UK-Kenya Research Symposium on Healthy Cities: Affordable Housing & Sustainable Infrastructure

PREAMBLE

The Technical Report represents the collective views of the participants of the UK-Kenya Research Symposium on Healthy Cities: Affordable Housing and Sustainable Infrastructure, 21-22 May 2019, Nairobi.[1]

Kenya has a long tradition of social and affordable housing, including informal and community construction with housing seen as a core element in delivering wider development gains through the provision of basic infrastructure and the mobilisation of local labour. The Kenyan experience provides a strong base of social and political vision, technical knowledge and financial understanding. As acknowledged by Kenya Government's 'Big 4 Action Plan', affordable housing is a cornerstone of inclusive and sustainable urban development. To succeed in uplifting of human wellbeing and be part of the solution to the sustainable development challenge affordable housing is best implemented as part of an integrated agenda to achieve:

- Improved health outcomes and integrated neighbourhood level planning
- Affordable and accessible essential services and critical infrastructures for all
- Reduced exposure to environmental risk including natural hazards and air pollution
- Localisation of housing, equitable employment and education opportunities to reduce expensive and environmentally damaging transport
- Land-use, planning and regulation to ensure affordability of, and accessibility to, housing markets, the raw materials required to construct housing and to help prevent unplanned urban expansion
- Safe environments particularly for women and children
- Equal opportunities for the urban poor to obtain economic assets and advancement,
- Improved social cohesion and inclusive local leadership

The experts, innovators and stakeholders who have gathered for the UK-Kenya Symposium set out key issues, covering both technological and socio-economic aspects of housing, to take forward Kenya's policy priorities in this area.

i. **Better understanding the challenges that restrict housing from meeting the diverse socio-economic needs and priorities of the urban poor.** These include understanding the mixed uses of housing – e.g. for small business and requirements for social spaces in communities that meet the needs of different groups; as well as knowledge of the socio-economic, policy, legal and regulatory barriers to achieving broad access to mortgage facilities by the majority of Kenyans;

ii. **Knowledge of the socio-economic, financing and regulatory conditions** that can support the affordability of adequate housing for all sections of society, and articulated for both owners and renters;

iii. **Better understanding of materials science for the development of affordable and sustainable building technologies that use locally available resources and technical expertise**. To become climate smart through sourcing of sustainable building material and appropriate design and planning of residential developments;

iv. **A more nuanced interrogation of the National Land Tenure system and the urban planning regulations** to identify their potential negative impact on the housing development;

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[1] See appendix for participant details

v.   **Optimisation of the newly established Kenya Building Research Centre to effectively lead the building, construction and infrastructure research agenda** in ways that are interdisciplinary and bringing together technological and socio-economic aspects of housing.

Technical discussions at the high-level symposium around these key issues concluded that housing affordability is a critical issue in Kenya, and must be a key focus of policy discussions. Even entry-level housing is expensive, with the cheapest newly built, private developed units still only affordable to a minority of urban residents. Providing affordable and adequate housing is a complex challenge requiring transdisciplinary, evidence based and collaborative policy intervention. Progress towards affordable housing requires a foundation of equitable partnerships between urban practitioners, researchers, and civil society, as well as innovative and aspirational schemes for young people. Multidisciplinary collaborations will ultimately develop housing provision strategy that better reflects the needs of diverse urban residents, rather than property developers. Community action is key in identifying local priorities and creating tailored interventions, and attention to equity and inclusiveness is critical to ensure adequate and affordable housing for all.

INTRODUCTION

The Government of H.E Uhuru Kenyatta aims to create 500,000 new home owners through the facilitation of affordable housing.

The prioritisation of affordable housing provides an opportune and strategic setting to achieve mutually beneficial goals of making cities and towns inclusive, safe and resilient, whilst also mitigating the impact of the built environment on climate change. From policies targeting basic needs, towards the human rights-based approach to development, housing has been identified as instrumental to meet the growing needs of urbanisation in a way that benefits all people. With 1.6 billion people in the world living in inadequate housing, one billion of whom reside in slums and informal settlements, ensuring housing affordability is of strategic importance for attaining the UN Sustainable Development Goals (SDGs). The SDG deadline (2030) provides a unique opportunity to deliver sustainable and resilient housing for all and as the most rapidly urbanizing continent, Sub-Saharan Africa is at the forefront of this global opportunity.

