CHANGE BY DESIGN

Building communities through participatory design

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SUMMARY

This book documents a two-week action research workshop, Change by Design, undertaken in Nairobi, Kenya from 19th June – 1st July 2011. The workshop was developed and coordinated under the banner of Architecture Sans Frontieres (ASF), in partnership with the Pamoja Trust, a Kenyan NGO, and the Housing Policy Section of UN-HABITAT.

The principal focus underpinning the workshop was an exploration of the opportunities and limitations of integrated community-led participatory design for responsive slum upgrading in Kenya, and the degree to which this community-led approach could not only build an improved physical environment but also recognise the social production of space; empower slum dwellers to be active agents of change; and build socially, economically, and environmentally sustainable communities.

In total over 65 participants were involved on a daily basis for the duration of the workshop. Workshop participants comprised 22 international ASF participants (students, and practitioners from a wide range of disciplines such as architecture, engineering, economics, and sociology); 25 local participants (mostly students associated with the Pamoja Trust); 15 'key' residents of Mashimoni, the workshop case site; and 3 workshop coordinators.

Through investigations in Mashimoni, one village in the Mathare Valley, the workshop findings demonstrate the immense complexity of slum upgrading in Kenya, in particular the tension between individual priorities and needs, and those of the collective. Through analysis at the macro institutional scale, the meso neighbourhood scale, and the micro dwelling scale, the workshop highlighted the benefits of undertaking participatory design at these three scales, concurrently, and linking them together for residents to make trade-offs.

Furthermore, this synchronised analysis facilitated negotiations and consensus building using the spatial dimensions as a medium to facilitate dialogue, which was successfully
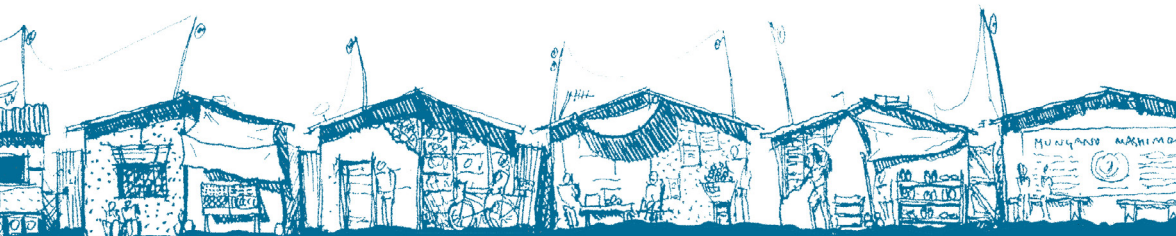
done in the final 'portfolio of options' exercise undertaken at the end of the workshop.

Local stakeholders (such as the Pamoja Trust, local NGOs, government officials, and Mashimoni residents) reflected that the workshop methodology was extremely positive and offers immense promise for improving current slum upgrading practice. The use of cardboard models, the consideration of the community/neighbourhood scale, and the responsiveness to diversity were all able to be explored through this approach, something that other approaches often ignore in searching for consensus, only involving 'dominant voices', and only focusing on building houses.

Therefore, as upgrading programmes continue to be implemented in Kenya in line with the new constitution there are high hopes that the tools and methodologies utilised and refined in this workshop will be mainstreamed to make a wider positive impact on slum upgrading in Kenya and help realise the right to adequate housing for all.

CONTENTS

1

Introduction   16

2

Institutional   32

3

Community   48

4

Dwelling   96

5

Portfolio of options   144

PREFACE

As I sit down to write this Preface a large part of the Sinai slum located in the Lunga Lunga industrial area of Nairobi lays in ruins, with smoldering, charred remains of people and property due to a devastating fuel explosion. It is the evening of Monday September 12th, 2011, and details are still emerging as to the cause and extent of the tragedy that has shocked the Kenyan capital.

At around 08:30 this morning Sinai residents were hurriedly collecting fuel that was overflowing from a broken underground fuel pipe that runs through the slum. A bucket of fuel could pay the rent of a shack for a month or more. While some fuel was indeed collected, much of it streamed downhill through the narrow alleyways and unpaved streets towards the river, aided by the heavy rain. The alleyways and streets were filled with workers coming home from night shift to their timber and iron shacks, and many women and children departing for their day of work and school.

Tragically, the fuel was ignited—some say by a cigarette butt thrown into the river; others say by sparks from cooking outside using the common open-fire. The fuel exploded. A fireball engulfed residents and their tinder shacks. A plume of thick black smoke rose from the densely packed settlement. A fire raged through the slum. Residents stumbled, dazed, and with skin peeling off their faces, searched for their wives, husbands, and children, their friends, and their neighbours.

A definitive death toll is still unknown, but over 100 are feared dead, and over 100 more are in hospital critically injured.

The Sinai fire tragedy reinforces the gravity of the challenge that this publication addresses: the need to urgently improve inadequate slum settlements, realise the universal right to adequate housing, and develop ways to address poverty and socio-economic marginality to build inclusive and safe cities for all.

There is no denying that residents' poverty contributed to the deaths: collecting fuel in their desperate attempt for cash to pay rent in their informal, high-priced shacks placed them at the centre of the fire. Yet more pronounced than this, their socio-economic marginality leads them to live in slums that are characterised by inadequate physical living conditions: cramped, unplanned, poorly built conditions, which exacerbate the effects of disasters and constrain rescue attempts.

The incident reinforces that the right to adequate housing – in particular the dimension of habitability – remains to be realised for the majority of urban households who find themselves in poverty. And, most clearly, it strengthens the widely held conviction that slums

throughout the world require urgent upgrading; that it is simply morally, legally, and ethically unacceptable that slum dwellers bear the brunt of environmental hazards and disasters, and socio-economic inequalities.

Improving slum areas through addressing both the root causes of poverty as well as the physical environmental conditions was the focus of the two-week action research workshop in Mashimoni, a slum in Mathare Valley, Nairobi, the outcomes and documentation of which form the basis for this publication.

The workshop built on slum upgrading work that Isis Nunez Ferrera, Naomi Shinkins, Alex Apsan Frediani, and myself have been doing over the last three years. We have been developing and piloting what has become to be referred to as the 'Integrated Participatory Slum Upgrading' approach; or more commonly: 'Change by Design: Building Communities'.

We undertook the first comprehensive pilot of this approach in a squatter settlement, Paraiso, in the Brazilian city of Salvador da Bahia in 2010 (figure two and figure three), although many of the theoretical and methodological ideas stemmed from a workshop we conducted in the same city a year prior, and another shorter workshop in another settlement, Escada (figure four).

In late-2010 I relocated to Nairobi to undertake an internship with the United Nations Human Settlements Programme (UN-HABITAT), as well as to undertake an independent ethnographic research project supported by the Royal Institute of British Architects (RIBA) which examined sustainability dimensions of informal slum housing in Nairobi.

Through this work I became increasingly aware that existing projects were repeating many of the past mistakes of slum upgrading – mass produced, expensive, 'top-down', turn-key housing solutions into which slum dwellers were relocated, and where life became more difficult for the people that the projects were supposed to serve. Where it existed, 'participation' in these projects was essentially nothing more than consultation of previously made professional upgrading plans and decisions.

During the course of my research I came across the community-led incremental slum upgrading work undertaken by the Pamoja Trust in the Huruma slum of Nairobi. There seemed to be many synergies between the work we had done in Brazil and that which Pamoja Trust was doing throughout Kenya. After several meetings we agreed to partner, along with the Housing Policy Section of UN-HABITAT, in undertaking a similar workshop as we had done in Brazil.

Methodologically, Kenya provided a fitting setting to further test and refine the approach, in a markedly different socio-cultural, economic, and political context. Substantively, it provided fertile ground for work around realising housing rights in the context of the newly adopted and very progressive Kenyan constitution. Operationally, it provided the opportunity to support the existing activities of Pamoja Trust and address the demand by local students and professionals for alternative models that placed people at the centre of development and which could recognise the social production of space.

One lesson from the Brazil workshops was the need to impact beyond the one focus settlement. In particular, to network local housing sector stakeholders and to dialogue about necessary changes to policy and institutional frameworks that, in the end, set the opportunities and limitations for action on the ground. For that reason we held a symposium, hosted by UN-HABITAT at their global headquarters in Nairobi, which fulfilled these objectives, brought international participants 'up to speed' with the context, and acted as the 'theoretical' precursor to the subsequent field activities.

Overall, the symposium and workshop proved more successful than any of us had imagined. We were fortunate to have experienced and knowledgeable international participants, engaged and pro-active community members, and committed and perceptive local students. The success must be attributed to all participants and the respectful and constructive working relationship that characterised the workshop.

In light of the success, we have endeavoured to document, review, and report the workshop in a fitting manner. This professional and richly illustrated publication is the result.

I believe that this publication represents a considerable body of action research with important substantive and methodological value. The approach that underpins the work is certainly not a panacea to the challenge of slums. Nor is it a guarantee for achieving the full realisation of the right to adequate housing. It does, however, go some way in defining a philosophy of slum upgrading that is not based on abstract models or theoretical representations of urban phenomena but on the complexities and contradictions of in-depth field settings.

It is a terrible reality that slums only attract serious attention when disastrous events like the Sinai fire occur. Publishing this work has certainly provided us an opportunity to rigorously reflect on the workshop, its findings, and the key issues regarding participatory slum upgrading

in Nairobi. More importantly, however, publishing will allow us to disseminate the work more widely and advocate for greater attention towards upgrading slums in a truly participatory manner.

I believe this is where the strength of our work rests. To some extent it is a manifesto for people-centred slum upgrading that can be scaled-up and replicated. Yet it is and will continue to be underpinned and continually informed by spatial tools and methods that can engage slum dwellers and build their capacity to understand, negotiate, and reach consensus on upgrading plans that fit their needs, wants and aspirations.

The spirit of our work was best captured by Waimatha, a middle-aged woman living in Mashimoni who, at the end of the final group exercise on the last day of the workshop, gently but proudly said: "this experience has been good for me. I have learnt it's OK to dream". I sincerely hope that the work undertaken in the Change by Design workshop and documented herein not only offers a set of methodological tools and substantive lessons, but also, more importantly, empowers others to dream of a more equitable, inclusive, and safe urban future for all.

Matthew French
Nairobi, Kenya
September 2011

two

three

four

FOREWORD

The importance of the work contained in this publication is at least threefold. First, it makes a clear contribution to improving our understanding of the complexity of urban informal settlements and of how and when it is best to intervene. The work gives definition to a new kind of practice that is guided as much by the moral obligation to protect and fulfill rights, remove discrimination and reduce vulnerabilities, as by the need to solve problems in practical ways. The value that the workshop at Mashimoni delivered to local people, ASF partners and participants is incontestable.

Second, what we see in this publication is further evidence of the social value of design and the imperative of participation beyond self- help. Participatory design (and planning) is key to achieving equity and efficiency when formulating plans and in urban governance. Together, design and participation unlock the resourcefulness of place and maximise opportunities for discovery in which all participate. Part Five of this publication, the 'Portfolio of Options', demonstrates the value of design as a process of enablement, cultivating choice and opportunity, and encouraging improvisation in search for order – the kind that liberates rather than confines, based on difference and not sameness. All of this challenges conventional disciplinary boundaries, explores new

partnerships, and demands new skills and new tools.

Third, this and other ASF workshops I have been part of open new opportunities for educating students of architecture and for the continuing education of young professionals. They bring together two often conflicting objectives; on the one hand the need to be rigorous to the discipline of architecture and to the core of what it takes to be an architect; on the other hand, the desire to be relevant in dealing with some of the big issues we face today. The workshop in Mashimoni rightly converges these objectives. The question it implicitly asks is: how to be rigorous in a way that is relevant.

The ASF workshops offer a number of opportunities in this respect. First, they offer a diversity of settings in which to explore and develop not just skills and talents, but also the extensive resources and worth which architects can deploy. Working often as they do in complex settings, through gatekeepers and in a climate of optimal uncertainty, these settings challenge what one takes for granted in studio-based learning. They set new parameters for what it takes to be rigorous and relevant.

Second, field-based work engages one with a multiplicity of client bodies, not all of whom are on your side and some

of whom may be in open conflict. One must work out how to converge interests, negotiate priorities and resolve conflict. All this demands a very different toolkit which some of the examples in this publication explore.

Third, ASF field-based workshops and the examples presented here engage people in dealing not just with the symptoms of problems (bad housing) but also some of the primary causes (insecurity, poverty, unemployment, and social exclusion). In so doing they demand that we re-draw the boundaries to our responsibilities.

Finally, implicit in all the chapters to this publication is the search for a new kind of professionalism given the complexities of urban informal settlements, and given the new ethics it demands. My own premise is that there are at least four integrally related activities, each of which demands differing roles, responsibilities, relationships and tools. I call this my PEAS principles – providing, enabling, adapting and sustaining. What should we provide to enable people to provide for themselves and sustain their livelihoods. How do we encourage progressive and often incremental adaptations to ensure good fit between people and place both now and over time. How will it all be sustained?

It is in all these respects that I value the ASF field based workshops and indeed the worth of this publication.

Nabeel Hamdi
Oxford, UK
October 2011

ACKNOWLEDGEMENTS

ONE
INTRODUCTION

PART ONE
INTRODUCTION

1.1
Participatory design as community building

Like many developing countries, Kenya faces a considerable challenge of slums, a challenge that is growing by the day. In Nairobi, the capital, millions of people live in small, unhealthy, relatively expensive, tin and iron shacks with little or no tenure security. These precarious living conditions exacerbate their poverty and increase their socio-political marginality.

While slum upgrading programmes which aim to improve the social, economic, and environmental conditions are currently being undertaken in Kenya, they provide little to no opportunity for slum dweller participation.

Participation is commonly taken to mean the involvement of a wide range of stakeholders in development decisions: government officials, NGOs, international organisations, local neighbourhood organisations, and business and small-enterprise groups to name but a few – the list of stakeholders is long.

Proponents of participation primarily argue that it produces superior results, that is, in terms of built environment upgrading, participation improves the responsiveness, the 'fit', between the resulting environment and the needs and wants of the people it is supposed to serve.

Proponents of participation also argue that participation improves project implementation. By involving stakeholders in upgrading proposals and plans they are less likely to oppose developments and more likely to help ensure a smooth execution of building works, which reduces risk and helps ensure timely project completion.

But participation is also socially advantageous. Whist both the 'good fit' argument and 'trouble-free implementation' argument are valid reasons for participation, another incentive which is potentially more transformative is the role of participation in building the capacity and empowering the vulnerable and marginalised who are typically excluded from city building processes. In the case of slum upgrading, participation gives a voice to slum dwellers and offers the opportunity for them to be involved in the decisions that will greatly affect their lives, livelihoods, and wellbeing.

Participation in slum upgrading

Participation is in fashion. Around the world, the majority of urban development and slum upgrading projects are touted as participatory. They are touted as involving local residents in development decisions—as 'bottom-up', as 'community-led' projects—which is advantageous because 'participatory'

projects have a greater chance of attracting national and international funding, and they are politically profitable with mayors and ministers harnessing their positive marketing potential.

Yet 'participation' can mean many things and often participation is no more than consultation of professionally developed upgrading plans. Seldom are slum dwellers involved in defining and making the development decisions. Their involvement is limited to providing feedback or voicing their objections long after the project has been defined by officials, designed by architects, engineered by engineers, costed by surveyors, and put out to tender by building contractors.

It is easy to criticize the status quo yet what are superior participatory slum upgrading approaches? Do they exist? In practice how can people in power better involve slum dwellers in upgrading projects? Where is the balance between the needs and values of slum dwellers and those of other stakeholders?

1.2
Change by Design

It is within this context of searching for more responsive participatory approaches to slum upgrading that the ASF Kenya 2011 workshop was held in Nairobi. Through an action research methodology

the workshop sought to explore the opportunities and limitations of participatory design for slum upgrading in Kenya.

The workshop questioned how slum dwellers can be meaningfully involved in slum upgrading as active agents of change, rather than beneficiaries of top-down 'improvement' projects. It investigated the potential for building urban environments that are not only more responsive to slum dwellers' tangible built environment needs and aspirations but that can also reduce their socio-economic vulnerability and empower them to claim their right to the city.

ASF partnered with the Pamoja Trust, a local NGO that has been working for over 15 years in supporting slum dwellers in Kenya to resist forced evictions and fight for their right to adequate housing. In addition to the Pamoja Trust, UN-HABITAT was also a local partner, having their headquarters located in Nairobi and being a long-time advocate for participation in slum upgrading projects and programmes.

The workshop 'case settlement' was Mashimoni, one village in the Mathare Valley located to the north of the Nairobi central business district (CBD). Mashimoni occupies 9 acres of land and has 3,500 residents in 1,500 houses. 65

five

six

seven

five

Aerial view of Mashimoni and the surrounding area demonstrating the regular although strikingly dense urban layout

six

View from the cliff over Mashimoni

seven

An overview of Muungano Mashimoni's vision, mission and aims and objectives painted as a mural on the outside of their community room

per cent of residents are tenants. The land is owned by the government (Department of Defence). It has a Slum Dwellers' Federation (Muungano) which has 365 active members, and a committee, advocacy team, map and enumerations team, welfare team and savings team, each roughly comprising 7 people.

1.2.1
Workshop aims and objectives

The objective of the workshop was to support the Pamoja Trusts' work in slum settlements in Nairobi and develop the integrated community-led upgrading methodology first developed and tested in the ASF Brazil workshop.

The workshop had the following aims:

1) Support the Pamoja Trust in developing a settlement upgrading plan for Mashimoni;

2) Support the Pamoja Trust by building their capacity to use integrated participatory design in their slum upgrading work;

3) Provide international students and practitioners with a workshop experience from which they can learn about another context, develop their skills in integrated participatory design, and question the role of the professional in such contexts and projects;

4) Further develop the integrated participatory design methodology by 'testing' it in a different context to Salvador, Brazil where it was used in 2010;

5) Act as a catalyst for wider debate in Kenya on inequality, slum proliferation, and participation at the broader level than just one settlement.

1.2.2
Key themes and questions

The following were the key themes for the workshop:

1) How can we build on the social capital that exist in Nairobi's informal settlements with their strong savings groups; how can we build on this with integrated participatory design?

2) How can we move from enumeration to design: how can you use participatory enumeration information and make it accessible to all as a positive element of design/upgrading practice?

3) Is the aim to reach consensus and merge everyone into the same type of house and settlement; how can participation of residents in upgrading plans improve the responsiveness of their environment to their needs, wants, and aspirations and, furthermore, act as a catalyst for positive change beyond addressing their physical setting?

1.2.3
Workshop structure

The workshop was based on an 'integrated community-led participatory design' approach which had been developed for, and tested during in the ASF workshop in Brazil. The integrated methodology seeks to explore slum upgrading by undertaking analysis at a range of scales: the institutional, regulatory scale; the neighbourhood, community scale; and the household, dwelling scale.

Underpinning the approach is a belief that all these scales need to be explored concurrently and in an integrated (interwoven) way. Doing so offers the opportunity for truly responsive and transformative slum upgrading programmes and projects compared with focusing on only one scale alone.

For instance, upgrading projects often only focus on housing, to the detriment of discussions and provisions for community and neighbourhood needs, functions, and spaces, as well as existing commercial activities and households' livelihoods strategies which typically play a fundamental socio-economic role and often must also be accommodated in settlement upgrading plans.

ASF worked closely with our local partners, the Pamoja Trust and UN-HABITAT. In addition to the 25 international ASF participants there were 25 local participants (mostly students associated with the Pamoja Trust) and 15 'key' residents of Mashimoni who Pamoja Trust had organised to participate every day throughout the workshop.

City visit and Symposium

The workshop started with a one-day 'city visit' which gave an insight into the challenging existing slum conditions and contemporary upgrading approaches such as government-led upgrading in the large slum of Kibera and incremental self-build upgrading in villages in Mathare Valley.

Following this, a well-attended Symposium was held at UN-HABITAT that provided the more 'academic' setting for workshop participants to understand the local setting in Kenya and to network with a wide range local stakeholders. This event was attended by over 120 people: international and local workshop participants, local practitioners, policy makers, academics, UN-HABITAT staff, slum dwellers' organisations, among other people and organisations involved in slum housing issues in Kenya.

The symposium involved keynote presentations on such topics as history and theory of slum upgrading and participation, slums and inequality in Kenya, spatial aspects of Kenyan slum

and the urban and regional setting, and political and regulatory frameworks that govern local built environment development (Box 1).

The symposium had three main objectives:

1) Bring international participants 'up to speed' with the context so they have a base understanding to use when working in this context;

2) Network symposium delegates (NGOs, policy makers, slum dwellers, etc) in an effort to move beyond the specific slum and to engage in larger discussion about the challenge of slums and inequality in Kenya;

3) Create interest in the workshop, The Pamoja Trust and ASF-UK's work.

Workshop – Week One

After the city visit and symposium, participants were divided into three groups: Institutional, Community, and Dwelling. While each group used different specific methods, they followed the same approach in the first week where the current situation was diagnosed and then residents were encouraged to dream of how they wanted Mashimoni upgraded.

The institutional group used the 'Web of Institutionalisation' as a basis for investigating the current policies, delivery and organisational mechanisms, and modes of citizen representation in slum upgrading programmes in Kenya. The community group utilised a wide range of field tools to involve a spectrum of Mashimoni residents - the youth, women, and elderly, with a focus on community space and infrastructure. The dwelling group 'walked and talked' to familiarise themselves with the current situation, then sought to highlight residents' dreams through a combination of participatory drawing and modelling tools.

Workshop – Week Two

After the first week the groups were joined and all the rich information and findings were united. A game - 'Portfolio of Options 'was developed which provided a range of upgrading options (different housing types, tenure modalities, community spaces, etc) which, through on-site focus groups, residents considered, negotiated, debated, and reflected on to reach a potential upgrading plan. The game sought to highlight to the residents the complexity and intricacies of upgrading as well as illuminate diversity, which necessitates negotiation, consensus building and compromise if upgrading is to take place in a manner than is inclusive rather than divisive. Figure eight outlines the workshop structure, flow and content - illustrating how the group work of the first week connected into the portfolio of options exercise in the second week.

