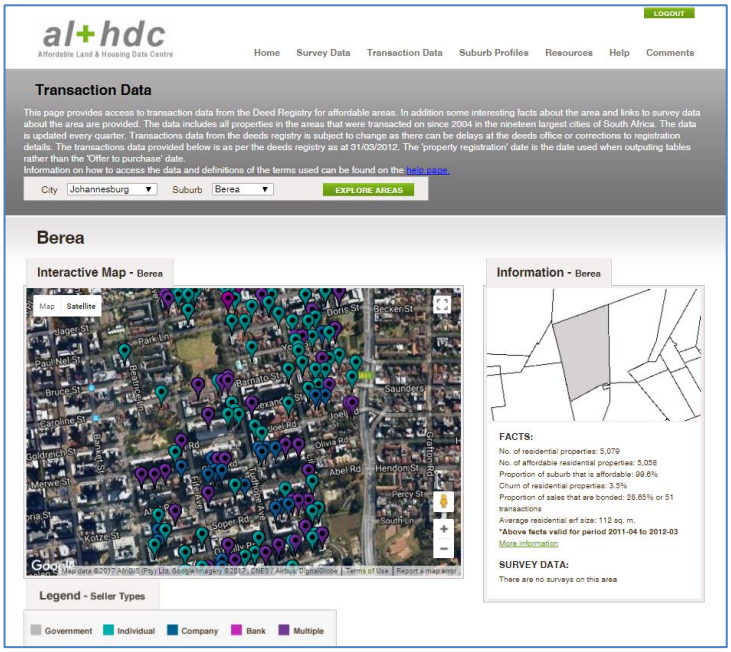


Figure 1 The al+hdc website, CAHF's first interactive property data website, focusing on affordable areas in South Africa, launched in 2009.

In 2012, CAHF commissioned a survey of housing investment-relevant datasets. The emphasis of the exercise was to survey all the datasets potentially publicly available. These datasets were used to populate static dashboards hosted in an Excel environment with minimal user interactivity, but became the prototype for CAHF's approach for providing dashboards to engage various datasets around Africa.

In 2012, CAHF pioneered the use of deeds registry and demographic data, with an off-the-shelf business intelligence software to provide innovative understandings of housing markets in municipalities across South Africa (http://housingfinanceafrica.org/dashboards/citymark/).

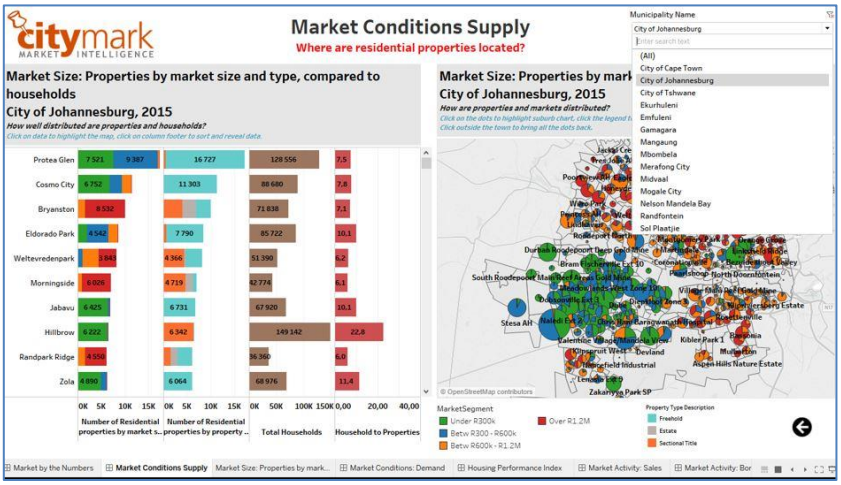


Figure 2 The interactive Citymark dashboard, hosting indicators which allows users to understand housing markets, using maps, charts and graphs, serving a wide range of public sector, private sector and other clients.

The Citymark dashboard serves local and national governments, private for-profit investors and equity funders, and analytics firms, to find areas of opportunity, design housing programmes, and deploy housing typologies in South African municipalities.

In 2016, CAHF transferred much of its data gathered as part of its annual yearbook to form the basis for dashboard platforms, as part of CAHF's mission to make data more accessible to broader audiences. These interactive dashboards use data gathered in the course of CAHF's other

[2] http://www.ghostdigest.com/articles/role-players/54020

research and programmes so that users might engage with the findings, download the indicators and interrogate them, and upload their own data for sharing and consideration. Illustrations below highlight the range and breadth of data, dashboard and audiences CAHF engages through its data platforms. These dashboards can be found at www.housingfinanceafrica.org/dashboards.

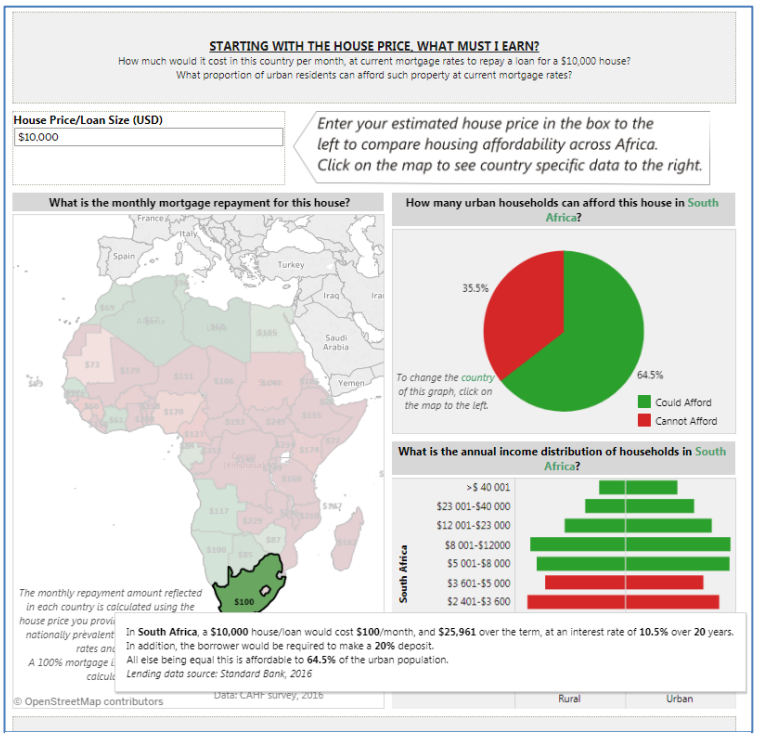


Figure 3 CAHF's first Africa-wide interactive dashboard, adapted from its country yearbook, allowing users to gauge housing affordability calculator by country, using maps, charts and automated calculations.

It is through this evolution, as well as work with partner consultants that has informed CAHF's motivation to create a tool that will enable access to its own datasets as well as to housing-relevant data that might exist in other, publicly available datasets, into one open data portal, as a means of establishing and engaging a broad community of users within the housing sector, towards a greater understanding of what is required to expand affordable housing finance in Africa.