Currently, urban areas occupy 2% of the world's land but are home to 55% of the global population and now account for 70% of global GDP. Urban areas are expanding rapidly with 60% of the area expected to be urban by 2030 yet to be built. However, urbanization should not be seen merely as a risk, but as a transformative source of sustainable development. The New Urban Agenda[2] adopted by the UN in 2016, embodies a new vision of urbanisation, as the engine for sustainable development. In this vision, the full and progressive realisation of the Right to Adequate Housing[3] is one of the transformative forces that can overcome challenges related to climate change, poverty, exclusion, and inequality, and positively influence cities to embark on a path to inclusive, planned, and sustainable urbanisation. Property rights and security of tenure also have a profound impact on the housing sector as whole. The less protected and documented these rights are, the more housing becomes scarce, costly and inaccessible, triggering a buoyant informal land and housing market, including dysfunctional rental

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[2] The New Urban Agenda was adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador, on 20 October 2016. http://habitat3.org/the-new-urban-agenda
[3] Adequate housing was recognized as part of the right to an adequate standard of living in the 1948 Universal Declaration of Human Rights and in the 1966 International Covenant on Economic, Social and Cultural Rights. https://ohchr.org/Documents/Publications/FS21_rev_1_Housing_en.pdf

markets, and propelling the formation of informal settlements. It is estimated that less than 30% of developing countries are currently covered by some form of land registration – therefore, about 70% of settlements in developing countries are outside a register. In Sub-Saharan Africa, more than five different land-rights systems and tenure modalities run in tandem, leading to confusion and often, to conflict. Unstable land rights are a key reason for the endemic scarcity of affordable housing in Africa.

How housing for the urban poor is designed and delivered in Kenya and across sub-Saharan Africa in the next decade will set much of the physical, social and administrative context for achieving the Sustainable Development Goals (SDGs). Demand for adequate and affordable housing in Kenya (estimated annually at 244,000 units), massively outpaces the estimated annual supply of less than 50,000 units. Furthermore, the great majority of Kenyans are still unable to access homes that are added to the housing market due to their high cost, unfriendly mortgage regime, a rigid land tenure system and weak regulatory and quality assurance frameworks that govern this sector. This heightens the need for a public housing model covering all urban centres across the country that incorporates innovative, cost effective and efficient delivery models, and the specific needs of those with the lowest economic status. Any public housing models should also consider the use of affordable, environmentally friendly building materials and efficient construction technologies.

The Kenyan Government recognises the central contribution of housing to development, and places Affordable Housing as one of four national priorities (Big 4 Agenda), and one of the key elements of the New Urban Agenda and SDG 11 (Target 11.1: By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums).

Importantly, an integrated and holistic approach to housing can also contribute to:
- decreasing poverty (SDG1 – No poverty)
- to improved health outcomes (SDG3 – Good Health & Wellbeing)
- to energy efficient renovation (SDG 7 – Affordable & clean energy)
- and climate change mitigation (SDG 13 – Climate action).

Delivering on this policy priority will require leveraging science, technology and innovation, in partnership with policy, business and civil society. In addition, supporting the Affordable Housing initiative (Big 4 Agenda) creates opportunities for Decent Work (SDG 8- Decent Work and Economic Growth) especially for Kenyan Youth.

The scale and complexity of the challenge requires an interdisciplinary and multisectoral approach. Kenya and the UK have a strong history of research and scientific partnerships and technology transfer across a number of sectors, including in the housing sector. The UK-Kenya Research Symposium on 'Healthy Cities: Affordable Housing & Sustainable Infrastructure' brought together existing and nascent research partnerships which explore innovative interdisciplinary collaborations that seek to deliver on affordable housing as a core part of achieving success on the Sustainable Development Goals. The symposium brokered dialogue across policymakers, researchers, NGOs, businesses and civil society towards the adoption of housing policies that promote sustainable development for all.

Based on the discussion at the UK-Kenya symposium, this joint statement identifies three elements key to the provision of affordable housing in Kenya. We have identified key challenges and opportunities for the design, management and financing of affordable housing.