Cross-cutting issues – Livelihoods, affordability, and gender and diversity

CITY VISIT: Kibera projects, KENSUP decanting site, Mabatini, and Huruma

Change by Design Symposium - UN-HABITAT

Institutional

Identifying local networks

Uncovering stakeholders

Policy analysis

Finding the room for manoeuvre

Community

Deconstructing realities

New imaginaries for my neighbourhood

Vulnerable group: children

Key space: riverside

Key issue: Garbage and sanitation

Dwelling

'Walking and talking'

Dreaming through drawing

Dreaming through modelling

24

Analysis of Portfolio of Options exercise

Group collaboration and linking of findings

First stages of action planning for Mashimoni

Portfolio of Options game development

Sharing: revisiting and consolidating issues and dreams

Reflection on the social production of space in this context

Implementing exercise through focus group sessions in Mashimoni

Preparing an exhibition as a way to communicate workshop findings and outcomes locally

Dreaming through typologies: prioritising values, searching for consensus, and making trade-offs

EXHIBITION - Presentation to local stakeholders, including the Mashimoni community

BOX ONE

Change by Design symposium programme

Welcome and Introductions - Christophe Lalande, UN-HABITAT; Matthew French (ASF-UK); and Steve Ouma, Pamoja Trust
1.   Opening remarks - Mr. Tirop Kosgey (PS Ministry of Housing), remarks by Said Athman-Housing Secretary, Ministry of Housing, Kenya

Session One: The context of urbanization and participatory design
2.   Urbanization and the challenge of slums - Christophe Lalande, UN-HABITAT
3.   Provision and management of urban services-The role of stakeholders in development - Prof Winnie Mitullah, IDS, University of Nairobi
4.   Fundamentals of participatory design - Nabeel Hamdi, Oxford Brookes University, UK.
Session One panel discussion/speakers questions - All speakers from this session

Session Two: Addressing the Challenge
5.   Kenya Urban planning policies and regulations - Prof. P. Ngau, University of Nairobi
6.   Kenya Slum Upgrading Programme (KEN-SUP) - Leah Muraguri, Director KENSUP; Ministry of Housing
7.   UN-HABITAT Participatory Slum Upgrading Programme (PSUP) - Kerstin Sommer, Regional Office for Africa and Arab States (ROAAS)
8.   'Peoples Plans into Action' - Paul Chege, Practical Action.
Session Two panel discussion/speakers questions - All speakers from this session

Session Three: Pamoja Trust and Mashimoni
9.   The Pamoja Trust: Approaches and challenges - Salma Sheba, Pamoja Trust
10.   The Physical Context and Current Design/Planning Approaches - Diana Kinya, Pamoja Trust
11.   Residents' voices - Mr. Denis Isenya, Representative from Mathare
Session Three panel discussion/speakers questions - All speakers from this session

Session Four: Looking forward for action
12.   An outline of the two-week Workshop in Mashimoni - Isis Nunez, Matthew French, Alex Frediani
13.   Round-table discussion: "The challenges and opportunities of Participation, Power and the Social Production of Space"
        Round-table panel: Mr. Cassius Kusienya, Ministry of Housing; Mr. George Wasonga, Civil Society Urban Development Program (CSUDP); Mr. Odindo Opiata, Haki Jamii; Dr. Rosa Flores, French Institute for Research in Africa (IFRA); Ms. Elizabeth Nyambura, Resident's representative; Mr Nabeel Hamdi, Oxford Brookes University, UK.
Closing remarks - Matthew French

eight
Workshop structure, flow, and content

nine
Session One at the Change by Design
Symposium, held in Conference Room Three
at UN-HABITAT headquarters, Nairobi

ten
Change by Design participants at the end of
the symposium

nine

ten

eleven

twelve

eleven - thirteen

The first stop on the city visit was Kibera, one of Nairobi's—and indeed Africa's—largest slums. Apart from being immersed in the streets of Kibera (*thirteen*), participants were shown four initiatives currently being implemented to improve sanitation and public spaces: 'PeePoo', a human waste disposal system; a football pitch (*eleven*); a community centre under construction (*twelve*); and urban agriculture where produce is grown in bags.

thirteen

fourteen

fifteen

fourteen - sixteen

The Kibera 'decanting site' was developed as part of a government-led slum upgrading programme: The Kenya Slum Upgrading Programme (KENSUP). The units were built by the government over three years ago as Stage One of the Kibera upgrade, with no design or planning participation by residents. Decanting site residents are originally from Kibera, and the plan is for them to move back to their previous location in housing of a similar design as this at the decanting site.

sixteen

There have been a multitude of approaches to slum upgrading in Nairobi — contemporary projects need to understand their origins, successes, and failures to build on the wealth of experience and to avoid repeating past mistakes

seventeen

eighteen

seventeen and eighteen
Mabatini, the third stop on the city visit, is in the early stages of incremental upgrading with the support of the Pamoja Trust. The process involves clearing several houses, 'structures', at a time and building 'core houses' that can be added to later as families needs dictate and finances allow. Labour comes from the community, house finance from personal savings, and urban services and infrastructure from international and local donors/funding bodies.

Huruma, an incremental upgrading project, was started over a decade ago and is now largely complete. Residents have developed micro-enterprises that produce construction elements for the modular housing, namely reinforced concrete beams and floor slabs. Although the footprint of the houses is small, households can extend their house vertically. Huruma attracts considerable attention from community-based organisations wanting to learn the lessons of incremental upgrading.

nineteen

twenty

twenty-one

TWO

INSTITUTIONAL

PART TWO
INSTITUTIONAL

2.1
Introduction and approach

The institutional group examined policies and planning procedures shaping the opportunities for a participatory upgrading process in Mashimoni. The group was also concerned with how a participatory design initiative in Mashimoni is related to a wider strategic process of claiming for housing rights in Nairobi.

To achieve these two objectives, the methodology of the group was guided by Caren Levy's Web of Institutionalisation. The web outlines a set of interconnected planning elements and provides a structure to examine the opportunities and challenges to institutionalise new approaches/concerns in this case participatory slum upgrading. The web unpacks four spheres of institutionalisation of change: citizen, policy, organizational and delivery spheres.

2.2
Methods

The work of the institutional group was divided in the following four stages:

Identifying local networks:

In this first stage of the workshop, the team identified existing groups in Mashimoni and carried out focus group activities with their representatives to understand their motivations and assess the networks they have with other groups/institutions. This activity allowed the group to examine existing and potential local processes of representation in Mashimoni.

Uncovering stakeholders:

A series of interviews were conducted with key informants from relevant institutions (i.e. Civil Society Urban Development Programme (CSUDP), Kenya Slum Upgrading Programme (KENSUP), etc). The questions were guided by the elements in the web of institutionalisation, therefore unpacking how citizens are represented, analyzing policies, assessing organizational capacities and examining how projects and programmes are delivered.

Policy analysis:

Key policy documents were analysed in reference to the new constitution. Topics of policy analysis were related to land tenure regularization, land ownership, housing rights and building regulations.

Finding the room for manoeuvre:

The information collected by the group were collated according to the elements of the web of institutionalisation and divided into opportunities or challenges. The group carried out an analysis with the objective to identify the opportunities to implement a participatory slum upgrading programme in Mashimoni.

twenty-two

twenty-three

twenty-four

twenty-two
Meeting stakeholders at Pamoja Trust

twenty-three
Identifying groups and organisations working
in Mashimoni

twenty-four
Workshop with residents in Mashimoni

twenty-five
The 'Web of Institutionalisation' and summary
of findings

Interviews were conducted with relevant institutions; Questions were guided by elements of the web of institutionalisation: citizen representation, policy analysis, organizational capacities, and project and programme delivery

POLICY SPHERE

Resources

Plentiful but rigid government funding

Political commitment

Potential ngo partnerships

Pressure of political constituencies

Representative political structures

Women and men's experience of their reflexive interpretation of reality

Prolific advocacy environment

Multitude of uncoordinated groups in Mashimoni

CITIZEN SPHERE

Applied research

twenty-five

Mainstream responsibility for transformatory principles

Planning/Policy

Complexity of legal system

Procedures

Excessive bureaucracy creating barriers for tenure regularization

Staff development

Delivery of programmes and projects

Methodology

Theory building

DELIVERY SPHERE

2.3

Findings

The findings of the institutional team is outlined according to these four spheres and summarised in figure twenty-five.

2.3.1

Citizen Sphere

Multitude of uncoordinated groups in Mashimoni

Within Mashimoni there are many organised community groups representing a variety of interests. The largest and most prolific is Muungano, a savings group that has a membership of not more than 20 per cent of Mashimoni's population (it was difficult to get an accurate figure of the percentage of residents who were members of Muungano, but it was generally agreed to be between 10 and 20 per cent). However, this does not represent the only savings group activity, and there are also a number of smaller more informal savings groups.

The groups have different methods of governance and approaches to managing their money, though decisions on where and when to use savings are made collectively. Many have small joining fees, and a requirement to contribute weekly or monthly savings.

Some also operate a 'merry-go-round' system where individual members receive a fixed amount on a rotational basis – usually monthly.

While Muungano is interested in acting as the voice of Mashimoni, our research found that this organisation clearly does not represent the majority of the community. There are also issues regarding the economic accessibility of this group, as the most vulnerable members of Mashimoni may not be able to afford participation in this group. Moreover, beyond savings groups there are also a plethora of other community organisations that are involved in a range of activities. These include groups related to the church, women, youth, or businesses.

In short, it is clear that whilst there are a number of groups within the community (both formal and informal) there is an uneven distribution of power amongst them. There is also a real lack of coordination between these actors within the community. This limited collaboration weakens their potential to achieve change.

There is thus a need to bridge the gap between these various actors to create a fully inclusive representational system. One potential way of ensuring community representation is by establishing a Settlement Executive Committee (SEC).

This is a representational structure originally created by the Government's Kenya Slum Upgrading Programme (KENSUP). As outlined by KENSUP, the SEC might comprise 16 elected members which might include representatives of: tenants; structure owners; youth; widows; people with disabilities; local CBOs; NGOs; Government Officials (such as the District Officer and Chief).

For Mashimoni, the formation of such a committee offers a significant opportunity to expand upon the representative structure already created by Muungano, and further incorporate a plurality of voices to increase community solidarity.

How a SEC is formed and governed will need careful consideration, but as a representative body it provides an opportunity to drive forward the upgrading of Mashimoni with the inclusion of a wider range of voices than one organisation alone. Ultimately, the issue of community representation, mobilisation and organisation is key to accessing external finance and land tenure security and therefore the delivery of upgrading Mashimoni.

Prolific advocacy environment

Within Nairobi there are a number of Civil Society Organisations (CSOs) and Non-Governmental Organisations (NGOs) operating in the policy and development sphere. These groups play different roles but it is apparent that there is a large focus on advocacy in their work.

Many CSOs 'coordinate' the efforts of others together with local community groups. For example, the Civil Society of Urban Development Programme (CSUDP) is a facility for extending ground support for CSOs in urban areas. It also seeks to influence government policy to engineer change at all levels.

Another organisation operating in Kenya is the Centre on Housing Rights and Evictions (COHRE), an international NGO focusing on economic and social rights, public interest litigation, research, and training. COHRE is also part of the Civil Society Housing Commission (CSHC), comprising a number of other similar CSOs working on housing and land, slum upgrading, evictions, gender, water and sanitation, and community mobilisation (figure twenty-seven).

Whilst advocacy is an important aspect of supporting and facilitating slum upgrading, there also must be some focus on implementation. This bias must be addressed if upgrading projects are to be efficiently delivered. Implementation strategies also need to giver greater consideration to the staging on projects, and their impacts on the livelihoods and lifestyles of residents.

twenty-six

Advocacy		Legislation		
		Engagement Framework		
Ministry of Housing		CSHS Civil Society Housing Coalition		
		Right to Adequate Housing		

Gender	Budgets	Housing/Land		Slum Upgrading
EACOR GRUUTS COHRE	EACOR SF NPSN	SF PT KCS	Housing Bill & Land Policy; Housing Fund	PT; KCS HJ; SF COHRE NPSN Muungano
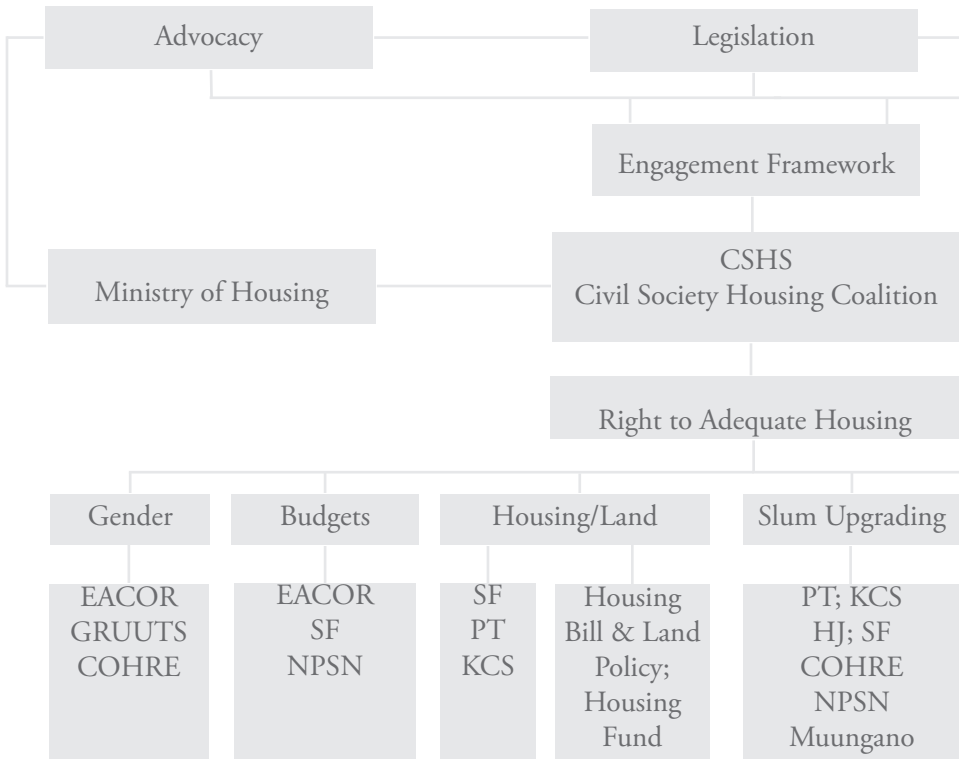
twenty-seven

Whilst advocacy is an important aspect of facilitating slum upgrading, there also must be some focus on implementation. This bias must be addressed if upgrading projects are to be efficiently delivered

twenty-eight

Policy

Revolving Leadership:
COHRE current char

Evictions	Water/Sanitation	Community Mobilization
Amnesty	UMANDE	NPSN
COHRE	MN	Muungano
PT	GK	KOPI
SF	HJ	
NPSN		

2.3.2
Policy Sphere

Sizeable but rigid governmental funding

The bureaucracy and complexity of Kenya's legal system is reflected in the challenges of obtaining government funding for upgrading processes. This is further exacerbated by the disconnect between local and national government. However, if these obstacles can be navigated there are significant sources of funding available for upgrading.

Funds take the form of KENSUP, the World Bank-financed upgrading programme, the Kenya Slum Improvement programme (KISIP), local area funds such as the Community Development Fund (CDF) and LATF, and a host of sectoral trust funds.

While these avenues offer significant financial resources, there is a narrow ability for Mashimoni residents to manage the use of these funds. For example, in the case of LATF, participation is limited to committees that discuss the allocation of funds.

If programs stall during the implementation phase, such as is the case in the construction of the stairs in Mashimoni, there is limited recourse to call government actors to account.

In addition, government-funded programs have historically been less participatory and flexible. For example, the limited resident input in the design of the KENSUP Kibera decanting site has created issues of affordability, and has hindered livelihoods strategies.

The conditionality, complexity, and lack of transparency and accountability have spurred feelings of distrust on the part of Mashimoni residents towards government-led programmes.

However, the passing and implementation of the new Constitution, and introduction of devolved sources of funding should offer new opportunities for citizen participation.

Potential NGO partnerships

In contrast to the bureaucratic government streams, NGO funding allows for more accessibility, flexibility, and participation. Grants and loans from these sources are often accompanied by support and training, expanding the capabilities of residents to access rights beyond the provision of housing.

In Mashimoni, the proliferation of savings groups offers a further opportunity for community-NGO partnerships. These savings allow groups to leverage additional funding from NGOs, allowing communities to play an active role in their upgrading process.

2.3.3
Organisational Sphere

The complexity of the legal system

As previously mentioned, the Kenyan legal system is currently undergoing major changes due to the new constitution, passed in 2010. While the new constitution offers many opportunities within land and housing securities for the Kenyan people (including informal settlements), it is, however, a complex web of drafts, bills and policies all in need of updated formulations.

Our key findings within the current policy situation highlight the existing lack of policies and strategies for informal settlements and more particularly settlements located on land either leased or owned by private companies or Government Ministries (as is the case with Mashimoni). See Box 2 for key policies in relation to land tenure regulations, housing rights and building regulations for Mashimoni and Nairobi as a whole.

2.3.4
Delivery Sphere

Excessive bureaucracy creates barriers for tenure regularisation

Ultimately the sustainable delivery of Mashimoni upgrading relies upon access to secure land tenure. At present the land where Mashimoni is located is owned by the Department of Defence (DoD). The current tenure options enshrined in law are leaseholds, whether individual or communal.

Gaining tenure can be achieved through a variety of different types of processes that must be followed and some of these can be lengthy and expensive. For example to get an individual or community lease with government recognition it requires following the Registered Land Act route which can be expensive. However there is an option to follow the less formal Registered Document Act route; figure twenty-nine outlines the process.

Within Mashimoni there are issues of absentee structure owners and land and housing speculation. Therefore, it has been recognised that a communal form of lease for Mashimoni would be the most appropriate and this has been supported both within the community and with various key stakeholders.

As stated above, the only tenure options are leasehold as currently in the city of Nairobi; there does not exist an option for freehold land tenure. However, through the new constitution, the option of community title has been introduced. This creates the potential for a new system under which groups are able to manage a communal freehold. This is, however, yet to be in enshrined in law.

DOCUMENTING

- Boundary Plan
- Outline development plan
- Enumeration
- Topographical survey

ORGANISATION

- Outline of community group
- List of beneficiaries
- Organisation/governance:
- Members
- Decision making
- Sign-off

APPLICATION

- Letter from DOD
- Pack of documentation
- Letter of support from Pamoja Trust
(and other organisations?)

APPROVAL

twenty-nine
Process of land regularisation through
Registered Document Act route

thirty and thirty-one
The findings for the web of institutionalisation
were progressively posted to a wall with small
handwritten notes, which allowed findings to
be changed, removed, and new findings to be
added as new information came to light

twenty-nine

thirty

thirty-one

BOX TWO

Key policies in relation to land, housing and building regulations

Land Policy Draft:

In 2009, a Land Policy Draft was proposed, addressing informal settlements and other vulnerable groups. It was formulated in association with stakeholders from public, private and civil society through regional workshops and thematic groups. In relation to the situation of Mashimoni, it proposed the following opportunities: a legal framework for transference of un-utilised land; and to create a regime of secondary land rights.

The policy, however, is invalid and is in need of re-formulation according to the new constitution. Delays in the passing of this policy underlines the already existing limitations within the policy processes which could be exacerbated through the passing of the new constitution.

The Land Act:

The Land Act also addresses informal settlements. If the residents of Mashimoni wish to own or lease a plot of land, all of Mashimoni's residents need to be represented through a community entity. While this is obviously an opportunity for Mashimoni to secure land rights, the representative group could potentially abuse this recognition and favour themselves or certain members of the community.

Housing Policy Draft Bill:

The housing situation is somewhat similar to the current land situation, though still more undefined. A housing policy draft bill recognises the need for slum upgrading by proposing: building codes; affordable housing; a national housing authority.

However, as with the land situation, the policy is in need of re-formulation to fit the new constitution and there is in general a lack of information regarding the future of a potential housing policy. This delays the process and makes any implementation difficult due to a lack of legal frameworks for any slum upgrading.

Physical Planning Act:

Similarly, the Physical Planning Act is still based on a rigid planning scheme, with no acknowledgement of informal settlements and structures that are not in compliance with the current land requirements.

On a positive note, it is likely that this will change with the new urban development policy. This is still only in a stage of concept proposal but it suggests bringing more structure to the development of Kenyan cities and proposes the need to address informal settlements and make sure that informal dwellers are informed of relevant policy implications.

BOX THREE

Success stories of project development and implementation

Within a community there are likely to be a number of stories of successfully securing funding for a project or setting up a business which demonstrates the ability of the community to organise, manage money and invest in their livelihoods. Therefore we talked to a small group of community members to hear their 'success stories'.

The first story we were told was of a group coming together to provide water for their community. This involved them selling water within the community. They had gained the knowledge to do this through training at an external, European Union sponsored, seminar about how to locate the water mains and implement a water project. The successful implementation of this project over the last two years has helped to finance group activities, such as hiring transport so that they can attend more events.

Dennis and Paul from the Muungano savings group mentioned some of the success stories that can come out of collective savings groups and proceeded to illustrate this with an anecdote of one of the Muungano members. This member had a small business but wanted to expand it. As he had started saving with the group he was able to take out a loan to buy a motorbike, enabling him to go out and sell his products. He is currently building his business with this motorbike and if it is successful he'll return and ask for another loan to buy a pick up van enabling him to further expand his business.

Female members of the community gave two examples of urban agriculture projects that had led to successful businesses. The Poultry and Horticulture Farming group and the Community Evangelism group had used their savings to grow produce to sell. The former were provided with the foundations for the business from Solidarate International who gave them seeds. The ladies who ran this project were proud to say that it was doing well and through the income they were generating were able to re-invest and so see their business expand. The Community Evangelism group were working on a smaller scale and had been provided training from the Hope Foundation which was providing them with an income that they hoped would facilitate future business expansion.

As part of this discussion we talked about learning from other communities and sharing best practice with other people within Mashimoni and beyond to help everyone achieve 'success stories' like theirs. They gave the example of a water kiosk project they wished to implement within Mashimoni. They had learnt how to undertake this from neighbouring settlements in Mathare and were keen to continue these types of knowledge exchange.

Finally we heard about how they were looking for future opportunities to skill up and improve their livelihoods. For example Dennis informed us that they were going to receive training in financial management from the Equity Bank. This was seen as important for running savings groups so that members could improve their skills in savings, loan repayment and re-investment. These stories, even through small in number, indicates a precedence for managing projects and money within Mashimoni, signalling the credibility of the community in being able to successfully manage funding to improve their livelihoods. *Rubbina Karruna*

2.4
Conclusion

The institutional reforms taking place in Kenya is fostering a positive environment that is opening up new opportunities to address the housing deficit of the country. The right to adequate housing is recognised as a national priority and informal settlement upgrading is included in key policy documents.

Furthermore, proposed bills are emphasising the need to partner with various stakeholders, including community representatives.

These institutional reforms have been followed by an increased budget to invest in the upgrading of slums in Kenya, as well as new avenues for land tenure regularisation. For Mashimoni, this institutional scenario is opening up opportunities to facilitate the transference of land ownership from the DoD to a form of ownership/lease that would benefit residents of the community.

Additionally, the linkages with Pamoja Trust and other NGOs could bridge the financial gap for housing in an affordable and flexible manner. However, all these benefits are underpinned by the need to have a strong, inclusive and representative community entity. Box 3 highlights that there are a number of success stories that highlight the ability of Mashimoni residents to 'help themselves', and these experiences need to be replicated and 'scaled-up' to ensure wider, positive change.

Muungano is a well-established social movement present in Mashimoni, with extensive networks linked to key players outside the community. However, Muungano has not been able to connect with a large proportion of Mashimoni residents.

Therefore alternative options of representation should be considered as this poses a threat to community cohesion. If Mashimoni residents are able to unite in a cohesive and inclusive fashion, the community will be able to take advantage of these newfound opportunities for change.

thirty-two
Working with Mashimoni residents to identify elements of the web of institutionalisation

thirty-two

THREE

COMMUNITY

PART THREE
COMMUNITY

3.1
Introduction

The community group was concerned with the neighbourhood scale focusing on community dynamics in relation to neighbourhood spaces (streets, community spaces and surrounding areas) and infrastructure (water, sanitation, and energy). The group sought to explore the current condition of these features as well as the needs and aspirations that the residents attach to each of them. Subsequently, and drawing from this analysis, the group assessed the limitations and opportunities of the existing situation to inform the future development plans for Mashimoni.

One of the objectives of this integrated approach to participatory design is to bridge societal processes with the morphological characteristics of space, hence the community group sought to map the physical conditions of the area while unpacking the values and perceptions the residents attach to it. Moreover, it was important for the group to gain a clearer understanding of how these socio-spatial processes are shaped by everyday life activities and vice-versa.

Equally important for the group, was to explore the meaning of community. Communities are far from homogeneous. Nonetheless, slum-upgrading programmes often tend to pack all residents under the same interests and opinions often ignoring power relations and in detriment of the weakest voices and most vulnerable groups.