1.   Healthy neighbourhoods and assessing complex local priorities

Kenya's urbanization increased by 24% between 2008-2012 and is expected to reach 50% by 2030 (Kenya National Bureau of Statistics, Kenya Population Census, August 2009). Urban areas in Kenya are constantly growing due an increasing urbanised population – 26% of Kenyans live in cities, increasing to 44% by 2050 (UNDESA World Urbanisation Prospects: Urban and Rural Population, 2018) – and the reclassification of peri-urban land as urban space. Rapid expansion of urban areas places stress on infrastructure and amenities, and can worsen urban unemployment rates, therefore, a neighbourhood and community lens is critical to piece together the different impacts of urbanisation. Informal settlements are often created because of rapid urbanisation, but informality itself is a symptom of people not being fully accepted into existing city-systems. In principle an Affordable Housing Strategy would need to counter barriers to inclusion, and reverse the cycle of deprivation, which can create an opening for violence and stigmatization. The resulting stereotypes have hindered young people from these areas from advancing economically as well as accessing services accorded to fellow young people living in other parts of the city. It remains an important objective for urban policy frameworks to include young people in decision making processes in planning of cities.

Improving access to housing requires an inclusive and integrated approach to establish enabling conditions, upgrading or increase the stock of adequate and affordable housing, and responding to the needs of those who are already settled in informal conditions to reduce social inequalities and strengthen the drive towards sustainable urbanisation. Urban policies tend to operate at a very general level, and often do not reflect the diversity of issues *within* cities and towns. Governments should aim to establish processes to improve security of tenure conditions and adequate attention to the development of physical infrastructure can help shape human movement into and within urban areas, including street networks and improved access to municipal basic services. Infrastructure needs to be designed with participation of women and men of different ages and people living with disabilities to reduce risks of violence, including gender-based violence (e.g. through lighting, lockable toilet doors) and to ensure disabled access. The increasing global burden of non-communicable diseases means new infrastructure requires extra consideration of the obvious risks. For example, urbanisation and poor house design increase both indoor and outdoor air pollution, thereby increasing risks of chronic respiratory disease. Mental health and psycho-social well-being are also issues hugely influenced by poor housing, unaffordable housing and tenure insecurity. Related issues include youth access to health-care (insurance), sanitation (hygiene, proper drainage and garbage collection), access to clean and safe water and food in informal settlements; access to clinics and contraceptives and health care education to help reduce the prevalence of HIV/AIDS.

Lack of adequate housing, forced evictions or homelessness tend to have a profound impact on children and youth, affecting their development, right to education, health and personal security.[4] Housing and slum upgrading development actors should consider children's particular needs, for example, that children and youth's health, educational advancement and overall well-being are deeply influenced by the quality of housing in which they live (UNICEF, State of the World's Children 2012: Children in the urban world). Lack of drinking water and poor drainage were most commonly identified as the priority needs by slum residents in 2012 and other concerns included housing, access to education, garbage/sewer disposal and security.[5]

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[4] See for example, Makau, Jack. 2011. "Like we don't have enough on our hands already!": the story of the Kenyan slum youth federation. *Environment and Urbanization* 23 (1): 203-206.

[5] African Population and Health Research Centre (APHRC). 2014. Population and Health Dynamics in Nairobi's Informal Settlements: Report of the Nairobi Cross-sectional Slums Survey (NCSS) 2012. Nairobi: APHRC

Housing and essential services need to be responsive to different groups within communities – e.g. owners and renters, youth and elderly, women and men, people with disabilities – and have clear accountability mechanisms. However, the availability of critical and real time data is a limiting factor to effectively representing the everyday conditions of at-risk groups and implementing policies based on real rather than perceived needs. Collaborations with at-risk groups to enable reliable data on local conditions, needs and priorities can unlock policy potential. For example, the Kenya National Youth Policy (KNYP)-2016 acknowledges that many Youth in Kenya, especially those living in urban areas, do not have access to decent housing in healthy environments.