Taking this approach into account, the community group had the following objectives:

- To explore particularities for design, focusing on needs and aspirations from different groups within the community;

- To facilitate new avenues of representation and community cohesion;

- To facilitate the articulation and sharing of values and perceptions, from individual to collective (i.e. other children, adults and community organisations);

- To build knowledge on and reinforce existing community initiatives and networks.

3.2
Approach

During the first week the group utilised a variety of mapping techniques and participatory tools to investigate current neighbourhood conditions and its relation to the everyday life of its residents, as well as the dreams attached to the future of their community. Each method was developed and adapted accordingly in order to reach different groups within the community

and be able to include women, men, youth and children in discussions about their built environment. For this purpose, the methodology was divided into three stages: Diagnosis, Dreaming and Sharing. Each stage involved a combination of the following research tools:

Observation techniques

Mapping techniques

Interviews

3D model elicitation

Drawing elicitation

Interactive street installation

Mapping games

thirty-three

thirty-four

The exercise encouraged participants to go beyond first impressions and try to read space by observing, listening and actively discussing the different elements that compose everyday life in the settlement, always regarding space as a combination of physical attributes, social activities and perceptions

Nairobi river

Mau Mau road

Cliff boundary

Cliff boundary

Secondary access (new road)

Juja road

3.2.1
Deconstructing Realities

Day 1: Diagnosis - Karibu Mashimoni!

The aim of the first day was to start exploring the neighbourhood and meeting its residents through a socio-spatial mapping exercise. The group participants were divided into smaller groups in order to cover both the boundaries and inner corridors of the settlement.

The exercise encouraged participants to go beyond first impressions and try to read space by observing, listening and actively discussing the different elements that compose everyday life in the settlement, always regarding space as a combination of physical attributes, social activities and perceptions.

For this purpose, transect walks were undertaken accompanied by community members, conversations were held with residents to capture stories of life in Mashimoni, and observation techniques were used to capture physical characteristics of the area as well as use and appropriation of space. Participants recorded information through sketches, maps, notes and videos.

thirty-six

thirty-seven

thirty-eight

Day 2: Diagnosis - Semi-structured interviews and in-depth mapping

With more information and familiarity with the neighbourhood, the mapping exercise became more in-depth and focused. Participants formulated open questions for semi-structured interviews with residents and to further map the area. Each group covered specific areas, divided by their geographical boundaries and features. The semi-structured interviews facilitated a more in-depth discussion with regards to community life, networks, and dynamics; the use and appropriation of spaces; and the main built environment issues. The intention was to build a preliminary picture of key issues affecting residents in their neighbourhood, the vulnerable groups or unheard voices in Mashimoni and the existing opportunities that had potential for further development (i.e. spaces, networks, community initiatives etc.).

thirty-nine

forty

forty-one

thirty-nine
Mapping key issues relating to community and infrastructure

forty and forty-one
Working with residents on-site to understand their settlement

forty-two
Mapping interviews and findings

water pipe worker

women brewing

© 2011 Europa Technologies
Image © 2011 GeoEye

Cook for
school from
Moubatini

Joseph

Lillian

Naomi

Beatrice
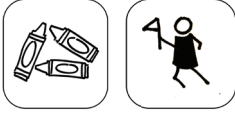
Kevin,
Brad, &
Samon?

VERONICA

toilet
workers

toilet

Bridge

bridge

council public
toilet not finished

3.2.2

Dreaming: New imaginaries for my neighbourhood

After a preliminary analysis of the findings collected through interviews, observation and mapping exercises, the participants identified recurrent themes, including vulnerable groups, key spaces and pressing issues. A variety of tools were used to address each of the themes, including interactive games, drawing workshops, sketching and drawing elicitation.

a) Vulnerable groups:

The observation and mapping exercises, as well as the interviews undertaken with families during the diagnosis stage, all indicated that children are vastly affected by the current conditions of the neighbourhood as they are active users of the open space in Mashimoni. Nonetheless, little to none data exists that addresses their use of space in the settlement and the needs and aspirations they attach to it. For this purpose, the participants utilised two methods to explore the spatial experience of children in Mashimoni: The Drawing Workshop and Exploring my Neighbourhood.

The drawing workshop

This method consists of a group activity where children make drawings to answer specific questions related to their community. In this context, the tool was used to associate places with feelings and perceptions and to understand how children see and experience their neighbourhood. In order to reach as many children as possible and from different areas of the settlement, the participants undertook two different workshops: one with students in a school adjacent to the riverside, and another one in the main road with children randomly selected for the activity. The workshop consists of four steps, including introduction, facilitation, sharing and analysis.

Exploring my Neighbourhood

This method consists of an interactive game of exploration where children map relevant spaces in their neighbourhood and discuss their characteristics according to specific questions. A game-set made of cardboard (origami or a big dice) is given to the child containing different symbols representing tasks he/she needs to perform. These tasks will require the child taking all the participants and facilitators around the neighbourhood trying to find the places that answer the questions posed in the game. Once the child has identified the space with the coloured flag, the facilitator enquires further on the perceptions and feelings associated with it.

forty-three — forty-five

The interactive game involved children exploring their neighbourhood and responding to questions as a way to understand their relationship with, and perceptions of various spaces

forty-six and forty-seven

The drawing workshop underway, and with the final drawings being discussed by children

forty-three

forty-four

forty-six

forty-seven

forty-five

b) Key spaces: The Riverside

Dreaming through drawing:

This drawing exercise aimed at engaging residents in discussions about the riverside as a key space of their community. Residents were asked to draw how their 'dream riverside' would look like and how they would change the area in order to improve community life.

The drawing part is followed by a series of questions enquiring on the motivation behind the spatial arrangement and the features depicted in the drawings. The exercise was undertaken in both the riverside and other locations of the settlement.

This was done as a way to enquire the views of other residents that may not use the space actively but may have issues and aspirations attached to it.

forty-eight

c) Key Issues: Garbage and sanitation

Sketching Dreams:

This exercise had two objectives. Firstly, our aim was to further enquire and map the infrastructure reality of Mashimoni (in terms of garbage and sanitation) beyond its physical condition and location and more focused on its impact in the everyday life of the residents. Secondly, we aimed at engaging the residents in discussions about their dreams and how the existing infrastructure conditions could be improved.

The team from Map Mathare kindly provided us with detailed maps of the current condition of community toilets and sewage infrastructure, as well as the location of the main dumping sites and open defecation areas. The exercise started with semi-structured interviews related to the existing conditions of sanitation and garbage in the community and how it relates to their everyday activities. After enquiring further, we asked them to take us to the key spaces where poor infrastructure conditions affect them the most. Once in the location, we use rough sketches of the specific space as a canvas, where residents could draw how they would change the area in order to improve their life in the neighbourhood. The exercise was followed by a detailed conversation on the dreams depicted in the sketch.

forty-nine

fifty

fifty-one

3.2.3

Sharing: Revisiting and consolidating issues and dreams with the wider community

After analysing the findings from the diagnosis and dreaming stage, the group aimed at sharing and consolidating the data collected by organising two community events: a 3D model elicitation and an interactive street installation named 'The Dream Wall'. Both activities took place in Mau Mau Road, the main and busiest road of Mashimoni, in order to reach as many residents as possible. The objective of these methods were the following:

- To disseminate and consolidate the preliminary findings
- To elicit more specific information from a wider sector of the community
- To encourage discussion about the main issues and how people envision these to be solved.
- To explore the potential of the existing opportunities for change in Mashimoni.

The dream wall

The Dream Wall consisted of an interactive street installation containing the preliminary findings, using the material gathered during the previous stages (drawings, pictures, quotes and maps made by both the participants and the residents). Everything was translated to Swahili in order to make the information accessible to the whole community. The wall also contained envelopes where people could write their thoughts and ideas and, if desired by the resident, remaining anonymous by only recording the age and gender. The interaction between the residents and the wall was always facilitated by the participants who encouraged discussions to elicit further about resident's thoughts and dreams about their neighbourhood. At the end of day, the envelopes and notes on discussions were collected and the information was analysed and used to triangulate with the previous stages.

The 3D elicitation

A 3D model of the neighbourhood was elaborated in order to facilitate the visualisation of the main issues. Small flags with symbols were allocated to each issue and colours were use to differentiate according to gender and age. The model was used as a vehicle for discussion and as a way to further unpack the issues affecting women, men and children with regards to their neighbourhood spaces and infrastructure. Two participants facilitated the use of the model and recorded the information gathered during the discussions with residents.

60

3.3.1

Findings: Mashimoni - a brief introduction

Mashimoni No. 10 was formed on a former quarrying site. The name is derived from a kiswahili word "shimo" which means a pit. Number 10 refers to the bus station through which the area is accessed from the city centre through Juja road.

The 'village' sits over a cliff edge, which creates a distinct divide between the lower and upper area. All the open sewerage runs through the alleyways down the slope to the river, which marks the northern boundary of the village. The top of the site (Juja Road) is almost 20m higher than the river, and the cliff itself -next to one of the few open spaces in the area- creates an 8m high boundary between bottom and top.

Mashimoni is connected to wider Nairobi by Juja Road. About two years ago, Mau

Mau Road was built, creating invaluable social space and improving security of the neighbourhood. Most other access routes are through small alleys which are only accessible by foot, and usually double up as open sewerage. They also double up as workspace for laundry, washing dishes or cooking. The land below the cliff provides one of the few open spaces for football and other games.

Nairobi River, which determines the northern boundary currently operates as its sewerage and waste disposal channel. Its banks, because the area is prone to flooding, are not occupied with housing and can therefore accommodate a market and urban agriculture sites. Sewage from the settlement above, which comes all the way from the Air Force grounds across Juja road, runs into the river in open channels and create obstructions and divisions along the bank.

fifty-three — fifty-five
The three thematic focus groups, from top to bottom: vulnerable groups (children), key spaces (riverside), and key issues (garbage and sanitation)

fifty-six
A visual representation of the transect walks illustrating the geographical features and key areas, for example Mau Mau road and the football field

fifty-three

Mashimoni has a large number of small businesses operating within it. The market by the river provides an income to many men and women, while some residents enjoy a profitable business on the main Juja Road. Mau Mau road also provides a crucial space for business and small enterprises. Within the smaller alley-ways one can also find many houses fitted with similar hatches to sell groceries.

fifty-four

The findings explore community life in Mashimoni, the current spatial conditions at the settlement scale and their impact on the everyday life of the residents. The findings also depict the dreams and aspirations that residents shared with us. Based on the diagnosis, the findings are structured in three thematic areas: vulnerable groups, key spaces and key issues.

fifty-five

The findings explore community life in Mashimoni, the current spatial conditions at the settlement scale and their impact on the everyday life of the residents. Based on the diagnosis, the findings are structured in three thematic areas: vulnerable groups, key spaces and key issues

a

b

c

d

Nairobi river

Mau Mau road

h

k

g

l

f

j

Cliff boundary

e

i

d

c

b

Cliff boundary

a

Juja road

i
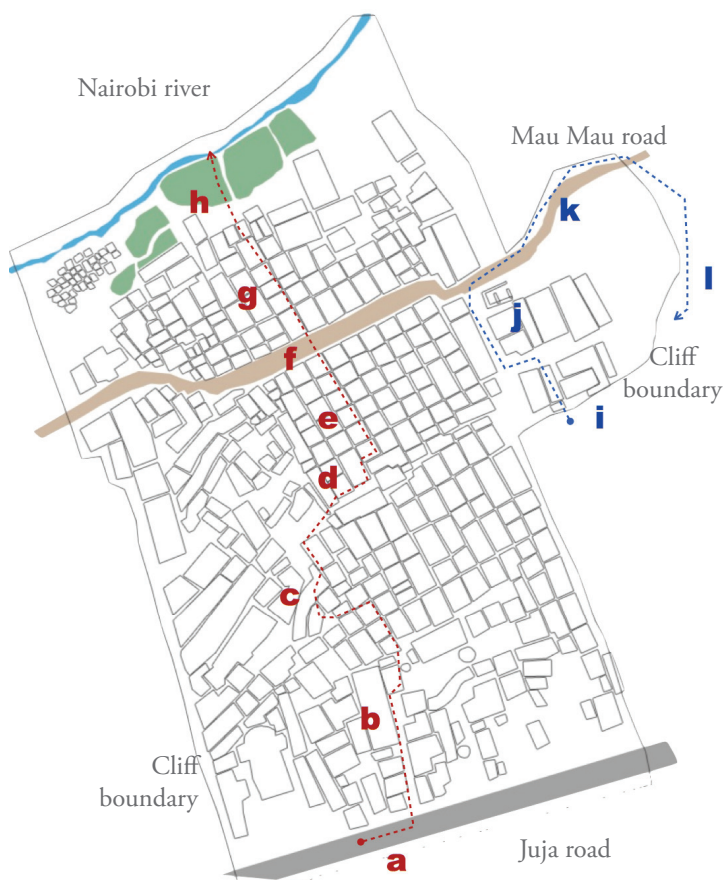
20m difference from Juja road to the riverside

e

f

g

h

usinesses below the cliff | Mau Mau road towards Mashimoni | View of the football field from cliff

j

k

l

3.3.2

Vulnerable group - Children's experience of Mashimoni - Use and appropriation of space

Mashimoni is a dense settlement with very few open spaces available for social interaction. Furthermore, when it comes to children, there are no officially designated and maintained play areas. Nonetheless, based on findings from the research activities, children manage to appropriate and use space in many ways and for various activities.

Informal play areas:

Children take advantage of vacant land and residual spaces and establish their play area in a spontaneous way, even when sometimes the land remains vacant only for a short time. This is the case when houses have been burn or land has been cleared to make way for streets or alleys. In other cases, the characteristics of the space make it appealing to establish it as a play area. For example, a compost area with banana leaves in the riverside provides a good spot for jumping and more acrobatic games, specially for boys.

The main area where the majority of children play, though, is the field below the cliff, which is just outside Mashimoni boundary. This is where many of the children congregate, meet their friends and engage in football and other organised games. The location and spatial characteristics of the space makes it appealing and the most adequate area for play within the settlement so far. Its prime location, just in the entrance to Mashimoni, makes it highly transited increasing the feeling of safety during the day. The cliff also forms a type of 'observation platform', as many adults and children use it as a place to rest or just observe what is taking place in the areas below.

fifty-seven — fifty-nine
These pictures show a variety of residual spaces children use frequently for social and play activities: a) A vacant space that is now used for playing. Houses were burnt in this area in order to make way for a secondary access road. b) Children use this space to play intermittently, in other occasions the same space is used for drying seeds. c) A compost site with banana leaves close to the riverside where children engage in acrobatics and similar games

sixty — sixty-two
These pictures show the different activities that take place in the football field as the main space of children interaction: d) children use the poles to play by attaching a string and a bottle which they take turns to kick e) this field is the only place where some organised games take place, mainly football matches f) Nearby schools use the field to organise group activities

66

fifty-seven

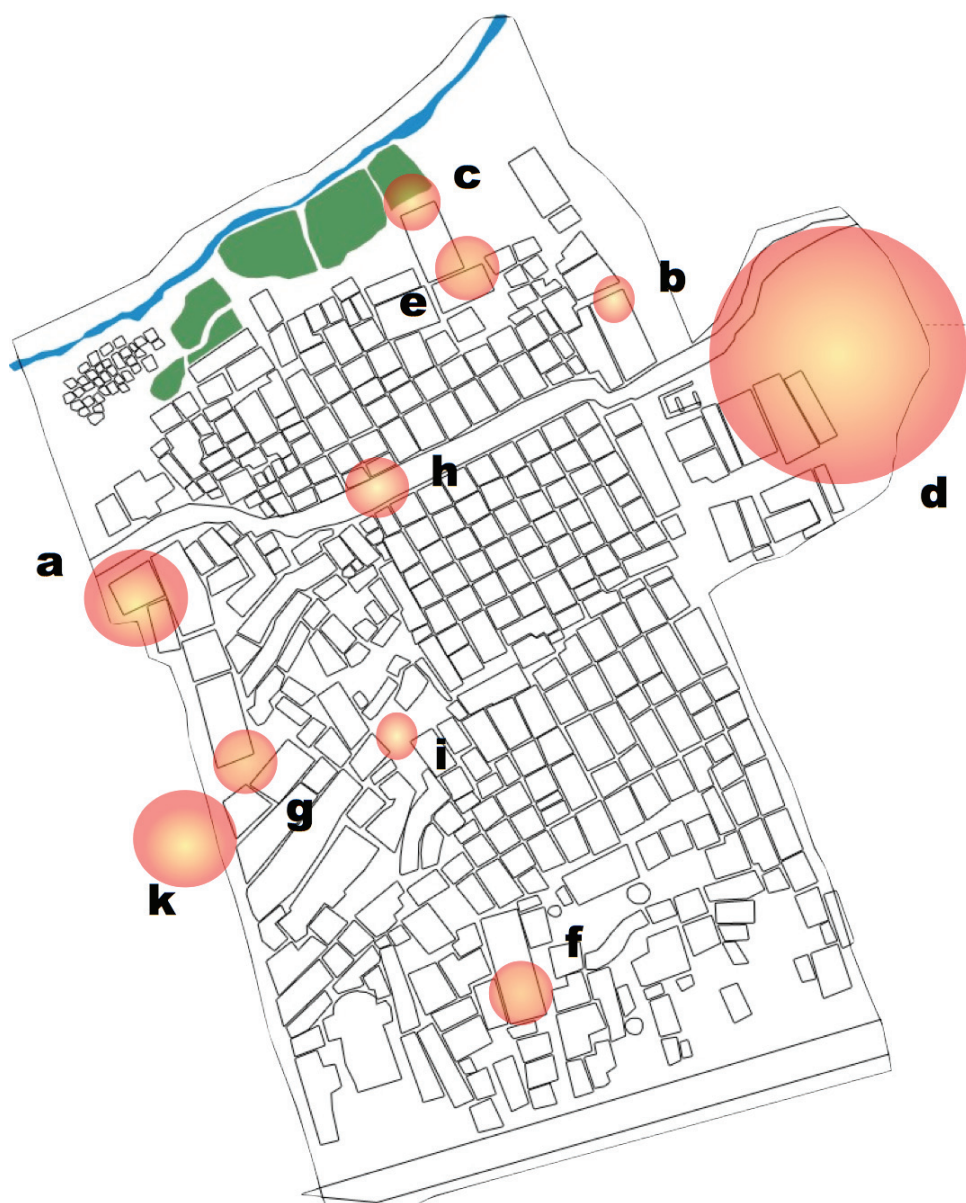
fifty-eight

fifty-nine

sixty

sixty-one

sixty-two

pink = girls, blue = boys

▲ informal play area

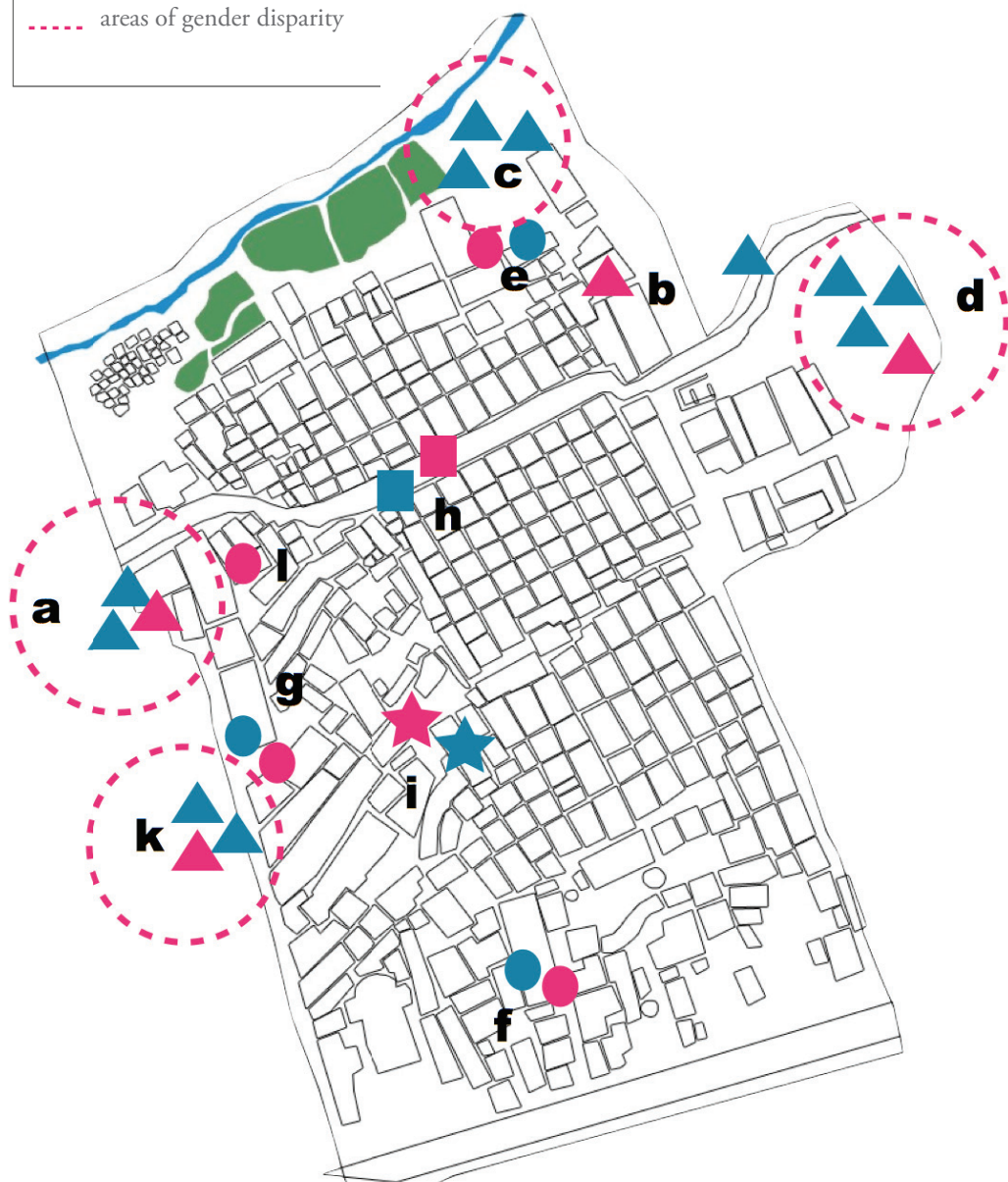● school play area/indoor play area

★ school chores

■ home chores

.... areas of gender disparity

Play area / indoor play area

Some children do not feel safe or do not like playing in the few open spaces available in the neighbourhood hence they limit their play and social activities to school and churches. These facilities usually have open areas that serve as playgrounds which, in most cases, provide children with a safe space to play under the supervision of adults. During weekends, children resort to play inside or near their houses where they can be accompanied by family members.

Other activities, although in less quantity, are school and home chores. Some small corners and residual spaces become relevant to children as they practice and do their school chores in them. Likewise, many of the children in Mashimoni engage in home chores, particularly fetching water. This activity takes place several times during the day, making children frequent users of the water points and the access corridors and roads leading to them.