2. Essential Services and sustainable infrastructures

The integration of affordable housing with programmes for essential services and sustainable infrastructures maximises potential for supporting human development. Without these ancillary investments, housing alone can become a burden for residents who are forced to travel large distances to access services or who are forced to live with unhealthy or unsafe environments. But concentrating solely on providing serviced homes is likely to mean neglecting the poorer majority. A more integrated and incremental approach, would prioritise some improvements for many over many improvements for some. Three key strands to this are affordability, sustainability and resilience.

a. Affordability. As with affordable housing, so the affordability of essential services and infrastructure has to be considered. Considerations should include a range of financing and management mechanisms from state, community or the private sector to make essential services affordable, particularly to those with prohibitively low incomes. The role of Development Finance Institutions such as the World Bank in shaping options must also be considered. There are challenges for smaller settlements that might not offer the economies of scale nor the scale of demand that traditional financial mechanisms require. In larger cities diverse financial and management options should exist, including hybrids where the state and community groups may collaborate. Through Sites and Services schemes or programmes of incremental upgrading, government can provide core infrastructure which is most successful when beneficiaries are included in decision-making, as has been observed in the Kenya Slum Upgrading Programme. In determining affordability of investment, it is important to consider the long-term implications of decisions. Reducing the quality or coverage of essential services and infrastructure can lead to increased health or hazard risk for example, if sanitation is inadequate. Over the longer term a lack of adequate investment in education or health services will contribute to poverty through a growing disenfranchised and unskilled population. **An investment in education and apprenticeship programmes for young people will develop skilled workers who will ultimately contribute their earnings back into Kenyan markets.**

b. Sustainability. Article 42 and 70 of the Constitution of Kenya (2014) provides a claimable right for a clean and healthy environment. Urban infrastructure investments as part of integrated housing development offer key opportunities to contribute towards this aim, including through climate mitigation. Three key opportunities for sustainability lie in solid waste, transport and energy management. For low income populations solid waste management (SWM) directly impacts on health. The National Solid Waste Management Strategy (2014) recognises the multiple ways in which SWM can contribute to create wealth, employment and reduce pollution of the environment providing a framework for municipal authorities to integrate SWM into pro-poor and sustainable development actions. The ongoing expansion of Kenya's urban settlements, especially along main transport routes provides an opportunity to plan for more sustainable transport – both through

planning to minimise the distance needed to travel between home, work, school and other services, and through the consideration of mass transit in large cities like Nairobi. Decentralised electricity production based on the collection of solar energy can offer modest livelihood opportunities and significant environmental gains.

c. Resilience. Affordable housing must also be built to agreed standards such that specific risks are avoided. National legislation and implementation are required to make these standards real. Kenya is exposed to earthquake, flood and landslide hazard as well as fire, air pollution. Building collapse is also observed when even basic standards are not observed resulting in terrible loss. Constructing housing to agreed standards needs to be combined with risk aware zoning policies built on scientific evidence. Challenges exist where new data or revised standards mean that already populated land is retrospectively re-classified as unacceptably high risk leading to the relocation of residents. The experience of Nairobi's Railways Relocation Action Plan highlights the importance of community involvement in planning stages onwards if relocation is to realise its potential for enhancing wellbeing. Where relocation is unavoidable particular care is needed to support social cohesion and livelihoods amongst those who move. A range of risk identification and mapping tools, risk communication and community-based risk management tools exist and can be deployed by government or civil society to reduce risk of existing, and planned buildings (see for example www.urbanark.org).

3. Housing Supply challenges

a. Availability of finance including informal and community led initiatives

The inclusion of affordable housing as one of the four pillars of growth in the President's "Big Four" plan has stimulated a range of policy and regulatory interventions in the housing sector. In its 2018 Budget Review, the National Treasury announced a series of legislative and administrative interventions to facilitate the achievement of these goals, including policy changes, initiatives to leverage public land for development; and the introduction of public private partnerships to expedite administrative approvals, enhance access to well-located land, and improve inter-governmental coordination.

Kenya has an established banking sector in which 75.3% of the adult population are formally included and the 2016 FinAccess Household Survey reported financial exclusion at 17.4% in 2016 (Centre for Affordable Housing Finance Yearbook 2018). According to the Kenyan Central Bank's mortgage market survey, the most frequently cited obstacle by banks to the development of the mortgage market had to do with high costs (of housing units, of land for construction, and of the various incidentals, taxes and fees). This was followed by difficulties with property registration and titling, and then household affordability as a result of low incomes. Access to affordable long-term finance was the sixth most popular response from a list of ten, followed by various constraints in the residential property transaction process. However, lenders have confirmed that the perceived affordability of capped interest rates led to a higher demand for mortgage loans.