Gender differences

The main difference between girls and boys experience of Mashimoni is in the use and appropriation of the football field and the larger residual spaces used as play areas (see figure sixty-four). Although girls indicated these spaces as relevant for them, they also mentioned they feel unsafe and/ or unwelcome as they usually have to compete with groups of boys or older children in order to use them. Some girls indicated they resort to play inside their homes or at school as they are afraid to get in conflict with other children. Another space that showed a gender divide was the riverside, where most of the children were boys and older teenagers. Safety issues were mentioned as a common cause as well as the fact the place is isolated from the rest of neighbourhood.

sixty-five — sixty-seven
These pictures show some of the schools and churches that provide safe play areas for children, in some cases being the only place where they can engage in social and play activities

sixty eight — seventy
h) Children frequently use access roads to undertake home chores, particularly fetching water, i) and j) children using small residual spaces to undertake school chores and practice grammar

sixty-five

sixty-six

sixty-seven

sixty-eight

sixty-nine

seventy

> "It would be good if we could put a big sign for the big people saying 'no waste by the river!'"
>
> *Child, resident of Mashimoni*

Main issues voiced by children

Through the drawing workshops and the interactive mapping game, children demonstrated how their daily experience of the neighbourhood is constantly accompanied by the precarious conditions of infrastructure. The open sewage and garbage dumping was unanimously referred to by children as the main nuisance in their everyday life in the neighbourhood, as it not only interferes with their leisure and play activities but also with their chores and home environment.

When asked about the places they dislike the most in their neighbourhood, they all mentioned places that are either regularly used as dumping sites or open sewages. This is not surprising as most of these sites are located adjacent to their most relevant spaces (figure seventy-five).

When it comes to sewage, children are highly aware of the health risks of open trenches and they expressed their constant fear of falling down when playing or passing-by these sites. At the same time, the open sewages are also situated in highly transited areas and some of the children noted how it affects their home chores when using these roads and alleyways to collect water or run errands.

Dump sites were also frequently mentioned by children as an issue. This is due, in part, to the fact some of the main dumpsites are located right adjacent to the places they use to socialise and play (figure seventy-three). This is the case with the football field, some of the interior vacant spaces and the riverside, where dumpsites are situated in their vicinity.

Children, particularly girls, also refereed to the poor condition of the roads, and more

seventy-one

seventy-two

72

specifically they expressed their dislike of the dirt and dust in them as it affects both their play areas and their homes. The most common roads mentioned were Mau Mau Road and the new access corridor at the west side of the settlement.

Children are also affected by the high density of the settlement. Some of them mentioned the problems of overcrowding not only in their houses, but also in their play areas and the schools. As indicated previously, children need to compete in order to appropriate vacant spaces for play activities. Even within the school grounds, the space is usually insufficient and therefore limits children's physical activities like running or playing football.

Children's dreams

When we enquired about their dreams for their neighbourhood the football field was an important topic of discussion. All of the children expressed their desire to have an official pitch with proper goal posts and grass. They also wished the field was properly lighted to increase both the safety of the area and to allow them to use the field until later hours.

The exercises also revealed a strong desire for green areas and trees in their community, specially in the top area of the cliff around the football field and in the riverside.

Finally, all the children agree they wish the garbage would be removed completely and that adults would stop dumping the waste in the few open spaces they can enjoy. Indeed, one child said that "it would be good if we could put a big sign for the big people saying 'no waste by the river!'"

BOX FOUR

The challenging conditions of children's schooling

There are at least six schools within the boundary of Mashimoni, but these all cater for only nursery and primary education. Most local schools currently operate as private facilities, which create problems of affordability and means that the quality of education is not controlled. We visited the majority of these facilities and managed to observe the many difficulties children and teachers face. In one of our mapping exercises, we visited the only school funded by the government. The school is the cheapest in the area, requiring a fee of KSH 150 per month, which includes food and uniforms. This school is an example of how the issues with infrastructure and lack of space affects children even when spending time at school.

This facility is located right below the cliff and in the vicinity of an area well-known as a drinking spot for adults. The corridors and the entrance leading to the school are composed by a dirt path and an open sewage. Moreover, two of the main sewage trenches coming from as far as Juja Road run down the face of the cliff , leading to the small patio where the children play. The patio is highly over-crowded (see image below) as the school caters for 45 students of varied ages.

The school has a proper, legal connection to the municipal water system, and a toilet. We spoke with Lydia, the teacher in charge, who has been working in the school for over a year. She laments that the school is overcrowded, has insufficient space inside for the children to study, and not enough outside space for them to play, which in some cases has led to injuries. As the school is located at the bottom of the cliff, the tiny courtyard is dotted with ponds collecting sewage from above. The conditions worsen during rainy season, creating unsanitary conditions in the patio and posing a serious health hazard for the children.

This situation illustrates the vulnerability of children in the settlement of Mashimoni. As explained in the previous sections, in many cases, schools constitute the only space where children can play and socialise, and these precarious conditions severely hinder their enjoyment of the only space they have at their disposition. *Isis Nunez*

WATER   PLAY   TOILET   SCHOOL

EVELYN

soccer field

water tap

tv
escape church home

toilet

path

path

school

seventy-six

Wakati ni siku
yako ya kuzaliwa?

I hawajui.

MATHARE RIVER
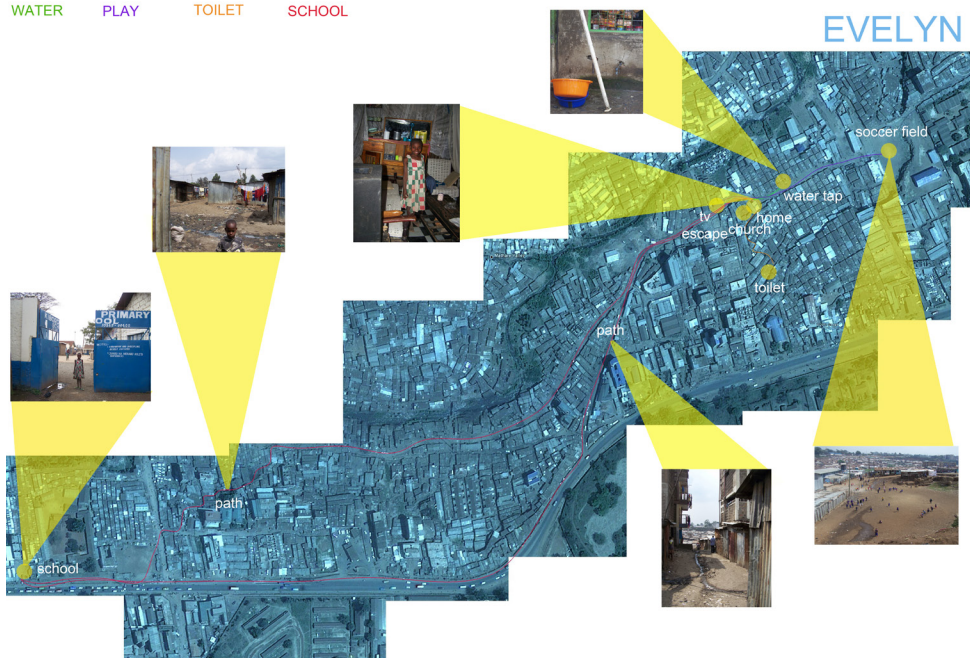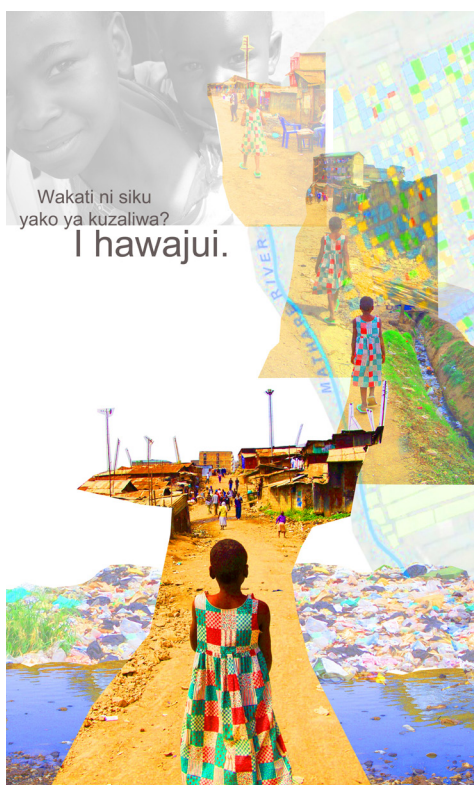
seventy-six and -seven

These illustrations depict the story of a girl's daily life in Mashimoni. This story illustrates how children are active users of many spaces in the wider neighbourhood and for various purposes. Her relevant spaces were associated with learning and play activities as well as home chores like fetching water. They highlight that many of the resident's activities are undertaken outside the geographical boarders of Mashimoni. *Whitney Burdge*

seventy-seven

a
market

sewage
trenches

b
allotments

Market: The east side of the riverside is occupied by an established market of second-hand clothes. The market is comprised by timber stalls that people can rent for selling purposes.

Allotments: A large portion of the land in the riverside is currently used for agricultural purposes. Some of the allotments are managed on an individual basis and others have been developed as community initiatives. The majority of the people managing these allotments have been trained by an NGO called Solidarité on agriculture techniques and the use of sacks for growing vegetables. This practice has become widely used within the settlement, expanding from the riverside to alleyways, school playgrounds and residual spaces in the community. Water for irrigation is taken from wells dug along the site.

Community toilets: Recently two community toilets were built in the area, providing clean facilities for users of the riverside and residents living nearby, These toilets are managed by users of the riverside (see box five).

Dumpsite: A large dumpsite and compost area has been created to the west border of the riverside. This site is widely used by residents to dispose of their garbage. In some cases it is also used for open defecation, specially during the night when community toilets are often closed.

c
community toilets

d
dumpsite and compost area

Nairobi River

Riverside - main issues

Through the drawing exercises and the interviews, we managed to enquire with different residents about the main issues affecting the riverside. We interviewed both active users of the space and other residents from the community.

The issue mentioned the most was the lack or difficulty of access to the area. The riverside is only accesible through small corridors that often double-up as sewage trenches, making the access difficult to pedestrians and limiting the number of visitors. This is a key challenge specially for the market sellers that regularly struggle to get frequent customers.

Some of the residents interviewed in other parts of the settlement indicated that the only reason they didn't visit the riverside more often was because the access is too difficult and the area was too isolated. Therefore, in their opinion the riverside was regarded as both an unkept and unsafe space. Residents also discourage their children to visit to area, as they are afraid they can fall into the contaminated river and get sick.

The riverside and the river are commonly used to dispose of waste by both the residents and the community cleaning groups. The users of the area strongly disagree with this practice and are perfectly aware of the detrimental effect on the environment, the allotments and their own health.

However, they also indicate the lack of any other alternatives to properly dispose of waste away from their houses and their roads. The existence of these dumpsites in the vicinity also detracts people from using the area in a more proactive way.

Furthermore, several sewage trenches bisect the area at regular intervals, carrying waste from further up the hill.

seventy-nine

eighty

These trenches affect the access to the area, contaminate the wells and allotments and discourage customers from the market.

These negative perceptions about the riverside are also exacerbated by the lack of adequate lighting in the area. During the night this area becomes completely dark and is highly avoided by the residents. However, some of them are forced to use it late at night as an open defecation area, due to the majority of community toilets remaining closed during the night.

The riverside is also a subject of conflict between the residents. Allocation and ownership of the land for agricultural purposes is unclear. While some argue the land is allocated on a first come first served basis, others argue that permission to cultivate the land was requested and subsequently granted on the basis that it cannot be used for housing purposes as it is a flood-prone area. These conflictive views has limited any intentions to use the area in a more communal way.

Finally, the riverside is regularly affected by flooding, contaminating the market and irrigation wells with sewage and rubbish and destroying many of the allotments. Upgrading of the market include attempts by some of the vendors to prevent flooding by growing trees and grasses along the river bed, and these also prevent children from falling into the river.

seventy-nine — eighty-one
The main issues with the riverside are the difficult access to it, as well as the unsanitary conditions created by the waste

Residents expressed their desire to make the riverside a thriving area with different community facilities and activities

Riverside - dreams and opportunities

The dreaming exercise with residents revealed a strong desire to use the riverside as a community area that can serve the whole neighbourhood. Such a community area would ideally have upgraded market facilities accompanied by financial mechanisms that can enable others to start businesses in the area.

Likewise, residents expressed their wish to have allotments that can be managed collectively and properly designated green areas that adults and children could use for leisure activities. They also mentioned the need for an effective barrier mechanism to stop or reduce the flooding from the river.

Residents also indicated they want community facilities in the area, for example a community hall that the neighbourhood can use for different activities, especially children and youth.

This in their opinion, would attract more people to the riverside and therefore attract customers to the market. Overall, all residents expressed their desire to make the riverside a thriving area with different community facilities and activities, and in this way to also tackle the negative perceptions that currently prevail about the riverside.

eighty-two and eighty-four

Residents wish to scale-up the existing urban agriculture initiatives by creating more allotments that can be managed collectively and serve the whole community

eighty-three

The market was mentioned as an opportunity for diversifying livelihood strategies within the settlement, provided that the facilities are upgraded and financial mechanisms are put in place to start businesses in the area.
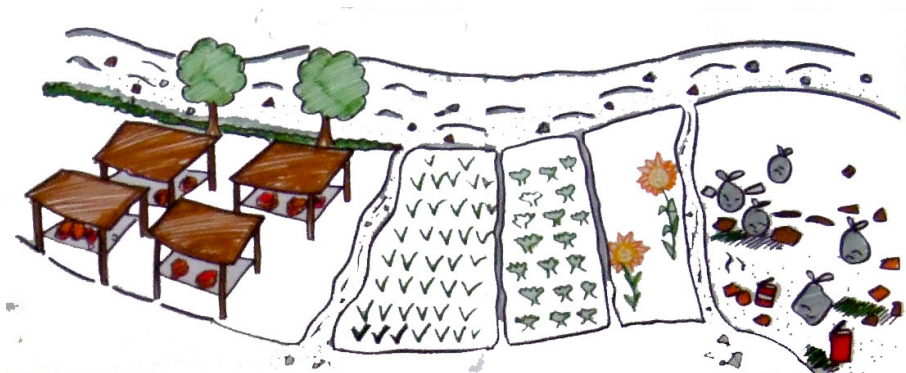
BOX FIVE

Elizabeth - community networks and ingenuity

Elizabeth was one of the first women we met in Mashimoni and it's not surprising that she is a well-known member of the community, considering her active involvement in community groups and the ingenuity she embeds in her many endeavours. Elizabeth moved to Mashimoni in 1994. She is an active member of several community groups, including the Muungano savings group, the Market group, the Chandani Group (urban agriculture) and the Community Cleaning Services (CCS).

She has had a market stall the entire time she has lived in the area but perhaps she is more well known for her remarkable work in the allotments at the riverside. She was trained by the NGO Solidarite, that taught her agricultural techniques, specifically on how to grow vegetables in sacks and directly into the soil. She then transferred her skills and knowledge to other members of the community, including the Chandani Group, which now has its own community garden.

Elizabeth proudly explained the techniques she uses to irrigate, grow, and harvest her impressive variety of crops, which include onions, sugar cane, corn, watermelons, pumpkins, plantains and a wide range of legumes typically used in Kenyan food. She has been growing vegetables for two years now, which she usually uses for her own consumption. When there is an excess, she also sells to others to have an alternative income.

Elizabeth is also involved in the management of the community toilets in the riverside. One of her strategies to improve the toilets has been to place plastic reservoirs with water in an adjacent tree in order to encourage better hygienic practices among the users.

Despite her success, Elizabeth also faces many challenges. For example, she noted how the contamination brought by the sewage and garbage dumping in the riverside seriously threatens her allotments. Likewise, whenever the river floods the area, she loses all her crops and has to start the process all over again.

In the dreaming exercise, she expressed her desire to have a proper dumpsite, located away from the riverside and the houses, where people could dispose properly of their garbage. She also wished the river was clean so she could use it to irrigate her crops. Finally, she envisioned the riverside as green space with a proper barrier for the river, where the children could play and read safely and in peace.

Elizabeth is an example of the ingenuity and diverse livelihood strategies many of the residents use in order to improve their life. By being involved in many community groups she has improved and diversified her skills, as well as expanded her networks and support base within the community. Through her activities she has also been active in sharing her knowledge among her networks having a bigger impact on her own community.

eighty-five

eighty-six

eighty-seven

eighty-eight

3.3.4
Key issue - Sanitation and garbage

Sewage

The moment you arrive in Mashimoni, the lack or poor condition of sanitation infrastructure is evident and manifested in almost every space of the settlement, having a substantial impact on the everyday activities of its residents.

In Mashimoni all of the sewage is drained by trenches, which in most cases are dug and maintained by community members. The trenches run generally open, bringing sewage and garbage from as far as the Air Force grounds across Juja Road. The sewage runs downhill from the top of the area to the cliff face and then down to the river, polluting the small corridors in front of the houses and the riverside.

Through our exercises it became clear that women are particularly affected by the sewage, as they frequently use and appropriate the internal corridors -through which the sewage usually runs through- for various home and social activities, including washing clothes, cooking and chatting with neighbours. For example, due to the lack of space inside their houses, women are forced to build small platforms made out of timber directly above the sewage as a way to extend their living space. It is here where food preparation, cooking and washing

usually takes place, hence these range of daily activities are always accompanied by flies, running sewage and the odour coming from the open trenches. This precarious situation poses a serious threat to the health of the women using these spaces and their families, significantly reducing their quality of life. The issues with open sewage also varies according to seasons. While in the dry season, women said to be affected by flies and odours coming from the sewage; the wet season brings the risk of flooding, which usually occurs when trenches gets clogged by water streams and garbage and the sewage spills into the neighbouring houses.

Nonetheless, within this context, some of the residents manage to improve their built environment and reduce some of the health impacts by using different coping strategies. These include the use of timber to cover the trenches and building concrete ditches to effectively channel the sewage and avoid flooding. However, these strategies, specially the latter, do imply a substantial investment that many families cannot afford.

eighty-nine — ninety-three
The lack of, and poor condition of sanitation infrastructure is clearly evident in Mashimoni. Sewerage is drained by trenches leading down to the river. Due to a lack of space residents are forced to appropriate these spaces to undertake their daily domestic activities

Toilets

The majority of households in Mashimoni lack in-house toilets, forcing families to use community facilities and in some cases open defecation or 'flying toilets'. The location and use of these facilities and their spatial impact in the settlement has been thoroughly mapped by the team of Map Mathare, hence we wanted to explore what were the implications for the everyday life of residents in Mashimoni.

There are several community toilets in the settlement, which are run by different types of organisations or individuals, including churches, schools, youth groups and community-based organisations. In order to use these toilets, a person needs to pay at least three shillings per visit, making it unaffordable for many residents, especially large families. In addition, the vast majority of these toilets are closed at night, from 9pm to 6am, forcing people to use flying toilets or open defecation sites at late hours of the night. This has several negative connotations, including health risks and safety issues. Women and children are particularly affected, as they expressed their concern on the dangers they face when using these sites during the night, specially in poorly-lit areas.

There are three types of community toilets in Mashimoni including long drops directly over the sewage trenches, pit latrines and biogas. The vast majority of these toilets are poorly designed, with no adequate provision for children, no separation between men and women and no hand-washing facilities. This situation affects the privacy and safety of the users, especially women and children. It also increases the risk of illnesses related to poor hygienic practices.

However, there are exceptions where toilets have being designed in a more user-friendly way, offering separate entrances and washing facilities. In other cases, the residents' ingenuity has played an important role in improving some of these facilities. For example, the people managing the riverside toilets have placed plastic containers with water hanging from adjacent trees, where people can wash their hands properly after using the toilets. (figure ninety-four)

Poor maintenance of the community toilets is also a key issue. In our visit to several facilities we found out that maintenance strategies vary widely. Some of the toilets are maintained by individuals, community-based organisations or enterprises, and in some cases, the maintenance is left to the same users. A number of these practices remain unregulated (especially in the toilets that are run by individuals). Therefore, although using these toilets comes at a great cost to families, this doesn't guarantee

adequate hygienic conditions. Another obstacle for the adequate maintenance of these facilities is the lack or sporadic provision of water, which greatly impedes a regular cleaning and therefore exposes its users and the neighbouring houses to human waste, flies and odour. This affects mostly the toilets run by individuals, as the churches, schools and youth organisations tend to have a water tank that guarantees a fairly regular provision for cleaning.

ninety-four

ninety-four
A new community toilet built in the riverside that is managed by the users.

ninety-five
The Twaweza community toilet is and example of a successful community-run facility. As well as being well-designed and utilising bio-gas facilities effectively, it operates allotments and a multi-purpose space that can be used by the community as well. It clearly contrasts other un-improved toilets (figure ninety-six)

ninety-five

ninety-six

BOX SIX

Ana and the effects of poor infrastructure in her daily life

Ana has been a resident of Mashimoni for several years. She currently rents a structure in one of the interior corridors and upper sections of the settlement, known by some as cluster 'B'. She also rents a small kiosk in front of her house where she sells home supplies. Ana's experience of Mashimoni has always been marked by the poor condition of sanitation. She used to live in the lower section of the settlement, but the constant flooding of her house, caused by clogged sewages, forced her to move to an upper section of the neighbourhood.

Currently, her house stands right in front of one of the main sewages running down the hill and adjacent to a community toilet and a water point. In a way, she considers herself lucky to not be subjected to regular flooding and to have a toilet so close to her house. However she continues to face several challenges with the facilities she has access to and the specific location she managed to secure for her house.

She currently pays KSH 3 every time she uses the toilets, which are ran by a private owner. The toilets are not well-maintained and the clients have the responsibility to clean them after every use by using the water point located nearby. In many occasions this does not happen and the toilets remain unkept. Moreover, the water point does not offer a regular provision, and in some cases water scarcity extends to several days, which results in poorly maintained toilets that contaminate the vicinity, including Ana's house, with flies and odours.

The open trench in front of her house and kiosk also poses a serious threat to her and her family's health as it carries sewage from up the hill and human waste from the long-drop toilets nearby. She spends most of her time in her kiosk selling to clients or in her house doing house chores. Hence she is constantly subjected to the odour and flies coming form the sewage. She expressed how the situation worsens during the dry season, as flies proliferate and infest her house. She is also in constant fear for her children, as they can fall into the trenches and hurt themselves.

Within this context, is not surprising that Ana considers the lack of proper toilet facilities, the poor sanitation infrastructure, and the difficulty to get rid of garbage as the key issues affecting Mashimoni and her daily life. She is very unhappy with toilets being closed during the night, as this forces people to use flying toilets from 9pm to 6am. She also asserts that toilets could be kept in much better conditions by the users.

Ana expressed her desire to run a toilet facility for a living, if it was collectively owned by the community. She believes that current problems related to toilets are caused by private, business-related ownership. She states that community members should get together to open and run new toilets, as well as to keep the sewage trenches clean.

Garbage

Currently there is no official dumping site for garbage in Mashimoni. There is also no regular garbage collection by the City Council. Most people throw their waste either into the sewage trenches or take it down to the river or to the dumpsite in the riverside.

There are many community-based organisations and youth groups which collect individual household's waste for KSH 10 per week. They also remove the waste from the sewage trenches and from some of the informal dumpsites around the neighbourhood. They collect, sort and recycle what they can. Initially, the waste would be collected and disposed in Juja Road. However, this practice is currently penalised by the City Council. This forces the cleaning groups to dump the waste into the river.

The City Council's garbage truck can collect the waste but this comes at a price (between KSH 1,000-3,000 per load) that is usually unaffordable for both the residents and the organised cleaning groups. As documented in the previous section on children's experience of the neighbourhood, garbage seriously affects the quality of life and the everyday activities of the residents.

Moreover, the issue with garbage is deeply-connected to the lack of proper

> The youth groups are a clear example of collective action and entrepreneurship for the benefit of the community. And although they face many challenges, they are well organised and regularly collaborate with other groups within Mathare

sanitation infrastructure as it causes sewage to clog and flood neighbouring houses and communal spaces. Some residents and representatives of the cleaning groups also expressed how the lack of awareness within the community seriously hinders the initiatives that try to deal with this issue. They also noted how the issue is highly complex and in order to be tackled it requires the active dialogue and participation of the residents, the community groups and the City Council.