Given Kenya's economic status and population size, the amount of mortgage loans is far below what would be expected. FinAccess 2016 notes that the use of credit for housing purchases appears to be limited - 34.2% of respondents reported having used at least one type of credit instrument and of these, only 14.7% said the loan had been for a house or land. These loans were most commonly obtained from both Savings and Credit Cooperatives (SACCOs) - 45.9% of all loans for housing or land - and banks (34.2%). It is worth noting that informal providers, microfinance lenders and mobile banks together provided about a fifth of all loans used for housing (CAHF 2018 Yearbook), while the World Bank

estimates that up to 90% of housing finance in Kenya is supplied by SACCOs and housing cooperative networks (World Bank 2017).

b. Speculation

Well intentioned affordable housing programmes are jeopardised if the newly built housing units are subject to speculative waves of investment which either drive house prices beyond the reach of those with weaker incomes or trap those who are unable to buy under high rental rates. Indeed, rental housing is a significant feature in Kenya. Much of this middle-income rental housing is offered by small scale landlords who build 20 to 40 units on small, family- owned plots. At the same time, developers are building larger formal estates of more than one hundred apartments, and selling these on a condominium or sectional title basis to investors, who then rent them out to a lower- or middle-income target market. Carefully designed and targeted subsidies to assist those who value them the most, are needed to reduce the impact of the speculative waves that often characterize urban redevelopment.

c. Land-use, access to land and demand for construction materials

When the long-term nature of housing stock is considered, it is clear that new production will only account for a very small percentage of the existing stock. Ways to make the existing urban capital stock more responsive to demand need to be explored. Small improvements in the use of the existing stock can have the same impact as large-scale housing developments. Nevertheless, access to land remains a pervasively binding constraint to the right to adequate housing. Both building standards and rules governing population density determine how spread-out a city will be. Changing some of these regulations is in principle costless since such regulations control behaviour but do not mandate public expenditures. However, they still entail winners and losers. Lower standards that make housing more affordable also reduce the value of existing housing whose owners may oppose such measures. Location and affordability are perhaps the attributes of housing most vulnerable to land markets.

Policymakers often neglect the importance of land as a major input of housing delivery systems and by doing so lose control over the production of urban space. Important aspects determining the affordability of housing, security of tenure and upgrading of informal settlements are intrinsically related and rely on the improvement of land delivery systems. The lack of serviced land and a dysfunctional housing market are two critical obstacles hindering affordable housing supply. One of the most common problems related to land delivery systems is the reproduction of mass residential schemes which are built far away from the urban core where land is cheaper and more readily available. This has had adverse impacts on the livelihoods of the population and created costly, fragmented and unsustainable urban growth patterns.

Large scale construction of new homes will invariably place greater demand for construction materials (sand and gravel, crushed rock, cement, steel, bricks etc.) on formal and informal supply networks. Ensuring this material is sourced in line with sustainable environmental and social impact consideration is essential. New construction technologies and materials can lessen the adverse social and climate impact of large-scale construction.

Steps forward: National and county level commitments

Affordable housing is a complex challenge requiring transdisciplinary, evidence based and collaborative policy intervention. Technical discussions at the high-level symposium concluded by recognising adequate and affordable housing as a key pathway towards healthy, safe and inclusive cities. The key

technological and socio-economic considerations to take forward Kenya's affordable housing policy priorities include:

i. Better understanding the challenges that restrict housing from meeting the diverse socio-economic needs and priorities of the urban poor. These include understanding the mixed uses of housing – e.g. for small business and requirements for social spaces in communities that meet the needs of different groups; as well as knowledge of the socio-economic, policy, legal and regulatory barriers to achieving broad access to mortgage facilities by the majority of Kenyans;

ii. Knowledge of the socio-economic, financing and regulatory conditions that can support the affordability of adequate housing for all sections of society, and articulated for both owners and renters.

iii. Better understanding of materials science for the development of affordable and sustainable building technologies that use locally available resources and technical expertise, to make it climate smart from the sourcing of building material, to the design of dwellings and planning of residential development;

iv. A more nuanced interrogation of the National Land Tenure system and the urban planning regulations to identify their potential negative impact on the housing development;

v. Enhanced capacity of the newly established Kenya Building Research Centre to effectively lead the building, construction and infrastructure research agenda in ways that are interdisciplinary and bringing together technological and socio-economic aspects of housing.

The Technical Report was drafted by a joint working group, with input from panellists and participants of the Symposium.

Technical Report Working Group:

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Elizabeth Mwangi – Oluoch	Chief Executive Officer, Kenya Property Developers Association	Private Sector
Christophe Lalande (Thomas Chiramba) (Jeremiah Atho Ougo)	UN Habitat Leader, Housing Unit (National UN Habitat) (Regional UN Habitat)	Global liaison
Diana Korir	DFID Youth Panel	Youth representative

Panellists and participants who agreed to formally agree to the priorities set out in this report and adopt them in their future work are:

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ANNEX I – OPPORTUNITIES FOR IMPACT

Participants of the Technical Workshop on Tuesday 21 May identified opportunities for impact by deliberating upon the following two questions in break-out groups:

- What are the evidence gaps in responding to the challenge of providing adequate and affordable housing in the context of the identified SDGs (1, 3, 7, 11, and 13)?
- Where are the opportunities to respond to the identified gaps? For example, this could be through a policy area under review, a local project under development and/or opportunities for collaboration between Kenyan and UK researchers

<u>Understanding Local Priorities</u>

Research gaps: What data and types of evidence are appropriate for scoping, setting and driving interventions? How can data be used to set and drive agendas?

Opportunity: fund broader data collection efforts looking at explicitly at complexity, including platforms that are transdisciplinary (for example, qualitative and quantitative, spatial and geographic scales). Partner with county and municipal authorities directly (for example to map/create sanitation flows). However, need to keep in mind that opportunities to synthesise data have not been exhausted. There is also opportunity for the research community to engage with the upcoming Census. . Using locally relevant data is an opportunity to know the city for advocacy, mobilise around topical/ seasonal needs, and enable local authorities to direct and priorities policy agenda.

Research gaps: What are the appropriate/meaningful scales of innovation?

Opportunity: To consider the different scales of city, municipalities and counties – devolution has made these relevant to urban practice in a way that has empowered practitioners, meaning that innovation is starting to happen at different scales. To further, recognise that neighbourhood continues to be the location of innovation, not enough has been done to research *established* neighbourhoods that include both formal and informal spaces (there is a tendency to focus on informal or green/ brownfield). Innovation happens in everyday locations and not just in a lab, there is opportunity to compare Nairobi with regions across Kenya and across Africa.

Research gaps: How can we continue to innovate in the ways we engage at-risk communities?

Opportunity: To undertake inclusive research through co-creating interventions and empowering communities. Examples of existing initiatives from participants included communities reclaiming public spaces through tree-planting and community-led interventions to improve sanitation through garbage clearing.

<u>Transparency</u>

Research gaps: transparency and accountability in and through research. There is a need and opportunity for research and policy to work more closely together. It was also identified that a synthesis of knowledge across and between funded projects is needed. How realistic can researchers be when they propose impact? In what ways can we leverage maximum openness to data that we generate?

How can we think of structural ways to enable knowledge and evidence sharing between funding cycles? There is also opportunity for funders to synthesise and collectively prioritise issues on affordable housing.

Opportunity: Good practice to increase accessibility of existing data, showing a willingness for research to engage with government. Governments and funders have opportunity to convene researchers and policy together using the Big 4 Issues as a unifying platform. Participants described the development of the Africa Sustainability Hub – a longer-term hub aligned to national challenges/priorities in order to provide technical support beyond project lifetimes. This has also allowed growth into different partnerships. There is also a National Construction Authority Task force that's charged with overseeing construction, including of housing in the country, they are currently planning a research agenda for evidence-informed decision making.

Health

Research gaps: Better understand the link between urban processes (of production and transformation) and health and wellbeing outcomes. Extrapolate the direct and indirect links between the built or material environment on wellbeing (e.g. stagnant water creating environments for mosquitos that spread vector borne disease; the impact of building design on lifestyle choices). Can interrogate the Big 4 Agenda from this perspective – housing and access to healthcare, when you influence built environment what impact does this have on health and wellbeing?