Nonetheless, there exists many opportunities for change with respect to garbage. The youth groups are a clear example of collective action and entrepreneurship for the benefit of the community. And although they face many challenges, they are well organised and regularly collaborate with other groups within Mathare. Some of them also attend regular meetings with the City Council in order to negotiate a feasible garbage collection mechanism. They also organise themselves for the "Cleaning Day", an activity that is organised every month, bringing together several youth groups to clean the dumpsites and sewage trenches in Mathare, including Mashimoni (see Box 7).

Water is another key issue affecting the neighbourhood, however based on our diagnosis process, it was decided to put more emphasis on the issues explained

above relating to garbage. Nonetheless, the following facts need to be mentioned with regards to water provision and infrastructure. There is no official provision of water in Mashimoni. Water is mostly provided by a large number of private vendors throughout the community. It costs approximately two shillings for 20 litres in times of adequate water supply. This can increase substantially when there are water shortages.

There are also small businesses which collect the water from the selling points and distribute it door to door for an additional cost. During our investigation we noticed a number of new water pipes being installed by Nairobi Water and there are two water kiosks being installed along Mau Mau road which will hopefully stabilise water supply and minimise competition between vendors as the supply will hopefully be more consistent.

It will cost each household a KSH 2500 shillings deposit for connecting to this supply plus a further KSH 2500 shillings for a water meter. According to our conversations with the residents, this price is highly unaffordable for the majority of the families, hence people still resort to buy water from the private vendors.

This practice also requires a substantial investment of time in order to fetch the water from the selling point. Based on our findings, it is mostly women and children that undertake this task. This involves carrying water several times a day and in some cases from a considerable distance. In times of scarcity, women and children need to travel to neighbouring settlements in order to access potable water. Moreover, time is not only invested in carrying the water but also queuing as it the selling point are generally very crowded.

one-hundred-and-one

BOX SEVEN
Edward and Samuel - Youth entrepreneurship and community spirit

Edward is 24 years old and he is founder member of a registered youth organisation called Enlighters Group, currently made up of 16 members and involved in garbage collection in the area of Mashimoni. We met him with Samuel (25 years old), another member of the group, who explained to us the work they do in the area. Every Sunday they collect garbage from around 630 households in Mashimoni for 10 KSH each. They buy plastic bags to be distributed to families and also gloves for group members to be used for waste sorting, such us separating plastic, paper, metal and organic waste.

They sell these materials to recycle centres or to other groups around Mathare and then they dispose in the river the waste that cannot be recycled. They have tried to reach an agreement for the garbage to be collected by the City Council, but this would cost them between KSH 1,000-3,000 each time.

Once a month they also take part of the Cleaning Day for clearing the dump sites of Mashimoni, including the riverside. In this day they get together with other groups engaged in community cleaning in order to pay the City Council's garbage truck for a day. Every two weeks they are also in charge of removing the solid waste from the open sewage.

The group is engaged in waste collection only during weekends as during the week they make liquid soap in their houses and sell it around Mathare. They take advantage of the constant contact with households to promote their soap for cleaning. Moreover they do table banking to enable their members to access small loans for their families.

Enlighters Group has been part of the Environmental Day, organised by Slum Code, KMUN and Kenya Youth Environment Group, who granted them a certificate of recognition for their activities. Recently they also obtained a fund from the government for youth groups which they will use for improving their activities both of soap production and waste collection. Edward and Samuel think that "building awareness" is the most important thing that should be done in the settlement in order to face the problem of waste management. *Barbara Dovarch*

3.4
Conclusion

The diversity of tools used during the workshop allowed us to reach different groups within the settlement and with them, build knowledge on their current situation, their dreams and ideas for a better life within Mashimoni.

The current situation of sanitation and garbage in Mashimoni is certainly overwhelming and affects all residents, nonetheless in different degrees. Through our initial mapping exercises and discussions it was obvious women and children's daily activities are closely interwoven with the spatial conditions of sanitation and garbage, and therefore makes them particularly vulnerable to its hazardous effects. For example, all sewage trenches are open and in direct vicinity to the dwellings and the most relevant social spaces in the settlement that, as the findings illustrate, are actively used by women and children on a daily basis. The exercise also revealed how children are in constant distress of having to share the few spaces available for them with open sewage and dumpsites. This is in the case with the open spaces, with the roads and small alleys and even within their school grounds.

The study of the riverside as a key space,

provided with an overview of both the challenges and the opportunities present in Mashimoni. On the one hand, the residents expressed their desire to use the riverside in a more proactive way and for the greater good of the settlement. Through the dreaming exercises, the residents proved to have specific ideas on how upgrade the site and attract more visitors to the area. Likewise, some of the these ideas area already being implemented by its users. The market, the community toilets and the agriculture activities taking place are a clear example of the entrepreneurship of Mashimoni residents and the potential of the area to have a bigger impact in their livelihood strategies and community life.

The riverside is also a good example of the challenges that the entire settlement faces. For example, despite the initiative of many community cleaning groups, the riverside remains as the main spot for dumping garbage and in some degree for open defecation. The lack of both an affordable garbage collection service and adequate dumpsite, forces residents and the cleaning groups to keep using the area for these purposes. In addition, the precarious sewage system in the settlement, coupled with the geographical features of the area, means the riverside is the recipient of all sewage running down the hill through the settlement, making

It is fundamentally important to learn from the successful existing initiatives and build on their strengths. This is necessary to expand their impact to the wider community and make the physical and social changes in the settlement sustainable

the area and its access corridors highly polluted and almost inaccessible. Finally, the lack of available toilets during the night forces the nearby residents to also use the area for open defecation.

The dreaming exercises revealed how the residents envision their community changing for the better. The majority of these dreams implied physical improvements but also community organization and management strategies. While many of them indicated the need for greater support from the government and the importance of securing the land tenure, they also acknowledged the need to come together to achieve many of their own dreams and ideas to upgrade the settlement. This fact, along with the many existing initiatives and their potential, led to the acknowledgment and subsequent discussion of short-term strategies that can be implemented and have a substantial impact on the quality of life of the residents and community life.

Based on the findings, it is apparent that if a participatory slum-upgrading process aims to truly address the needs and aspirations of a community, it needs to engage with the diversity of groups within the settlement and build knowledge on their daily activities and how these are interconnected with the physical environment. The fact that this knowledge is built with the residents and through

diverse participatory methodologies enhances the chances that both the process and product of a slum-upgrading project are congruent with the lifestyles and dynamics of a specific community. In addition, it is fundamentally important to learn from the successful existing initiatives and build on their strengths. This is necessary to expand their impact to the wider community and make the physical and social changes in the settlement sustainable.

one-hundred-and-two

FOUR

DWELLING

PART FOUR
DWELLING

4.1
Introduction

The dwelling group sought to understand current dwelling conditions in Mashimoni, and subsequently 'dream' with residents about what upgraded dwellings could be like. The aim of the group was to explore a definition of the term 'dwelling' (as a broader concept than just 'housing') and to capture resident values on this important component of their built environment.

To this end, the team of workshop participants engaged residents through a variety of participatory tools from intimate workshop sessions inside residents' homes to public focus group sessions in the street.

The group's exploration into dwelling was split into three partially distinct phases. First was the diagnosis phase, which saw workshop participants entering houses to discuss, draw, and map existing dwelling conditions.

Following the diagnosis phase workshop participants engaged residents in dreaming exercises which revealed resident values and aspirations.

The third phase of the workshop was to consolidate findings from the diagnosis and dreaming phases and develop a set of possible upgraded dwelling typologies for review by the community.

'Dwelling: more than just a house'

This phrase has been the group's driving motto throughout the workshop. The group has been guided by Amos Rapoport's conceptualisation of dwelling, which suggests that where a house can be defined as the internal volume and surrounding physical elements that enclose it (typically the walls, floor, and roof), a dwelling is defined as a 'system of settings'.

A dwelling is therefore not defined exclusively by the physical internal space but by residents' activities in particular settings (Rapoport, A. (2003) *Culture, Architecture and Design.* Barcelona, Ediciones EPC). Many activities that take place within the house in one case may occur in a widely dispersed system of settings in another case (figure one-hundred-and-three).

Rapoport's conceptualization of dwelling is a useful theoretical basis to investigate the predominantly residential area of Mashimoni. By way of simplified illustration, this means settings such as a semi-private laneway, open street, and local playground could form part of one's dwelling environment, even though these spaces are not located inside the house. Rapoport (2003:39) notes that this conception of dwelling is significant because:

This type of conceptualization makes a

major difference not only to the use of the dwelling and thus the nature of housing. It also influences the use of streets, specialized settings and neighborhoods. It also has implications for appraisals of density and hence crowding; this, in turn, influences the evaluation of the quality of housing with major effect on decisions about redevelopment, 'slum' clearance, etc.

Along with the concept of dwelling, the group was guided by Rapoport's conceptualisation of the built environment as a cultural landscape (Rapoport, 2003:44). It is 'cultural' because people modify the natural and built landscape following shared schemata (2003:54):

Such landscapes are not 'designed' in the usual sense of the word. They are the outcome of many individual decisions of numerous people over long periods of time…such landscapes express the preferences shared by groups, based on shared ideals, images and the like, expressed in schemata. These then guide the choices that are made so that the apparently independent actions of many people over long time periods add up to a recognizable whole' (2003:89-90).

By conceptualizing and seeking to understand Mashimoni in this way - as a cultural landscape - Mashimoni is much more than just its physical space: the roads and the buildings. Therefore, when designing and appraising the success of built environments and the type of built environments people aspire to live in, understanding culture is fundamental.

But what is meant by 'culture'? In its broadest sense, culture is a concept that explains 'the many things people think, believe, do—and how they do them…. [It
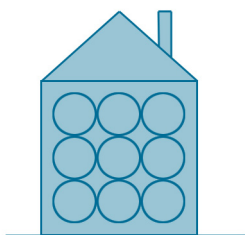
(a) Dwelling with all activities taking place within the house
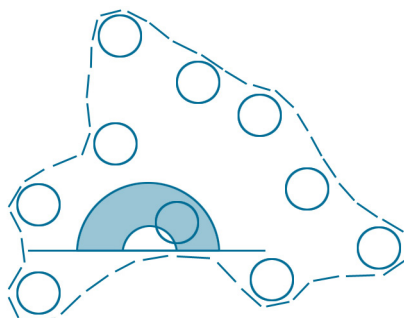
(b) Dwelling as a system of settings

A dwelling is not defined exclusively by the physical internal space but by residents' activities in particular settings. Many activities that take place within the house in one case may occur in a widely dispersed system of settings in another case

is] the way of life of a people, including their ideals, norms, rules, routinized behaviors, etc' (2003:131-132). Using the example of density, Rapoport (2003:81) posits that cultural ideas form the basis on which judgments of built environment characteristics are made:

> 'high density' in one cultural context can mean something completely different in another. Since 'crowding' is the negative evaluation of particular densities (and some densities may be evaluated as too low) both at the site level and within dwellings, 'culture' plays a significant role in the definition of density and space standards.

But culture is a very general concept. To make it 'useable' Rapoport (1998; 2003) 'dismantles' the term by illustrating the specific expressions of culture (figure one-hundred-and-four).

Culture influences, and is structured by, worldviews—how people see the world—which in turn shape people's underlying values. Values shape ideals, images, and schemata that are manifested in written and unwritten norms, standards and rules. Lifestyles are a product of these ideals and norms, most clearly expressed through peoples' activities and behaviour.

Using this conceptualization, one can begin to understand the culture in a certain place and time through investigating the specific expressions of culture: i.e. norms, meanings, rules, lifestyles, activities, etc.

In summary, then, the group approached Mashimoni guided by Amos Rapoport's conceptualization of dwelling and the built environment as a cultural landscape. Accordingly, the task was not to simply judge the existing environment as 'good' or 'bad', or 'better' or 'worse' than other environments. Rather judgment on their quality depends on their congruence with local culture (values, norms, ideals, and preferences, etc.).

Most importantly, however, through adopting dwelling and the cultural landscape approach, the group could begin to understand if—and if so, how—local culture shapes activity and behaviour (and vice versa), and the provision and adjustment of fixed, semi-fixed, and non-fixed elements, and, in turn, how these may shape housing preferences, values and needs in the dwellings of Mashimoni.
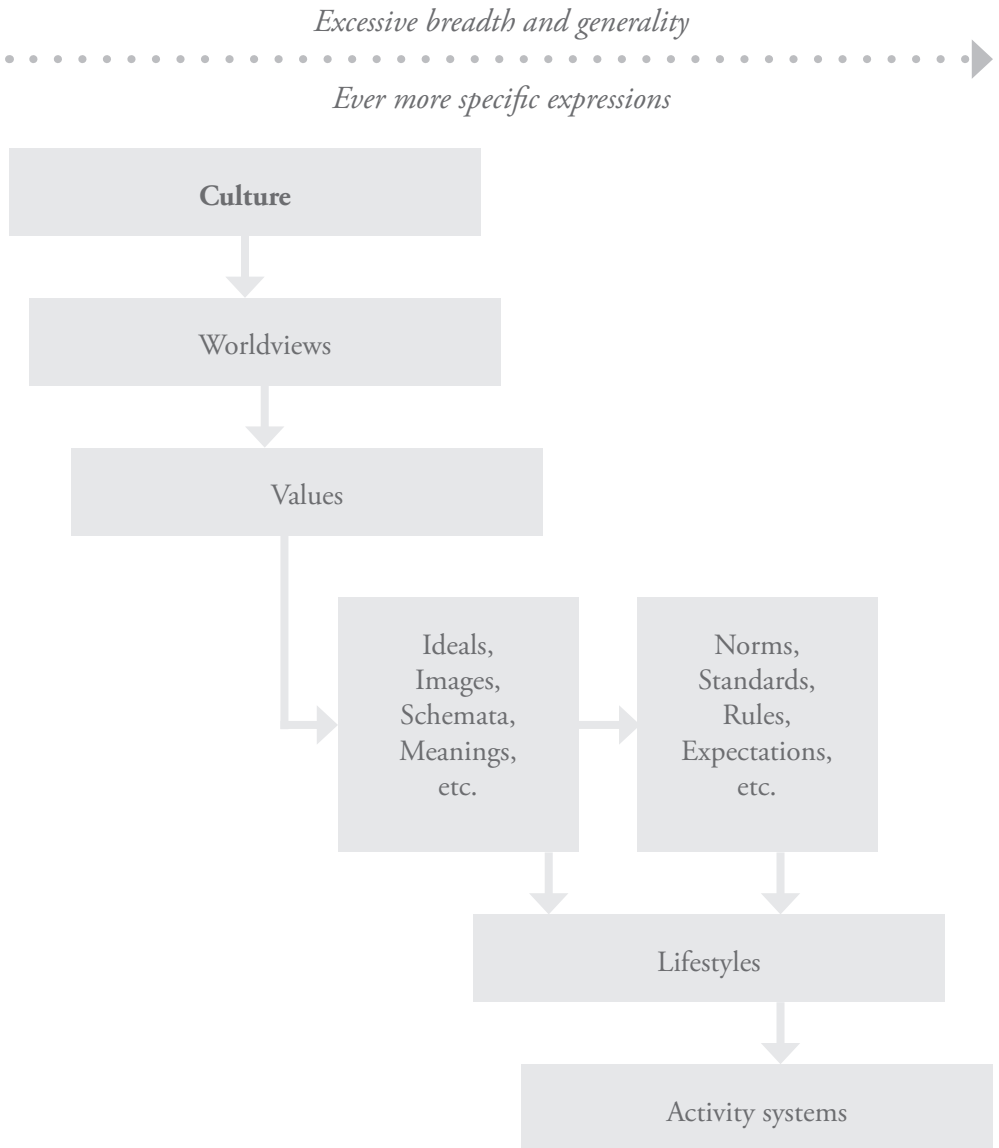
Only with an understanding of local dwelling values (ideals, images, lifestyles, activity systems, etc.) can a built environment be produced that is responsive to residents' culture - their needs, wants, and aspirations, as well as contributing the task of empowering the vulnerable marginalised and building communities in the slum upgrading process.

Dwelling is conceptualized as a system of settings. In some cases, activities and settings may all take place within the house (a); in other cases, the settings may be dispersed and not all be located inside the physical boundaries of the house (b) (Adapted from Rapoport, 2003)

one-hundred-and-four

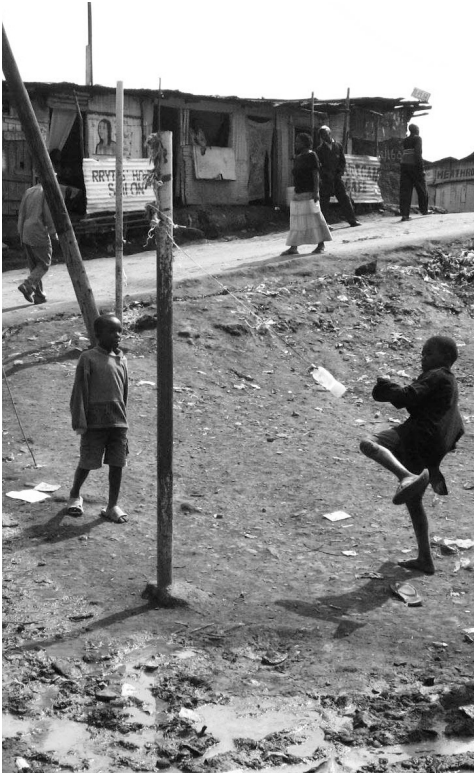'Dismantling' the concept of culture to make it usable

Excessive breadth and generality

· ▶

Ever more specific expressions

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┌─────────────────┐
│ Culture         │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Worldviews      │
└────────┬────────┘
         ▼
┌─────────────────┐
│ Values          │
└────────┬────────┘
         ▼
┌──────────────┐   ┌──────────────┐
│ Ideals,      │   │ Norms,       │
│ Images,      │──▶│ Standards,   │
│ Schemata,    │   │ Rules,       │
│ Meanings,    │   │ Expectations,│
│ etc.         │   │ etc.         │
└──────┬───────┘   └──────┬───────┘
       ▼                  ▼
┌─────────────────────────────────┐
│ Lifestyles                      │
└────────────────┬────────────────┘
                 ▼
┌─────────────────────────────────┐
│ Activity systems                │
└─────────────────────────────────┘
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one-hundred-and-five

one-hundred-and-six

one-hundred-and-seven

one-hundred-and-five
The street is a setting where many domestic activities are undertaken, and thus form part of residents' dwelling environment

one-hundred-and-six
The interior of houses have many functions and settings. They are places of rest and relaxation as well as places to store possessions and display personal achievements

one-hundred-and-seven — -eight
Dwelling settings accommodate such activities as food preparation, children's play, and home-business and micro-enterprise. Many of these activities occur outside the 'four walls' of the home, yet must be recognised as important elements in understanding dwelling needs and lifestyles

one-hundred-and-nine
The threshold between the 'public and private spheres' is an important boundary between dwelling settings, but should not be equated to a strict boundary between the public sphere and a private dwelling

one-hundred-and-eight

one-hundred-and-nine

4.2
Approach

The main objective was to work with the residents, within their environment in order to investigate their present living conditions and uncover their aspirations for improving their living standards.

The method was split into four stages. Each stage was a link in the process to form possible suggestions of different typologies and infrastructure systems for an upgraded Mashimoni. Although somewhat distinct, the stages were not undertaken completely independently; rather the end of each stage blended with the start of the subsequent stage.

Day 1 – Diagnosis: walking and talking

The aim of the first day was to understand current living conditions of Mashimoni residents. The group participants were split into smaller groups, with each having at least one local participant who translated the interviews from Swahilii. The local participants introduced each group to different areas of the settlement, enabling the group to canvas the whole settlement.

Throughout the day, the participants were investigating the spatial arrangement of Mashimoni, its physical conditions, and the activity systems and recorded these through sketches, mapping and photographs. During the day, the groups visited various households to gain a broad understanding of the household structure and listened to their stories.

The key matters discussed in the interviews were the number of inhabitants (density and overcrowding concerns), financial situation (affordability of living in houses in Mashimoni), spatial layout of the households (room arrangements and use patterns), the use of private/public space, activities and current pressing needs.

one-hundred-and-ten

one-hundred-and-eleven

one-hundred-and-thirteen

104

Mapping the dwelling setting in Mashimoni. Participants 'walked and talked' with residents in and around their houses and shared compounds, at work, and on the streets

Along with talking and observing at a the wider scale, smaller details in and around the house were observed, discussed, and recorded as these gave hints at prevailing domestic norms, standards, rules, and habits

One member of each household was asked to draw their 'dream house' and then describe the drawing. This method initiated an important conversation about their dwelling needs, wants, and aspirations

Day 2 – Dreaming through drawing

The drawing exercise aimed at capturing and interpreting the 'dream house' drawings of residents. Just like in the previous stage, the groups of ASF participants and local participants were working in different areas of the site and interviewing people in their households.

The interviews consisted of two parts: firstly, obtaining basic information about the current household structure and the family history, and secondly the 'dream house' drawing exercise.

One member of each household was asked to draw their dream house and describe the drawing, while the participants observed the drawing process to understand the hierarchy of importance of spaces they drew. The drawing part was followed by a series of questions investigating the motivation behind the spatial arrangement of the house.

The conversations about the drawings were the most informative part of the exercise, as most of the residents had problems with illustrating their design to the degree they would have liked to. The lack of architectural drawing skills amongst the residents was the main challenge of the exercise, as well as the difficulties in imagining a life that was radically different to the existing physical conditions and ways of life.
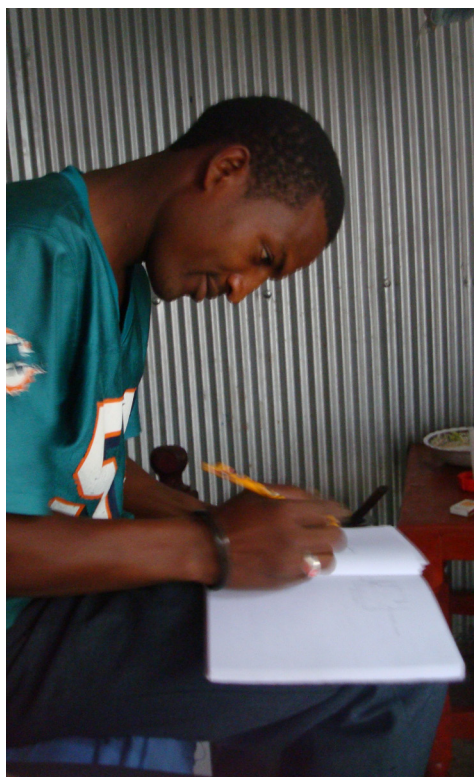

one-hundred-and-fourteen

one-hundred-and-fifteen

one-hundred-and-fourteen — -sixteen
Residents drawing their dream houses using a pen on a blank piece of paper, encouraged by a local student and an international participant. Once a drawing was complete, a discussion took place where the designer explained his dream house: the spaces, their arrangement, how they would occupy it, etc.

one-hundred-and-sixteen

Day 3 - Dreaming through modelling

Following on from the drawing exercise of the previous day, the aim here was to focus on the spatial composition of rooms within individual households through three-dimensional modelling, as well as explore the arrangement of houses and their relationship with the surrounding environment. The three-dimensional models of rooms were made as individual pieces based on the drawing exercise. The kit of parts consisted of several types and sizes of different rooms, which appeared most often in the dream houses of the residents.

In order to conduct the exercise, two focus groups were gathered around two tables on Mau Mau Road, the main street of Mashimoni. Each resident was assisted by an ASF member, as well as a local student, who recorded the process and asked questions about the reasoning behind the arrangements of the rooms.