Opportunity: To theorise and action desirable urban processes, for example behavioural shift towards clean energy, as an expression of healthy living.

Research Gap: On designing for health, and the need for evidence-based research to inform how we can deliver on this – from a funding perspective, since there's no doubt about how the built environment affects our health, but rather because it is such a complex issue, how do we better justify resourcing for this type of research?

Opportunity: Consider social constructs such as community ownership and dignity. Better understand the gap between policy process and the situation on the ground, and rethink how we do research and how we define impact as a result of this e.g. capacity building and empowering of the people on the ground (and this came up strongly in our discussion), if community empowerment is considered to be the most important outcome, then greater emphasis should be put on targeting communities. Consider mixed-use spaces - participants discussed a research study they were involved in looking at 3 interventions in slum/low-income settlements - slums upgrading, railway housing, and the National Youth Service (NYS) infrastructure. A key learning was on social constructs i.e. the value people added to their houses/homes e.g. are there places they can run business nearby, places to just sit and talk, where their children can attend school – mixed-use spaces (for different categories or ages). From the NYS programme, a key learning outcome was on how much youth employment it brought about, how much more occupied young people were, and that employment was more important to young people than the goals of the programme e.g. roads built, gutters cleaned etc.

Engaging cities as complex systems

Research gaps: Understanding that construction alone can never adequately meet demand for adequate and affordable housing, innovation and tech need to also be leveraged to update existing informal stock and services.

Opportunity: To be multi-sectoral, multi- stakeholder and adopt co-production processes.

Research gaps: land as a process and not just an asset. Land-use should be considered on multiple levels – land as the most valuable asset in city has a natural tendency to exclude the least resourced residents, governments can use land as a resource to implement to leverage policy agenda. It should be acknowledged that the use of land can have unintended consequences.

Opportunity: to understand the place of land in urban systems. Land-use can happen in different ways and can enable nuanced research.

Sustainable Construction

Research gaps: To understand the relationship between greater efficiencies in construction and affordable housing. To research innovative solutions to improve the sustainability of new buildings.

Opportunity: Although there was general consensus that research for improvements should start with existing housing stock, opportunities for new buildings to be developed in a way that is more sustainable and fit for purpose were highlighted. The cost and appropriateness of connected services and the maintenance of these can be integrated into building design and construction. This will support the appropriateness of the new building for the community that they are being designed for e.g. desire for communal rather than individual services to make long-term maintenance more affordable. There is also opportunity to develop a better understanding of how much residential space exists in the city through improved data, this can then be incorporated into planning and design. There is also call for developing a greater understanding of the relationship between construction law and innovations in environmental solutions to increase compliance and accessibility, therefore encouraging greater use.

Gender and intersectional risks

Research gaps: Further understanding the societal impact of intervening in the built environment.

Opportunity improve and act upon a much more detailed and realistic understanding of gender issues and how these are relevant to the lived experience of people who spend most time in the home e.g. women, mothers, older people, children. Understanding processes of exclusion out of the home, such as the involvement of women in urban practice. The Architectural Association of Kenya highlighted their training programme BuildHer, which is offered exclusively to women. Demand to engage with women's voices by policy makers is limited, therefore there is opportunity for capacity building in this area.

Research gaps: To disaggregate our understanding of barriers to accessing finance by gender and across slum-dwellers, renters and owners. Understand the wide-range of finance providers – private and informal e.g. majority of funding by savings co-operatives and building societies.

Opportunity: to work across formal and informal processes to understand the full range of housing demand. Engage with a wide range of stakeholders and communities and understand how national and private banks can engage in collaborative and collective ways so that they create viable access to finance

and don't fuel speculation in property markets. There is also opportunity to develop a greater understanding of the rental market and the demand and opportunities for this in supporting affordable access to housing.

Research gaps: Understanding climate related hazards as an impact on everyday life, at both a small and large scale. An understanding also needs to be developed of how this is exacerbated by a lack of strategic land-use policy and where this results in vulnerable or at-risk populations living in the most precarious locations.

Opportunity: to develop risk-centred models of local development and accountability.