From the kit of parts arranged on each table, each resident could collect their desired rooms in order to form their dream house. Once the arrangement of the internal spaces was set, the residents were asked to coordinate the layout of the outdoor private/public zones followed by the street infrastructure. The next step of the exercise was to explore the relationship between their houses and the houses of the other participants in the focus group and, if necessary, reach a compromise between their desires and the desires of their neighbours.

Dreaming through three-dimensional modelling proved to be a more accessible tool than drawing for the residents to visualise their dream house. This is largely because of the flexibility in arranging the pieces and the possibility to constantly change the design which the modelling approach gave.

one-hundred-and-seventeen

one-hundred-and-eighteen

one-hundred-and-seventeen and -eighteen
Close-up examples of the 1:50 scale rooms that residents used to construct their dream houses in three dimensions, and then position them in relation to streets and others' houses. This process required the residents to work together to form a dream urban layout for Mashimoni, the benefits and disadvantages of which were discussed and debated at length

one-hundred-and-nineteen
A 'dreaming through modelling' focus group

108

Using three-dimensional modelling, the focus was on the spatial composition of rooms, as well as exploring the relationship of dream houses with their surrounding environment

Day 4- Dreaming through typologies

This exercise aimed to receive feedback from the residents about four housing typologies, which had been developed by ASF participants based on the outcomes of the previous dreaming exercises. The typologies were not created as final solutions but as suggestions of different physical implications such as private/public space, multi-storied living, density, etc. To differentiate between various desires of housing types, each typology represented completely different ideas about the use of space, lifestyles, activity settings, density, and the accommodation of non-domestic activities—all of which play a key role in shaping the long-term success of slum upgrading projects. The four typologies were:

The 'tower': vertical arrangement, higher density, shared outdoor space, self contained units, individual balconies, possibility of locating shops on the ground floor;

The 'detached house': very low density, private outdoor space within a gated compound, self contained units. This type was included as an expression of a popular dream house, but its main drawback was that a lot of people would have to move out of Mashimoni

The 'row house': medium density, private entrance and back garden, possibility of incremental construction, self contained units;

The 'Gallery': high density, multi storey, shared toilet and kitchen facilities per floor, private plots within a shared roof garden, individual balconies, shared staircase and entrance galleries, possibility of locating the shops on the ground floor.

The focus group sessions took place on the main road of Mashimoni in groups of about 10 residents at a time. After the ASF participants presented the typologies, the residents discussed and expressed their opinions about each housing type. From the models, our aim was to generate discussion about different types of shared space, both internally and externally. Furthermore, the session aimed to get information of their visions and values regarding density and the social implications of each option.

Each typology represented different ideas about the temporal use of space, lifestyles, activity settings, density, and the accommodation of non-domestic activities — all of which play a key role in shaping the long-term success of slum upgrading projects

one-hundred-and-twenty and -twenty-one
The tower typology was four storeys high with three flats per storey. Each flat had a bedroom, bathroom, kitchen, balcony and access to shared land, envisaged for small-scale agriculture. Access to flats was via a communal internal stair way
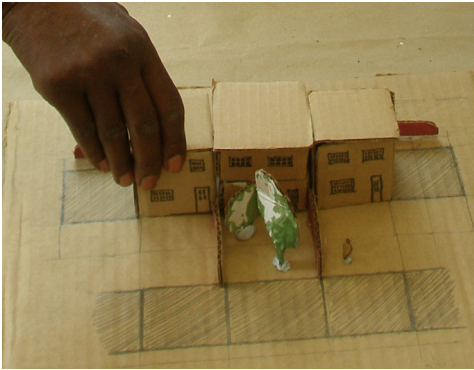

one-hundred-and-twenty

one-hundred-and-twenty-one

one-hundred-and-twenty-two and -three
Although many residents would have to leave if this typology was implemented, the detached house typology was included to initiate discussion on these social implications such low density

one-hundred-and-twenty-four and -five
The row house typology provided residents with aspects popular in their dream houses: private outdoor space at ground-level and the possibility to expand vertically
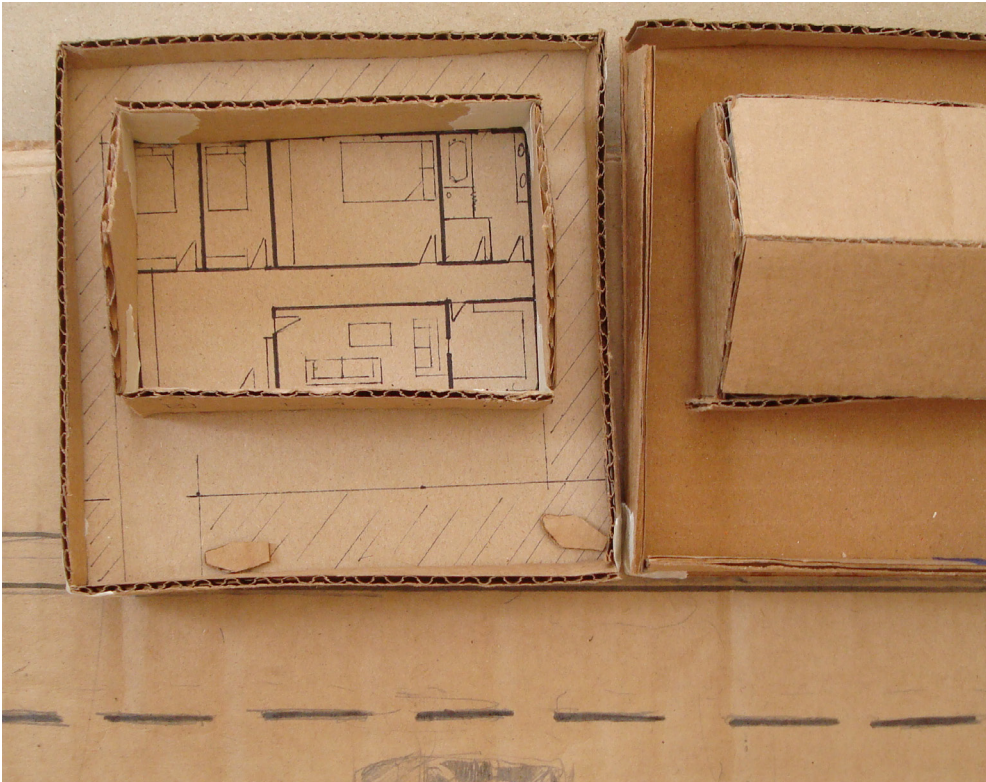

one-hundred-and-twenty-two

one-hundred-and-twenty-three

one-hundred-and-twenty-four

one-hundred-and-twenty-five

The gallery typology represented a high-density option with outdoor access to flats. Each storey consisted of four flats, and communal bathroom and kitchen facilities, which were located at the end of the outdoor corridor. Each flat consisted of either one or two bedrooms, a living room and a private balcony on the opposite side to the corridor. The ground floor had the potential to accommodate shops and micro-enterprise activities

one-hundred-and-twenty-six

one-hundred-and-twenty-seven

one-hundred-and-twenty-eight

one-hundred-and-twenty-nine

one-hundred-and-twenty-eight
Space is at a premium inside houses in Mashimoni and walls become places of both storage and display

one-hundred-and-twenty-nine
A woman prepares vegetables on a makeshift timber bridge over an open drain outside her house

4.3
Findings

4.3.1
Diagnosis: walking and talking

There are a range of different housing types and households in Mashimoni, depending mainly on the families income and on the cluster the 'structure' (physical house) belongs to. The average rent for a one-room structure generally ranges from 800 Kshs to 2000 Kshs depending on the location. The settlement is divided into clusters, named alphabetically, and clusters closer to Juja road are typically more expensive. Quality of construction also influences the rent price, although quality remains generally poor throughout Mashimoni (tin and iron shack).

There is a main housing typology in Mashimoni. It is a one room shack with walls constructed either of 'wattle and daub' (a network of wood sticks covered in mud clay) or corrugated iron. Roofs are mostly corrugated iron, or often built from asbestos concrete tiles. On the ceiling, blankets are hung in order to protect the area underneath from falling pieces, powder, or even rain water. In the metallic roof a hole is often cut and covered with plastic to allow light inside. In fact, even though some households do have windows, they are kept closed and sometimes blocked for security and privacy reasons. In the case of shops the opening serves as a display of goods and thus remains open with mesh for security.

Interior spaces are usually free of internal walls, but are usually divided by a sheet to differentiate the living area from the sleeping area. The cooking facilities are normally located close to the door. The average number of people living in a room is three. Families are not the only householders in Mashimoni, as there are elderly people or young students sharing rooms or living on their own.

Most of the shacks are provided with electricity, mostly through illegal means. Roughly 20 per cent of the residents we visited are legally connected to the supply system, while the others utilise unofficial tapped connections and pay a fixed fee of 300 Kshs per month to whoever illegally controls the connection.

Direct water supply is not available to most households. Water can be bought at both legal and illegal taps that can be found all around Mashimoni. Weather and seasonal conditions determines the price of it, and it varies between 2 and 25 Kshs for 20 litres, but sometimes can reach 50 Kshs. Although there are many illegal connections, the Nairobi Water Company is in the process of installing a new legitimate water pipe network to the settlement.

one-hundred-and-thirty
Sketch of the inside of a home that also serves as a small kiosk selling everyday consumables

one-hundred-and-thirty-one
The line of plastic canisters in the street used for water purchases

one-hundred-and-thirty-two
Wattle and daube is widely used for wall construction. Timber is weaved to form a grid which is then in-filled with earth and rocks and plastered

one-hundred-and-thirty-one

one-hundred-and-thirty

one-hundred-and-thirty-two

There is a main housing typology in Mashimoni. It is a one room shack with walls constructed of either corrugated iron or 'wattle and daub' (a network of wood sticks covered in mud clay)

one-hundred-and-thirty-three

one-hundred-and-thirty-four

one-hundred-and-thirty-five

one-hundred-and-thirty-three
Growing plants in small plastic containers hung from the underside of a second-floor

one-hundred-and-thirty-four
Many residents undertake small-scale micro-enterprise activities, such as this tailor whose services are highly demanded from people both within and outside Mashimoni

one-hundred-and-thirty-five
Sketch illustrating the physical form and density of Mashimoni

The existing houses in Mashimoni are neither physically adequate nor dignified places to live. They therefore constitute a gross violation of the fundamental 'right to adequate housing'

one-hundred-and-thirty-five

one-hundred-and-thirty-six

one-hundred-and-thirty-five
A narrow alleyway formed by adjacent houses. At night, in darkness, these alleyways can become dangerous places to use

one-hundred-and-thirty-six
The main street of Mashimoni which forms the primary thoroughfare of the settlement and is often used for particular socially-orientated dwelling activities

one-hundred-and-thirty-seven
Curtains provide visual privacy for interiors

one-hundred-and-thirty-seven

BOX EIGHT

Mashimoni - a challenging but central location for 'getting ahead'

Residents manage to make their lives work and get through everyday life, but only just, by inhabiting the margins, although many slum dwellers do envisage a different future. Stephen is one person who indeed works for his future. He lives with his father, Ainea, in a small 3x3 m^2 shack. His family lives in the western part of Kenya. They both visit their family twice a year depending on their financial circumstances. The two visits are usually April and Christmas. It costs between 800-1500 KSH for the trip. Stephen and his father take turns to visit their family so as not to leave the dwelling unattended. Stephen's father works as a labourer 6am-6pm if work is available. Recently they had to move house because of a fire outbreak which caused the loss of many belongings.

Stephen attends Kenyatta University and studies computer science. The university fees are high and accommodation during semester dates are between 3400-5400 KSH. Stephen stayed in student accommodation during term time, but last year he could not afford the accommodation so lives in Mashimoni with his father and travels to university every day. His daily life starts at 4am after an very long walk through Mathare to the main road catching the bus at 6am. The bus costs 40-50 KSH every trip. He then arrives at university around 7am and stays at university until 6pm, arriving back at night, which is unfortunately when danger and security problems are at their highest level.

Stephen and Ainea currently pay 1300 KSH for rent in Mashimoni. The money they both earn goes towards rent and the rest goes to their family. Stephen must pay 75,000 KSH per year for university fees. The first year he managed to get a government loan worth 44,500 KSH and also did fundraising earning 20,000 KSH. He worked hard teaching at the local high school which earned him 5000 KSH, saving at least 3000 KSH for university fees. Unfortunately, the last year he was deferred out of university, as he could not raise the fees. Stephen's story demonstrates the drive and determination inherent in the majority of residents in Mashimoni to improve their social and economic situation, connect with the wider city and its institutions, and integrate with mainstream society rather than remain on the margins; it is, however, a daily struggle that requires a positive and persistent attitude to 'get ahead'. *Phillip Roy*

BOX NINE

Living conditions in a secure area of Mashimoni

A tailor, 60 years old, has been living in Mashimoni since 1990. His house, unlike most of the accommodation in Mashimoni, consists of two rooms, have been progressively constructed and adapted since he arrived. The room to the rear is used as living room and bedroom and it is the oldest part of the house. On the front a kitchen and a floor have been added. The building materials used are mainly mud bricks and iron sheets, those being the most common ones in the settlement.

The tailor usually works from seven in the morning until late in the afternoon. This is typical of his profession, and contrasts many other elderly men we spoke with who claimed to be 'night guards' in Mashimoni, thus working mostly after sunset.

He owns a cat, and a few chickens that provide him with a daily supply of food (eggs). The cat in particular can be considered an indication that this man is relatively wealthy compared to his co-settlers. It must also be pointed-out that the area where he lives also reflects his status and higher economic security than other residents. We accessed his house through a gate that is kept locked and guarded at night. The area itself consists of an alley that enlarges at the end to form a little square, a patio, thus providing the inhabitants with a communal space to undertake various activities, such as relaxing, socialising, and raising chickens. The outdoor living conditions are also improved by the fact that the alley is wider than the average alley size and that a running stream takes sewage directly to the river.

As expected the monthly rent for the tailor's house is significantly higher than the average for Mashimoni, reportedly being approximately of 5,000 Ksh, with additional 300 Ksh/month for electricity. While he feels that his house is not perfect, he is quite content with his house and does not wish to leave it, as it has taken him effort and time to build and maintain it. However, the one improvement he is wishing for it is a private toilet.
Francesca Pegorer

4.3.2
Dreaming through drawing

On our second day in Mashimoni, we continued with our talks with the residents focusing more deeply on their dream house. They were asked to represent their housing aspirations with a drawing of their 'dream house'. In spite of some difficulties we managed to obtain interesting representations.

The most common house shape chosen is a pitched roof, detached house on a private compound. Windows were among the first features to be placed on the drawing. Some residents spent a lot of time defining the material for the walls. Concrete blocks were a popular choice.

With regards to open spaces, the residents expressed a preference for a garden with trees surrounding their dream house. All the current activities that usually take place in one room, were located into separate rooms (e.g. bedrooms for sleeping, kitchens for cooking, living rooms for entertaining guests or relaxing, etc). Because residents fear contamination, they often place the toilet as far as possible from the house in the outside surroundings.

Box Ten gives a more detailed overview of some of the key findings of the dreaming through drawing phase by providing an illustration of two people's dream houses.

one-hundred-and-thirty-eight — -forty-two
Examples of drawings that residents drew to communicate their 'dream house'. Some were rather diagrammatic, illustrating the desired rooms and spatial layout; some were very detailed, and even considered the interior furniture layout and ideas of what spaces would be used for. Others considered three-dimensional aspects through using elevation and sectional representational methods.

one-hundred-and-thirty-eight

one-hundred-and-thirty-nine

one-hundred-and-forty

one-hundred-and-forty-one

one-hundred-and-forty-two
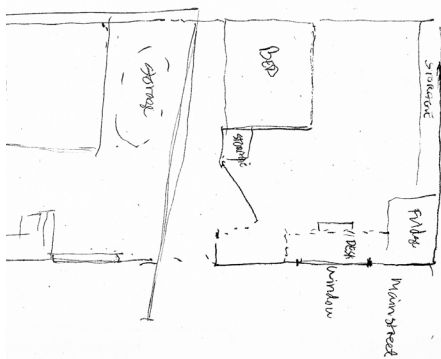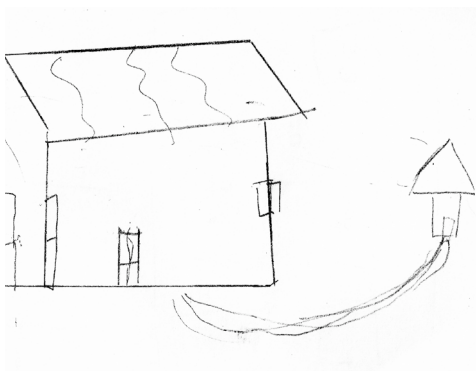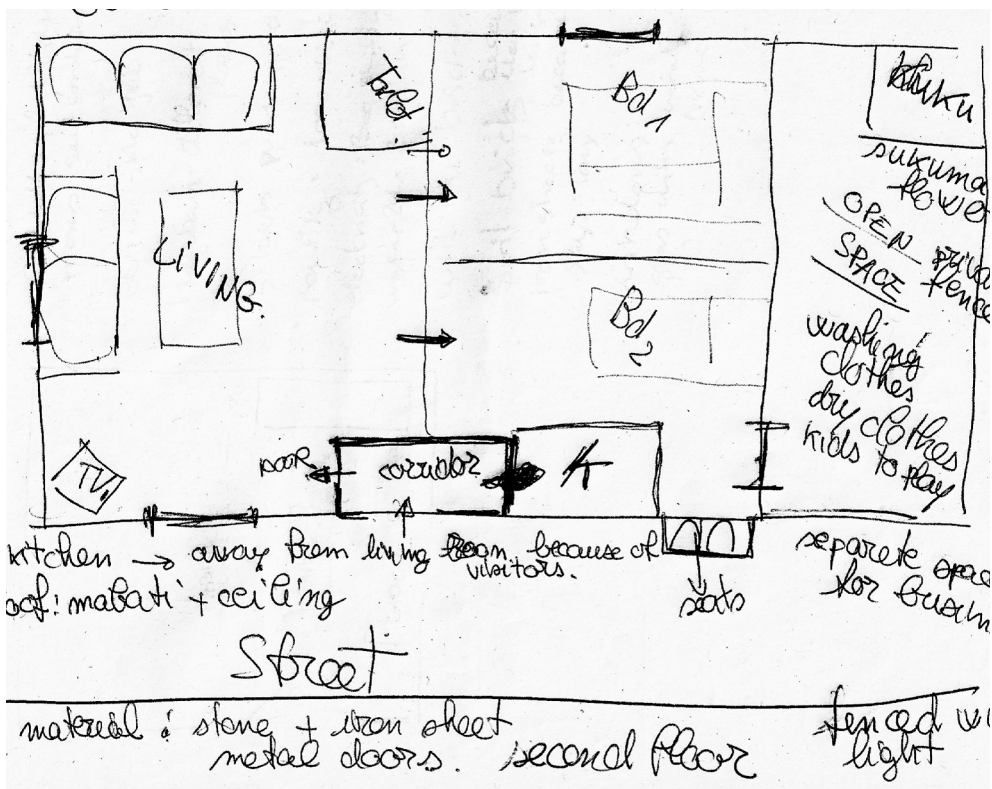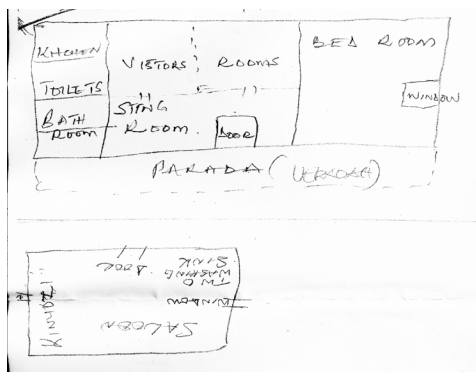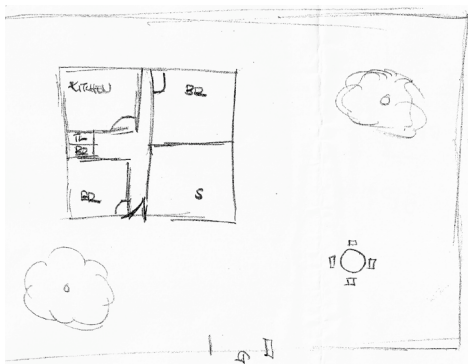
BOX TEN

Sharan and Nicholas' dream for a better future

Sharan, 22, is married to Nicholas and they have a young daughter called Shelien. They are happy enough to get by with their current conditions but are scared of not being able to pay rent, which is KSH 650 for the structure and another KSH 300 for informal electricity access. They live in cluster B in Mashimoni and are close friends with their immediate neighbours. Sharan's mother in-law lives behind their house. The main problems they encounter with their current dwelling are structural, such as the roof leaking during heavy rain. The structure owner does not comply with the agreed contract, which causes issues for them. The family relies on Nicholas to get work. He hustles on the streets mainly for casual work within the construction industry as a labourer.

The dreaming through drawing exercise bought a lot of happiness and laughter within their dwelling. As Nicholas was at home, this was a perfect opportunity to get Sharan to draw her dream dwelling and then to get Nicholas to draw his. Before drawing, Nicholas wanted to see his wife's drawing and it was evident he was unsure of exactly what he or his family needs or wants. This reinforces the powerful role women play in the family structure and domestic environments, even though their voices are often overpowered within the community and often in the home too.
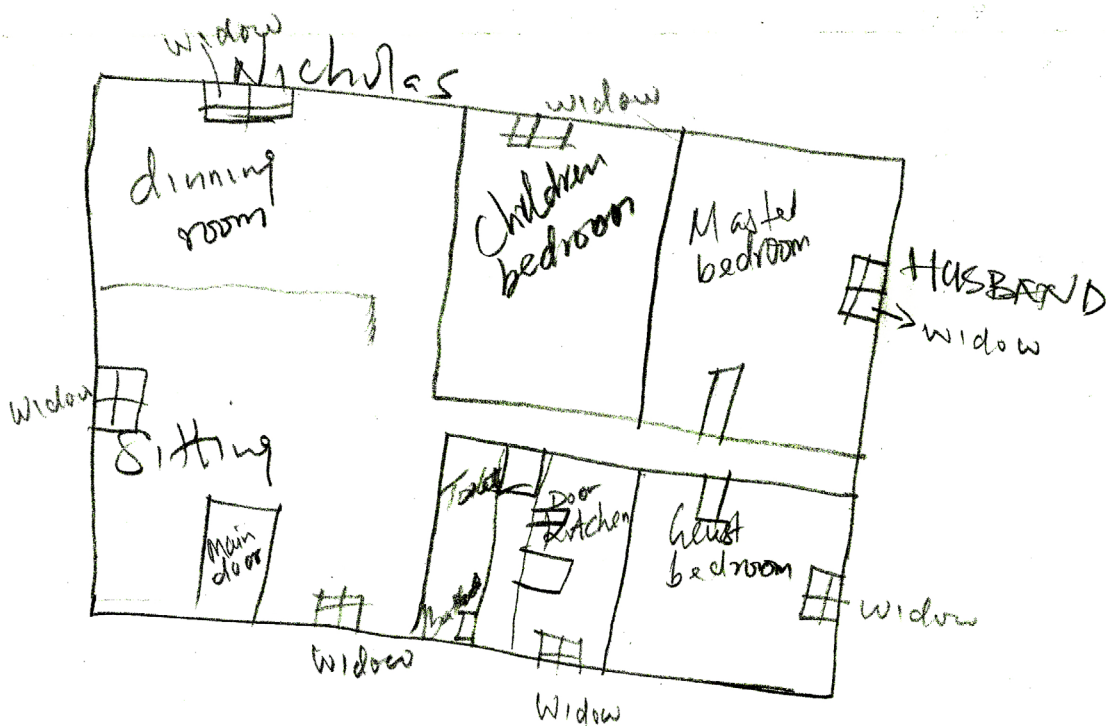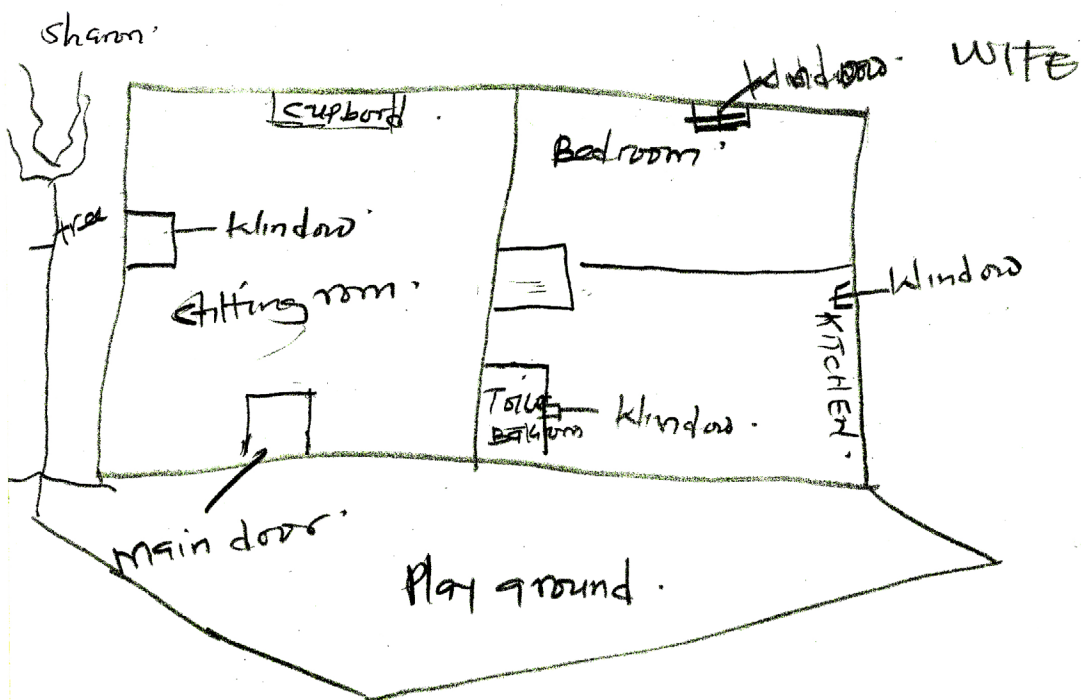
Understanding the family's needs by asking questions and watching the order of each room drawn gave a valuable insight into how residents in Mashimoni feel about not only their houses but also the settlement as a whole. Sharan's dream house was modest. Her priorities were the sitting room and a separate bedroom. Windows were drawn only after one of the ASF team commented about the desirability of having light, ventilation, and views. However, windows were not a priority as Sharan is worried about the family's safety. Windows represent a weak point for security and indicates that a new home through slum upgrading would not alone change or improve culture. In their respective dream homes Sharan and Nicholas agreed with living on one level (ground level) as they felt two levels were not necessary and would cost too much. Nicholas made it clear that concrete block was the material of choice for safety, security, weather, and disasters such as fire outbreaks. Sharan was mainly concerned about the external space in relation to security and a clean area for her daughter to play.

The two main differences between their plans were that Nicholas was dreaming of three bedrooms as opposed to Sharan's one bedroom dream house. Nicholas's concern was for his daughter Shelian so when she grows up she can have her own bedroom for privacy. Nicholas incorporated a window in every room and drew a partition between the sitting and dining room, explaining that he would like to be able to eat in a separate clean space. Due to a lack of trust, they agreed that government financing would be their last choice if it were to be available. They were both willing to build the house themselves or have an incremental building, financing the house through their own savings over time.

4.3.3
Dreaming through modelling

In order to move on from the two-dimensional drawings we prepared 'tool kits' which comprised cardboard models ('parts') of different rooms and dwellings spaces: living room (two sizes), bedroom (two sizes), kitchen, toilet, bathroom and two sizes for a room that could be used according to the participants wishes.

We also included parts representing fences, trees, green spaces, verandas, and three types of roads (two ways road, one way road, and pedestrian). All these parts, and their sizes, were developed from the findings from the drawing exercises.

During the focus groups, most of the residents were very concerned about the land that would be required to accommodate their detached dream house and they started designing smaller houses.

Later on, when encouraging participants to choose freely, some even went for a two-storey house where the upper level solely consisted of bedrooms. They placed great importance on activities that would need to be accommodated in and around the house, and its particular spaces, sometimes wishing the children's bedroom to be located far from the living and dining areas.

The main door often had a veranda in front of it as a filter between open public and private spaces. The room closest to the front door usually was the kitchen. Some were afraid of a possible fire outburst or of other emergencies and thus placed an exit door opening to the backyard.

Concerning bathrooms and toilet facilities, the residents placed them one next to the other and either separated from the rest of the house by a corridor or placed at the rear of the house. When asked about the materials they expressed a
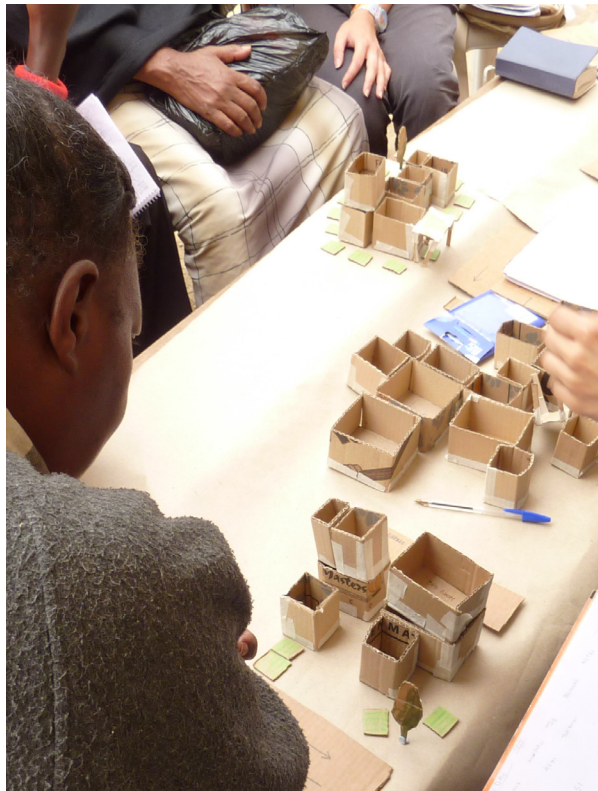
one-hundred-and-forty-three

one-hundred-and-forty-four

preference for stone blocks and concrete bricks for walls. Roofs were pitched and roofing materials were either tin or clay tiles. Residents strongly demanded at least one window per room, often mentioning the need for fresh air and light.

The compound was always fenced. The type of fences was usually a solid wall with barbed wire atop, or plantings and hedges. The space between the house and the fence often had plants and trees, sometimes even flowers. It was envisaged as a natural, garden space. Owning chickens and vegetable gardens was most favoured option for the use of exterior space.

The front gate into the compound played a very important role regulating the access to the property. We registered a desire for car parking spaces even when they didn't consider owning a car.

Cardboard models for shops and commercial activities were also provided. Residents placed them close to the gate and often attached to the house. They actually wanted these facilities to be close to the main road for easy access to public transport and business opportunities.

Residents wanted minor roads (one-way) for children's safety and privacy reasons, and also to be in a less noisy, less polluted environment. Roads with less traffic are presently well-used and residents envisage using new roads in a similar fashion to the existing roads, where children play and people meet. It is important to stress the fact that they always wanted streets lights on the roads for safety.

one-hundred-and-forty-three
Focus group of residents designing their dream houses using cardboard rooms

one-hundred-and-forty-four
Bringing the individual dream houses together to begin negotiations on neighbourhood relations, accessways, and streets

one-hundred-and-forty-five — -eight

Examples of three-dimensional dream houses. Common elements were green space to the front and rear of the house as well as a covered patio which would form a transitional zone between public and private space. Common spatial arrangements were the sitting room at the centre of the house off which others rooms were accessed, rooms arranged off a central corridor, and an open central courtyard.

one-hundred-and-forty-five

one-hundred-and-forty-six

one-hundred-and-forty-seven

one-hundred-and-forty-eight

Residents placed great importance on activities that would need to be accommodated in and around the house

one-hundred-and-forty-nine

one-hundred-and-fifty

one-hundred-and-fifty-one

one-hundred-and-fifty-two

one-hundred-and-forty-nine — -fifty-two
Often rooms were placed with space between them. Often this symbolised a desire for privacy (between bedrooms, for example), whereas sometimes residents literally wanted internal or external corridors between rooms. It was therefore important to discuss their intentions to understand latent motivations behind design decisions

one-hundred-and-fifty-three and -four
Outcomes from focus groups with houses beginning to form a settlement plan

BOX ELEVEN
The journey and dreams of Jacqueline

Jacqueline lives in a 10ft x 10ft shack with her baby Juliet and two older sons, both around 8 years old. She operates a shop selling small (mainly imperishable) goods out of her home. Her rented shack has a small grilled opening onto the busy 'main street' of Mashimoni, through which her business operates.

Jacqueline modelled a modest dream house to support a very similar life to the one she currently leads. She dreamed of a dedicated room for her shop on the street edge with her 3 bedroom home behind. A veranda was situated outside the shop, and beyond that she wanted a playground developed for children. This was a sharp business move – as well as giving children something to do, which was a big concern of hers, it would attract parents to her property who would purchase goods from her! Not only that, but Jacqueline wanted to charge youngsters for using her playground.

This colourful example was one expression of the overall modest changes residents want to make to their environments. If land were more readily available, a dream of a small playground is reasonably easily attained. Indeed, a shortage of land seems to be the most stubborn obstacle in the way of residents' dreams. This lead to our suggestion of some more dense housing typologies to re-house the same number of residents with much more common outdoor space left over, for amenities like playgrounds. *Nick Leckie*
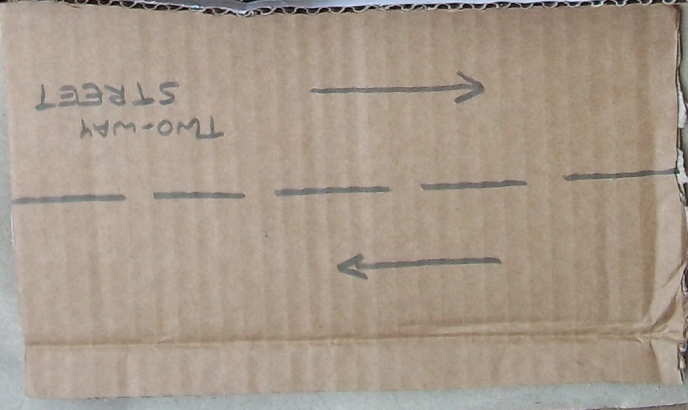
BEDROOM
10 x 13

Bedroom
7 x 10

KITCHEN
6'6 x 6'6

Business
13 x 13

Bath
6,6 x 6,6

BED
5
7 x 10

SITTING
ROOM
10 x 13

6,6 x 6,6

TWO-WAY
STREET

FENCES

BOX TWELVE

Sarah's dream: dwelling as independence

Sarah now lives alone, as her 4 children (3 boys and 1 girl) left Mashimoni to study (one at University, the others at school). She operates her own business from her home, selling homemade beer, which is produced next to the river that passes along the boarder of Mashimoni.

What makes her story unique in the society in which she lives, where women are not usually empowered to make important decisions, is that no man or fatherhood figure is mentioned when we asked her about her past and future.

Sarah modelled an ambitious dream house (see the image on facing page) thinking of the future which she is quite confident to achieve. She dreamed of a 3 bedroom house, one for herself, one for the boys when the will visit her, located adjacent to the sitting room, and the last one for her daughter, located next to hers.

Toilet and bathroom facilities were placed in the far corner of the house, reachable by a long corridor, with no windows at all, unlike the other rooms which all have at least one. There was a perimeter path around the outside of the house.

As a business is very important source of income for Sarah she wanted it to be big, but her dream is to operate a bakery and a sweets shop, rather than sell beer. Sarah did not want a veranda (even though a veranda was a popular choice). Instead she wanted a parking space for the car her children will have in the future. Until that time, this space will be an area for clothes washing and an open green space where to enjoy time with friends that she will invite to visit her.

Sarah's dream house was one example of the confidence some people in Mashimoni have regarding their own capability of changing things and improving the way they live right now, with active actions, such as saving and getting organised through representation groups. *Marina Gutierrez*

4.3.4
Dreaming through typologies

From the drawing and modelling exercises four housing typologies were developed with the aim of moving to a deeper discussion of the relationship between housing development and communal wants and needs. The focus groups proved an excellent approach to undertaking negotiations between residents and highlighting the diversity of residents' needs, wants and aspirations.

The first typology, the 'tower', was very appreciated because of its high density and because all the units were self contained, with balconies. The high density was valued because it meant that all current residents could stay in Mashimoni. The possibility to have shops on the ground floor was also very much praised because small-scale commercial activity is a fundamental part of people's dwelling habits and economic support structure.

The main concerns revolved around an equal use of space surrounding the tower. Some residents feared that people living on the ground floor would take advantage of their position next to it and encroach to increase their private property. The tower was also criticised for not being an incremental solution which made it more challenging (if not largely impossible) for gradual self-construction.

one-hundred-and-fifty-five

The second typology, the 'detached house', although the most similar to the standard dream house, was surprisingly the least chosen one. This was primarily because of the high amount of land it required and therefore the need to relocate people to another area of Nairobi. When asked to estimate the rental or construction costs residents could not provide an answer because they didn't know anything similar they could refer to in the area.

The third type, the 'row housing', was liked because it consisted of self-contained units, each with their private access and garden. It was also incremental, which they appreciated a lot. That said, the relatively low density coupled with their concerns about the scarcity of land made participants choose more dense options over the row housing typology.

The last type, the 'gallery', was liked because of its high density and private balconies. However, the shared facilities (kitchen and toilet) proved to be a widely unwelcome option. Lots of residents rejected the shared kitchen on the basis of the cleaning (who would be responsible to clean it?), freedom and ease of use (it might not be available when you need it), and also cultural issues surrounding food preparation and consumption (primarily concern around food smells and people's contrasting culinary habits that could create neighbour conflict).

one-hundred-and-fifty-six

one-hundred-and-fifty-six — -eight
Focus group sessions of housing typologies were held under a tent on the main street of Mashimoni. The four typologies were introduced and residents had time to explore the models to understand them further. Residents discussed at length the positive and negative aspects of the different typologies. The ability of models (representing potential built environments) to initiate community-led negotiation and consensus building processes was the real value of the exercise, much more than simply deciding which housing type suits particular people the most.

one-hundred-and-fifty-seven

The focus groups proved valuable for undertaking negotiations between residents, building their capacity to understand the challenges of upgrading, and highlighting diversity of residents' needs, wants and aspirations

one-hundred-and-fifty-eight

4.4

Conclusions and reflections

Conclusions of findings

The existing dwellings in Mashimoni are far from homogeneous. Houses range in size, rental cost, material quality, level of investment and level of maintenance, and in terms of household and occupation patterns. According to international standards existing houses are overcrowded. They are multi-use spaces, where sleeping and other activities take place in the same space.

Yet houses are interconnected, both physically and socially, where the built environment is a complex socio-physical web that reflects house occupation, activities and lifestyles, and interpersonal relationships. The spaces in between houses are used for a variety of activities, for example children playing, washing, socialising and therefore residents' dwellings are much larger and more complex than their houses. Their dwellings extend beyond their material house to encompass a range of public and private settings that are habitually used and shape lifestyles, norms and ways of life.

Many houses are more than just residential properties, they are also home businesses. This is an important part of understanding current dwelling patterns in Mashimoni. Residents operate shops, kiosks, micro-enterprises, salons and many other services, all from their houses. Any upgrading plan that does not accommodate such vital activities is deemed to place enormous pressure on residents, in particular their economic and social stability.

The current houses are deficient in many respects. Roofs leak, lighting levels are low and ventilation through rooms is poor, all of which add considerably to health risks for occupants. It is unlikely that only a slight adjustment to these houses will drastically improve the lives and livelihoods of Mashimoni residents. Certainly, in terms of the houses, replacement (rather than upgrading of the houses) will be the only viable option for future improvement projects.

In the dreaming through drawing exercise the need for privacy and security came through strongly in all residents' plans. These values were manifested through the compound layout and the desire for high fences with barbed wire and/or broken glass on top. Outdoor space was also a central dwelling expression found in the drawing exercise and this responds to residents' aspiration for a piece of land that they can call their own, a space for children to play and adults to relax.

The order in which residents drew dwelling elements gave an indication to their priorities.

The sitting room (to host and have guests) was mostly drawn first, followed by the kitchen (close to the sitting room), bedrooms (separate for parents and children), toilets (some separate from the house, or to the side/back), outdoor space, trees and flowers (trees outside windows to freshen the air), and verandas (the manifestation of a semi-public space; a space to welcome guests, to sit outside, and to act as a filter boundary between public and private spheres). Also, many people included home-businesses. Some wanted them separate from the house, but connected to the street.

Generally, residents found it easier to dream through modelling as opposed to drawing, as the 'dream' was easily modified once started by adjusting the cardboard models. Extra levels were easily added, room arrangements were easily adjusted.

Residents wanted streets to provide access, but not for Mashimoni to be dominated by busy, 'polluting' vehicular streets. They want to be close to main roads, but not have their houses located on them. In bringing their three-dimensional dream houses together on a street, compromises were willingly made regarding the scarcity of land, and therefore the impossibility of each house having its own large plot and wide street frontage was realised.

Overall, residents were modest and realistic in their dreaming. They were prepared to compromise and consider their neighbours for the wider collective good, over their personal benefit. In terms of the preferred typology there was a tendency towards the higher density models, and this reflects their realistic and modest view to upgrading Mashimoni, as well as their desire to have all existing residents be accommodated.

It appears that if the aim is to improve the quality of the houses in Mashimoni, one must transition from single-storey to multi-storey housing but in doing so not merge everyone into the same housing type, which denies the existence of such variable household circumstances that exist within Mashimoni.

Any upgrading of houses should aim to keep the diversity of housing options (physically, spatially, in terms of tenure, etc), and retain all those residents in Mashimoni who wish to remain.

Importantly, in developing more concrete housing upgrading plans it will be vital to design residents' dwellings, not only their houses. Central to good dwelling design will be the continued involvement of residents in the design and planning of upgrading decisions so that their environment continues to be a thriving, diverse, and active dwelling setting, not a static, lifeless, area of only houses.

Conclusions of method

The workshop provided a great opportunity to test and further develop a participatory design methodology that places people at the centre of design and planning decisions. Certainly the methodology can be improved, but as an innovative approach to involving residents in design decisions and building their capacity to converse in spatial terms and understand the local constraints it has proven a valuable approach.

Upon reflection, several limitations of the methodology can be seen. Firstly, participatory design around the idea of dwelling has been found to be time consuming, as participants are highly attached to their 'home' and want to ensure they have their say and voice their opinions. They want to be involved – which is of course a positive thing, but this created large demand for our time.

Secondly, the issue of stronger voices over-powering focus group sessions was experienced, which is a well-known issue in participatory work. In Mashimoni this limitation was overcome, to an extent, with effective facilitation. As dominant participants were always men (without exception), running a women-only focus group was useful to obtain valuable insights from women.

One further limitation of the process was the limited number of residents the team was able to reach. Even with 50 or so 'facilitators' working for a full two weeks, only a minority of Mashimoni residents (perhaps only 150 people of a total 3,500 residents) were actually engaged in the more intensive components of the process like the home visits and focus group sessions.

A further challenge with this limited group of people was to ensure we were continually engaging fresh faces in the process. A small number of residents (approximately 10) would show up for every session we ran, which limited capacity for other participants.

Having mentioned these limitations, reflections on this participatory process are predominantly positive. Working in Mashimoni for two weeks through various stages gave residents a good sense of inclusion, as they were able to follow our progress and see how their earlier contributions informed later stages.

Secondly, we felt appreciation from residents for engaging with them on such a personal level, particularly with regards to 'dwelling.' Residents seemed pleasantly surprised we were taking such an interest on matters so close to them, like their household structure and their future aspirations. Taking time to provide a listening ear for residents, it seems, made

a great difference in helping residents feel respected and valued, and was a welcome contrast to what they seem to have expected an upgrading process would entail.

Overall, the dwelling group undertook and completed an ambitious four-day programme investigating both the existing and future dwelling situation with a successful result. The dwelling group provided key inputs into the subsequent 'portfolio of options' exercise in terms of housing and streets, as well as ideas about the community spaces and facilities that residents consider part of their dwellings.

While we did not leave any 'ideal plans' or 'housing solutions' in Mashimoni, there appear to be two lasting contributions.

Firstly, the dwelling group is proud of the degree to which residents' capacity was developed, to understand space, the use of space, and how to represent space through in-depth, prolonged, one-on-one contact with residents. The skills acquired by Mashimoni residents will be useful when residents and their representative organisations are reading, refining, and negotiating with future (professionally produced) upgrading plans.

Secondly, we are proud of the way the issue of housing has become a way for internal negotiation and community building. Residents always are thinking of their house (usually before the institutional and community aspects of upgrading) and the methodologies we have used and left in Mashimoni will hopefully be utilised in the future to unite the community, negotiate differences, and search for consensus.

Through planning dwellings in models and drawings before implementation of upgrading plans, the participatory design methods offers the opportunity to work through potential future problems (noise, access, legality of home businesses, density, etc), before anything is built. And, the method can also foster a sense of community and ownership over the process and include the marginalised and vulnerable, who are often left out of the upgrading processes and plans.

Dwelling: more than just a house: this is true physically—dwelling is more than just the walls, roof and floor—and also symbolically—dwelling builds community rather than just individual houses.

In developing housing upgrading plans it is vital to design residents' dwellings, not only their houses. This requires resident involvement in planning decisions so that Mashimoni remains a thriving and diverse dwelling setting, not a static area of only houses

one-hundred-and-fifty-nine

one-hundred-and-fifty-nine — -sixty-one

Mashimoni urgently requires upgrading to improve the 'hardware', the physical environment, as well as the 'software', intangible aspects such as residents' dignity and socio-economic connection to the city of Nairobi. The participatory design and planning methodology utilised and developed by the dwelling group offers the promise of realising the right to adequate housing for all within a rights-based approach where people are placed at the centre of development
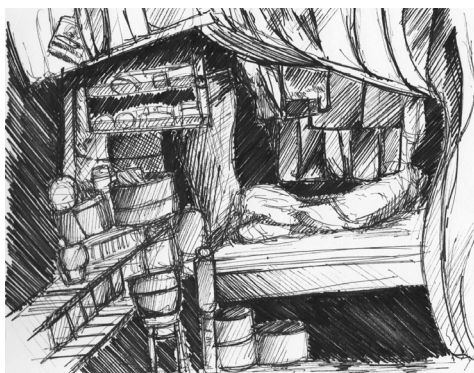
one-hundred-and-sixty

one-hundred-and-sixty-one

Any upgrading of houses should aim to keep the diversity of housing options (physically, spatially, and in terms of tenure), and retain all those residents in Mashimoni who wish to remain

FIVE

PORTFOLIO OF OPTIONS

PART FIVE
PORTFOLIO OF
OPTIONS

5.1
Overview and aims

The two-week workshop culminated in a 'portfolio of options' exercise. This brought the three streams of work (institutional, community, dwelling) together and began to explore the kind of negotiation required between various interests.

Taking the form of a 'game,' the exercise engaged Mashimoni residents on site in planning their ideal upgraded settlement with a kit of parts on a scaled site model. One by one, individual elements from the kit of parts were introduced and discussed. Participants debated the benefits and disadvantages of each option for that 'part' and through this dialogue, having reached some degree of consensus, participants then placed chosen options down onto the site model.

The parts responded to the key elements of slum upgrading in Mashimoni, inferred from the previous group work. Figure one-hundred-and-sixty-two illustrates the kit of parts. In each kit there were 9 main areas each with various options. We produced three kits, each of which had identical pieces.

Eventually, after much negotiation, a model of an 'ideal' upgraded settlement was complete. As the institutional, community and dwelling streams had been working on issues somewhat in isolation until this point in the workshop, the exercise proved incredibly rich (and challenging) as interests collided and the complexity of slum upgrading revealed itself.

The main aim of the exercise was to test responses to specific issues within the much broader context of upgrading as a whole rather than in narrow areas, for instance only housing or only community toilets or only land tenure. For example, the dwelling stream might have established that the row house typology was good as it provided private outdoor space, but how many residents does that accommodate when laid out on the site model? How does the provision of community amenity provision work in with the institutional groups' findings on land tenure and community representation models? The exercise explored the interconnected nature of issues needing to be addressed in slum upgrading and highlighted the need to make trade-offs in reaching settlement upgrading plans.

5.2
Approach

The game was played simultaneously in three locations across Mashimoni, with five games being played in total. For each game, one facilitator was elected from the group of international participants, and a local student translated discussion in both

directions. Group sizes ranged from 20 to 50 residents, and some games took more than three hours to complete. The sessions took place under large tents on Mau Mau road - one at each end and one in the middle.

The sessions were open to all residents who wanted to participate. Resident demographics varied, however in the three morning sessions more than half of session participants were middle-aged men. These men were the dominant voices during the sessions, leaving it difficult for other voices, particularly those of elderly and young women to be included, even though facilitators made a conscious effort to solicit contributions from all participants. In response, the decision was made to hold a women only focus group in the afternoon, which proved extremely successful in facilitating a space where women felt they could contribute their opinions, needs and wants to a greater degree without the presence of men.

The sessions started with the facilitator giving a brief overview of the aims and approach of the game. It was emphasised that it was only a game, for the purposes for the workshop, and the resulting plan would not be directly implemented, by us or anyone else. Following this general introduction each seperate element of the game was introduced. The four typologies were similar to those developed by the

dwelling group although the detached house was replaced with a 'courtyard' type.

Following housing, streets were introduced and three options given: pedestrian, one-way vehicular and two-way vehicular. Having laid down houses and streets, land tenure was then introduced. The options were a MoU arrangement (NGO + council + community), community lease, community title, and individual lease. As the community would need to organise themselves to obtain land tenure, community representation options were presented and debated. Following this, procurement options were discussed, with a focus on how they were they going to deign and construct their upgrade.

Community amenities were presented as tokens for participants to place on the model: market places, urban agriculture sites, waste points, water points, health clinics, community halls; and infrastructure elements also inserted as tokens: lighting (for public spaces), sewerage, water and toilets. Finance options and post-build management were introduced and discussed last.

5.3
Overviews of the five sessions

Brief overviews of the five sessions, along with photos of the end settlement plans are provided on the following pages.

The exercise engaged Mashimoni residents on site in planning their ideal upgraded settlement using a kit of parts on a scaled site model

Housing

Tower typology	Courtyard typology
Gallery typology	Row house typology

Streets

Pedestrian	Secondary - one way
Primary - two way	

Procurement

Individual self-build	Community self-build
Community contractor	Outside contractor
Private contractor	

Land

MoU arrangement	Community lease
Individual lease	Community title
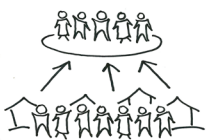
Community representation	Community committee	Task groups
	Munganno	Government-led

Community facilities and amenities	Community hall	Toilets
	Green space/trees	Playground
	Health clinic	School
	Market places	Urban agriculture
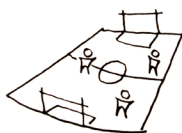
Infrastructure	Sewerage	Water points
	Waste points	Lighting

Finance	Government grant	Bank loan
	NGO loan	Residents' savings

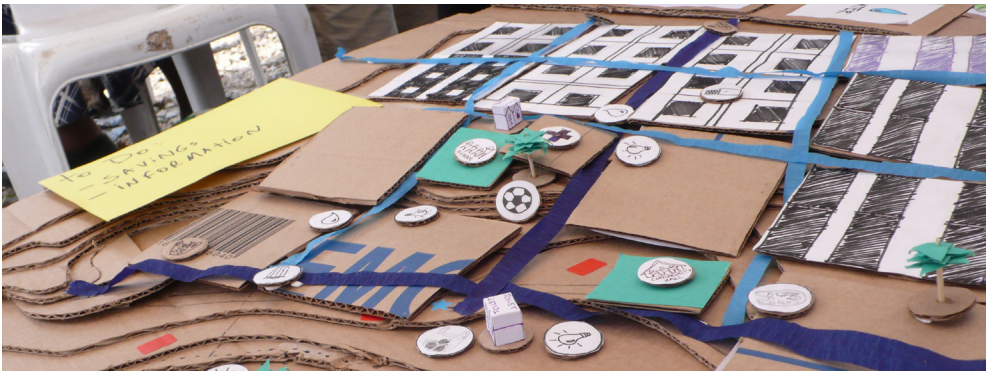| *Post-build management*	Private company	Government
	Community company	Individual

one-hundred-and-sixty-three

one-hundred-and-sixty-four

one-hundred-and-sixty-five

one-hundred-and-sixty-six

one-hundred-and-sixty-seven

Session One: Facilitated by Matthew French

Residents felt that a range of housing typologies should be provided because not everyone had the same housing needs, nor could the pay the same. Gallery houses were placed along Juja Road, then tower blocks, row houses, more gallery houses and then courtyard houses down to the river. Everybody agreed to keep Mau Mau road as a central vehicular traffic axis.

one-hundred-and-sixty-eight

Community facilities were consolidated around an open sports field. The idea was to have a library, school, and market all in one building. Residents preferred community title or lease, but not private individual title due to possible issues of gentrification. Financing was seen to best be provided by NGO grants and personal savings and self-build with a community contractor was widely agreed as the best procurement method.

one-hundred-and-sixty-nine

one-hundred-and-seventy

Session Two: Facilitated by Alex Frediani

It was important that the labour for building any new housing should come from the community regardless of whether it was a private contractor. There should also be the option to self-build which was perceived as cheaper. Residents viewed land tenure in the short and long term with the former possibly being a community lease but when the community title became a viable option that would be best the long term option.

Who should represent the community produced varying views. Some thought Muungano was best placed but recognised that not everyone was a member and therefore task forces were a good option, as part of a larger committee. Government finance was considered an option but, due to potential gentrification, as had occurred in Kibera, combined NGO and personal savings was seen as a viable finance option.

one-hundred-and-seventy-one

one-hundred-and-seventy-two

Session Three: Facilitated by Imogen Humphris

Due to the need to accommodate all residents and to still have ample outdoor space the tower housing typology was widely agreed to be the best option for Mashimoni. This typology formed the majority of the housing stock. One-way vehicular roads were placed around the boundaries, with pedestrian paths forming a network. Green space and playing fields were located near the river, and the existing playing field near the cliff on the western boundary of Mashimoni was desired to remain. Grants from NGOs were very much the preference over loans or personal financing through daily savings and there was a general distrust of government involvement in upgrading, in particular concerns over gentrification, increased housing un-affordability, and slow government action (or inaction).

one-hundred-and-seventy-four

one-hundred-and-seventy-five

one-hundred-and-seventy-six

## Session Four - Facilitated by Stephanie Butcher

There was a surprising amount of community consensus throughout the discussion. There was an overwhelming preference for both communal strategies for land tenure and housing options that could respond to the high density levels experienced in Mashimoni. Residents were highly attuned to the realities of space within the settlement, referring frequently to the need to make trade-offs in terms of community facilities such as schools, roads, and clinics to maximise the area. While government actors were unpopular, residents indicated that their support was necessary for any project to move forward. The session ended on a positive note with a vibrant discussion of short-term strategies that could be implemented, for example urban agriculture and strengthening the youth-led system rubbish collection.

one-hundred-and-seventy-seven

one-hundred-and-seventy-eight

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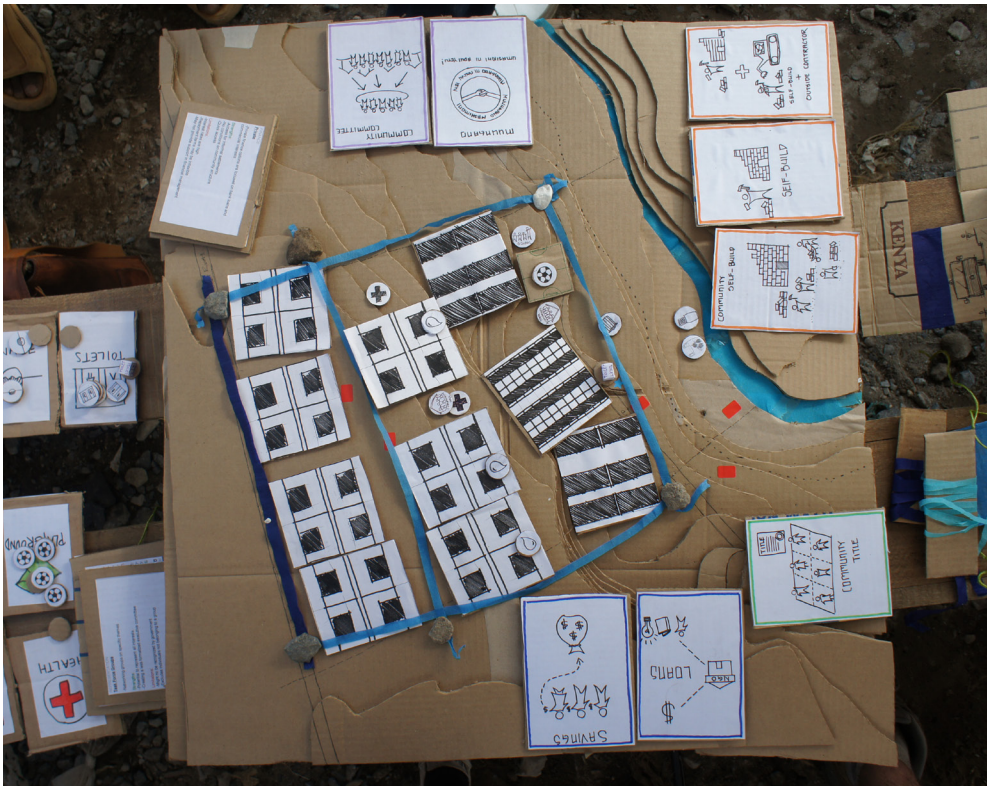
one-hundred-and-seventy-nine

one-hundred-and-eighty

Session Five: Facilitated by Nick Leckie

Residents were very willing to have reasonably high density housing in Mashimoni in order to accommodate everyone and have space for community amenities. Juja Road was acknowledged as very important for businesses and also links to public transportation.

Residents wanted the health clinic in a geographically central point so it is equally accessible for all. Schools should not be directly adjacent to sports grounds and a community hall, to ensure children's learning is not impacted by excessive noise.

Community title was generally agreed as best way to secure land tenure. There was general support for Munganno, to operate in conjunction with a community committee to ensure non-Munganno members are represented too.

The exercise explored the interconnected nature of issues needing to be addressed in slum upgrading and highlighted the need to make trade-offs in reaching settlement upgrading plans

5.4

Key outcomes - Exhibition: Pieces for Change

The findings from the portfolio of options games, as well as from week one group work, were analysed and presented as an exhibition in Mashimoni: Pieces for Change. The exhibition sought to condense the wealth of data into key concepts, priorities, and dimensions regarding the opportunities, needs, wants, and aspirations of Mashimoni residents for upgrading their settlement.

The elements were presented conceptually as pieces of a puzzle that should fit together to produce a holistic slum upgrading plan for Mashimoni-Mathare. A puzzle needs all the pieces to be considered concurrently, and to fit together to produce the desired result. Just like a puzzle, if elements of upgrading are missing or not considered (for example, land tenure resolution, community representative systems, etc) it is unlikely the upgrading will produce a holistic, complete result.

Three over arching principles underpinned the exhibition and findings:

1) Slum upgrading is more than just building houses. Upgrading involves a wide range of dimensions that all need to be considered, for example land, community organisation and representation, and post-build management.

2) Residents should participate in the decisions regarding upgrading. Participation should be open to everyone. All voices should be listened to.

3) Upgrading should build on existing initiatives in a strategic way. Let's not start from scratch. Let's harness existing initiatives because they can improve the current environment and build stronger community networks and partnerships.

Key findings for each part are now presented.

Housing

The home is a very important part of the settlement of Mashimoni. As people spend a lot of time in their homes, and businesses are often attached, we think consideration of 'the home' is very important in any upgrading process. We present four possible housing options for the upgrading of Mashimoni: tower, gallery, row-house and courtyard.

An upgrade of Mashimoni should include various types of houses to reflect diversity in the community. Housing does not need to be universally dense for all households in Mashimoni to remain. We have found that Mashimoni residents want more privacy than they currently have, but new housing must fit people's wish to maintain some interaction with their neighbours and the community at large.

one-hundred-and-eighty-one
Preparing the exhibition under the tent on Mau Mau road, Mashimoni

one-hundred-and-eighty-two and -three
Residents engaging with the exhibition material., the posters, which outlined the findings. There was also a presentation to community leaders and key stakeholders held in a local community facility

one-hundred-and-eighty-one

one-hundred-and-eighty-two

one-hundred-and-eighty-three

While the detached house was widely considered the 'dream' house type, residents are conscious that this type is not possible for Mashimoni, given it's physical land form, density requirements, and the high cost of such housing that would force almost all residents from Mashimoni if it were to be implemented.

Streets

Streets are an important part of Mashimoni as they connect both people and activities. Through community meetings we have defined three types of streets: main street, secondary street, pedestrian street. The different sizes of streets all have pros and cons, as articulated by residents during the game.

People did not choose main roads generally as they take up too much space. People wanted a secondary street to connect Juja Road with Mau Mau Street. There is a desire to retain Juja Road and Mau Mau Street as opportunities for shops and businesses. People wanted pedestrian streets to follow the riverside.

Procurement

'Procurement' outlines the method by which housing will be constructed and the actors involved in the process. Depending on the housing type, some options are more suitable than others.

The community wants to manage or be a part of the design process. The community is happy to participate in the construction, providing trained labour and using the opportunity to build the capacity of the other members. Larger structures may require partnerships with external parties. The overriding value is that the community, the residents, retain some degree of control of the upgrading process.

Infrastructure

In terms of sanitation, everyone wanted their own flush toilet, because this gave control although the downside was the cost and need to rely on the municipality for sewerage connection. Biogas was a desirable option, and is already used by some in the community. Pit latrines were perceived to have ongoing maintenance issues as well as sanitation problems. They were, however, seen to be beneficial for creating compost for agriculture.

Reed beds were promoted but residents were less aware of them and their operation, which could cause issues with ongoing maintenance and the technical expertise to implement and manage them. They would be beneficial for reducing the impact of floods on the river edge. Overall, it was clear that health and sanitation issues can be tackled by the community, building on individual motivation and existing initiatives to get them started.

For infrastructure, water kiosks were seen as a suitable short-term option, but the downside was the need to rely on the government for supply. Rainwater collection was promoted as one option to collect rainwater for non-potable purposes like toilet flushing and laundry washing, thus reducing household expenditure on water.

To combat waste, recycling and re-use was promoted. Likewise, compost was promoted as an excellent way to recycle kitchen and garden waste. Job opportunities were seen in a potential scheme for waste collection from designated pick-up points. For lighting of public areas solar powered lamps were promoted. They would turn on automatically, recharge during the day, and could be a solution if the community cannot connect to the Kenya Power and Lighting Company (KPLC).

Community spaces

Urban agriculture is a desirable community amenity, although there are concerns regarding ownership and management of such areas, in particular who benefits from the harvest. Agriculture was seen by the residents to be best located next to the river, where it could be combined with riverside protection in the form of natural planting (bamboo or willow).

Domestic agriculture was also promoted, to be located on rooftops or outside houses using planting bags. Likewise, gardens in schools were proposed as a way to increase food security and promote agricultural skills.

Playgrounds were universally desired by residents. These could be located in open spaces, or on flat roofs of schools. A short-term solution could be to cover the open drains between houses with timber, thus allowing children a place to play.

Again, the riverside was seen as an ideal place to clean up and make a playground. On the riverside, the existing market was seen to be in need of relocation to a more central position to boost income.

A community hall was desired by residents as a neutral space for social activities available to everyone. Many residents thought it could offer resources like a library, computers, or workspaces to up-skills and share ideas, as well as create products to sell to boost livelihoods.

Schools were seen as a crucially important part of Mashimoni to provide a quality education to children. In all the portfolio of options games schools were included.

A health clinic was another community facility that residents desired, as was a satellite clinic that could offer a flexible service to residents at different locations and different times of the week and month.

Land

Residents were aware that individual title to a piece of land was somewhat unrealistic considering the time it would take to obtain such title, the cost to each household of obtaining and retaining it, and the impossibility of accommodating all existing residents in an upgraded Mashimoni with individual plots of a viable size. Some form of community lease or title was seen as the most appropriate. It would reduce the risk of gentrification and help bond the community. Community lease is more simple than formal subdivision routes, however individual plots are not recognised by the government, only the community.

Currently, all land in Mashimoni can only be obtained under a lease hold basis. As Community title is not yet in law, a community lease looks like the most viable option. Mashimoni residents showed preference towards communal rather than individual tenure. It is imperative that solution is found to Mashimoni's land tenure, otherwise the community remains at risk of eviction even if housing and infrastructure development is implemented.

Community representation

There was no clear consensus amongst residents regarding the best model of community representation. Some felt a development committee was the best as it is currently in place and works within the government system. However, this mechanism has not catered to the diverse needs of Mashimoni due to a lack of accountability, bureaucracy and insufficient citizen voice.

A committee could be formed that would allow for more accountability, however elections have historically proven problematic in communities. Task groups was seen by many as the ideal mechanism as it would decentralise power and enable the development of local 'experts' in key areas (e.g. land, housing, etc).

Muungano was seen by its members as the ideal way to represent the community, but many residents feel that Muungano is only a small group and does not represent all the community's interests. Generally, then, the sentiment is that while Muungano is an important part of Mashimoni, a more independent community representational body is required.

Overall, then, a strong representational system would be inclusive of diversity and sensitive to the most vulnerable. The Mashimoni community have shown a general distrust of goverment-led systems, however, there is also a recognition that a representative group must engage with the government to ensure that decision making is supported. Muungano currently

have the most organised presence in Mashimoni, though there have been conversations about engaging in a wider form or representation.

Finance

Significant financial resources are available, both within and outside Mashimoni. These include the KENSUP programme, NGO loans/grants, and community savings. Residents expressed during the portfolio of options game that, understandably, the preferable route is the NGO grant.

There is a general distrust of the government and their ability to devolve power, and implement a project on an appropriate time scale. NGOs were seen to be more flexible and offer more opportunity to cater the upgrading to local needs and wants.

Residents clearly disfavoured the KENSUP decanting site model. It was envisaged that a combination of financing would be best for Mashimoni - that is, a combination of personal savings and an NGO loan.

Post-build management

An upgrading plan for Mashimoni must include a post build management strategy to guarantee long-term success. Although a private service may be more efficient, it may be expensive and not tailored to

informal settlements. Residents generally felt that some type of community company/organisation should be in charge of post-build management. This could generate employment, although leave the community with a high degree of responsibility to manage buildings and infrastructure, which may be problematic considering the level of skill and resources required.

5.5
Reflections and ways forward

The portfolio of options exercise was very effective in raising awareness of the complexity of slum upgrading. It was a useful forum to 'get everything on the table' and begin the kind of negotiation that is required in a participatory upgrade process. International participants and residents alike gained a much more comprehensive understanding of not only the breadth of issues but also their interconnected nature.

Local residents who were participating seemed to warm to thinking creatively throughout the exercise, and many raised ideas that could be implemented in the short term to improve the current conditions. These kinds of ideas seemed to be sparked by a spirit of brainstorming that the exercise promoted, and show the potential of the smallest of ideas that

may seem left-field but could be part of an immediate step towards change. The exercise only touched the surface of the amount of planning that could potentially be done prior to any physical upgrading taking place. A next step could be to identify a number of small scale ideas or contentious points that came out of the exercise and run further workshops with interested people and groups.

Out of this more focused work could be the goal of getting some small-scale projects (like the rubbish collection idea, mentioned above) off the ground. The portfolio of options exercise was understandably very broad-brush, but more pointed subsequent sessions could identify leaders on issues, agree on a plan of attack, the resources required, who will be accountable for what and so on. If the workshop were longer, this could have been a great extension of the exercise, although it is best if the community must take charge and lead the processes that this workshop has started. The important lesson is that residents should feel that they can act on small-scale, immediate projects, rather than wait for complete upgrading to take place.

Cultivating choice

As a whole, the workshop highlighted the importance of an approach to slum upgrading that cultivates choice. Just as

people's preferences for housing types differ, so too do their feelings on what groups should advocate for them, what sort of community facilities and spaces are needed, and how new housing should be financed and built, etc.

Although the portfolio of options exercise made exclusive choices of one, or sometimes two, options in response to an issue, any real upgrade would have to acknowledge more diversity within the community. Likewise, real upgrading will require much longer negotiations and more detailed research and deliberation on the specificities of each element.

That said, issues like addressing land tenure do require cohesion and unity of cause within the community, so the tone of the exercise was entirely appropriate for such issues which require community consensus in order to move forward. And for other issues, the workshop certainly did achieve the aim of testing responses to issues in a broader context; building residents' capacity to consider the implications and opportunities of an upgraded built environment; and raising awareness of ways forward, both in the immediate and long term.

The portfolio of options exercise was effective in raising awareness of the complexity of slum upgrading. It was a useful forum to 'get everything on the table' and begin the kind of negotiation that is required in a participatory upgrade process

"This experience has been very good for me. I have learnt that it's OK to dream"

Resident, Mashimoni

"This workshop has taught me how to breakdown the issues one faces when working in such a complex context. It has taught me how to start tackling immense issues by using my architecture/spatial skills and knowledge"

ASF participant

"In my urban planning course at University we are not taught these things. It's a totally different way of thinking and working"

Local student participant

"We have worked with the residents here and all learnt first-hand the challenges with upgrading, and the need to come together to make things happen"

Community leader, Mashimoni

Change by design: building communities through participatory design (2011)

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This book documents the methodology and findings from an Architecture Sans Frontières (UK) action research workshop, *Change by Design*, undertaken in Nairobi, Kenya, which explored the opportunities and limitations of community-led participatory design which directly engages slum dwellers in planning slum upgrading projects.

Through concurrent investigations at the 'macro' institutional scale, the 'meso' neighbourhood scale, and the 'micro' dwelling scale, the findings highlight that undertaking participatory design at these three scales is a proactive way to facilitate negotiations, highlight diversity and reach consensus.

Central to the innovative approach is a focus on the degree to which it can not only build an improved physical environment but also recognise the social production of space; empower slum dwellers to be active agents of change; and build socially, economically, and environmentally sustainable communities.