SLUMIFY

Qualifying Informal Urban Densification

guideline

qualifying informal
urban densification

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HOW CAN ONE QUALIFY A SLUM?

A framework which endeavours to qualify a slum must make up for the blind spots which are evident in existing frameworks. This is achieved by proposing a number of tools which may be utilised in order to understand the parameters extracted from the research.

The theoretical investigation aided in the digestion of relevant parameters, and the suggestion of which tools are relevant to to the qualification of the different parameters. The description of the tool alone is not enough to formulate a means of educating people about working in slums. One needs to understand the onsite implications of utilizing the tool on order to formulate a means of qualifying a slum.

It is henceforth relevant to develop a set of guidelines, including examples from practice, which may aid in the education of architects, students and practitioners who are immersed in a similar position to the author of this thesis.

If developing countries should own, design, direct, implement and sustain the process themselves then architects and NGOs need to develop means of working and designing in conjunction with local people in order to facilitate the process of capacity building in order to enable the people to take ownership of the project.

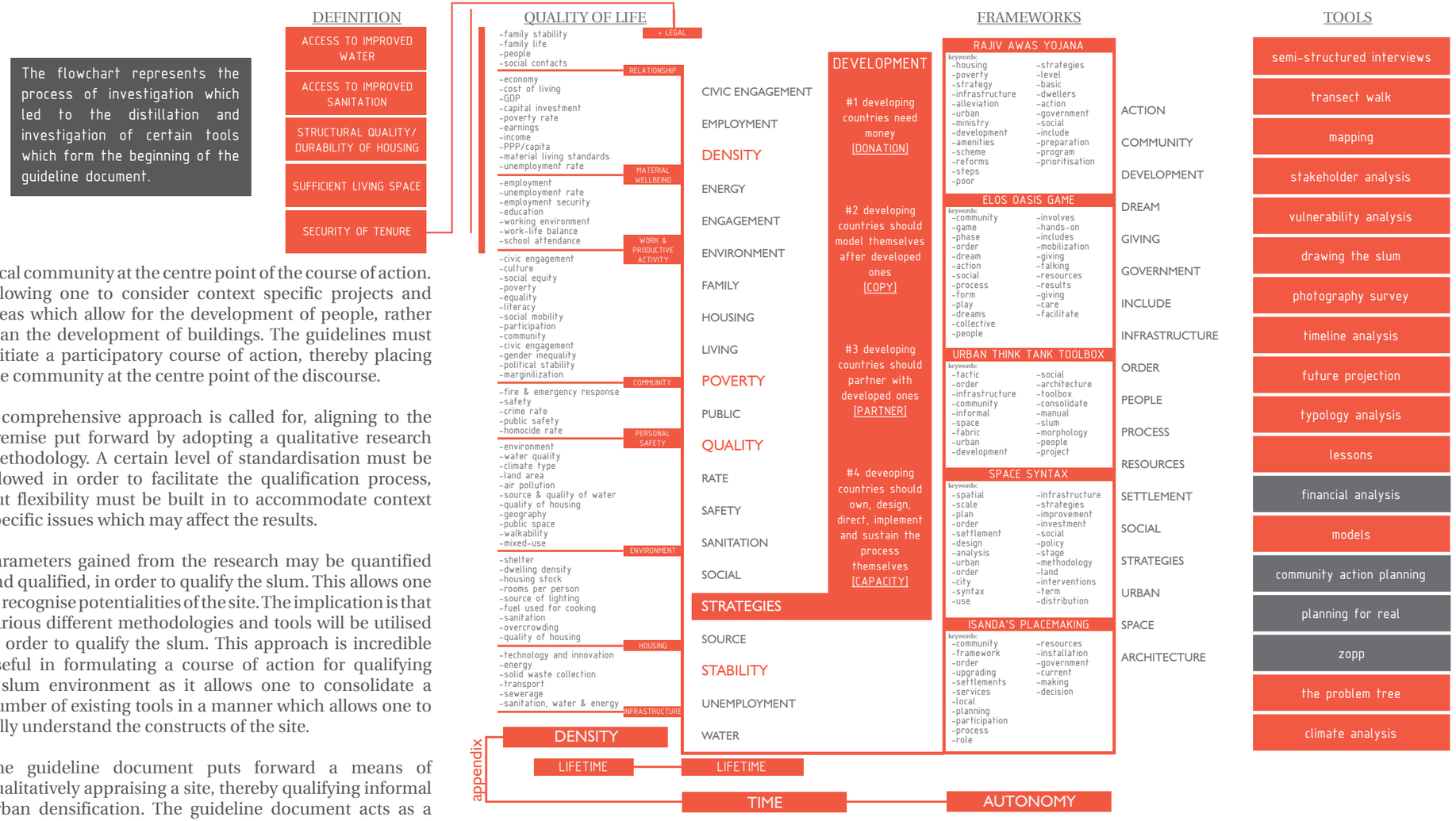
This requires an approach which places the local community at the centre point of the course of action. Allowing one to consider context specific projects and ideas which allow for the development of people, rather than the development of buildings. The guidelines must initiate a participatory course of action, thereby placing the community at the centre point of the discourse.

A comprehensive approach is called for, aligning to the premise put forward by adopting a qualitative research methodology. A certain level of standardisation must be allowed in order to facilitate the qualification process, but flexibility must be built in to accommodate context specific issues which may affect the results.

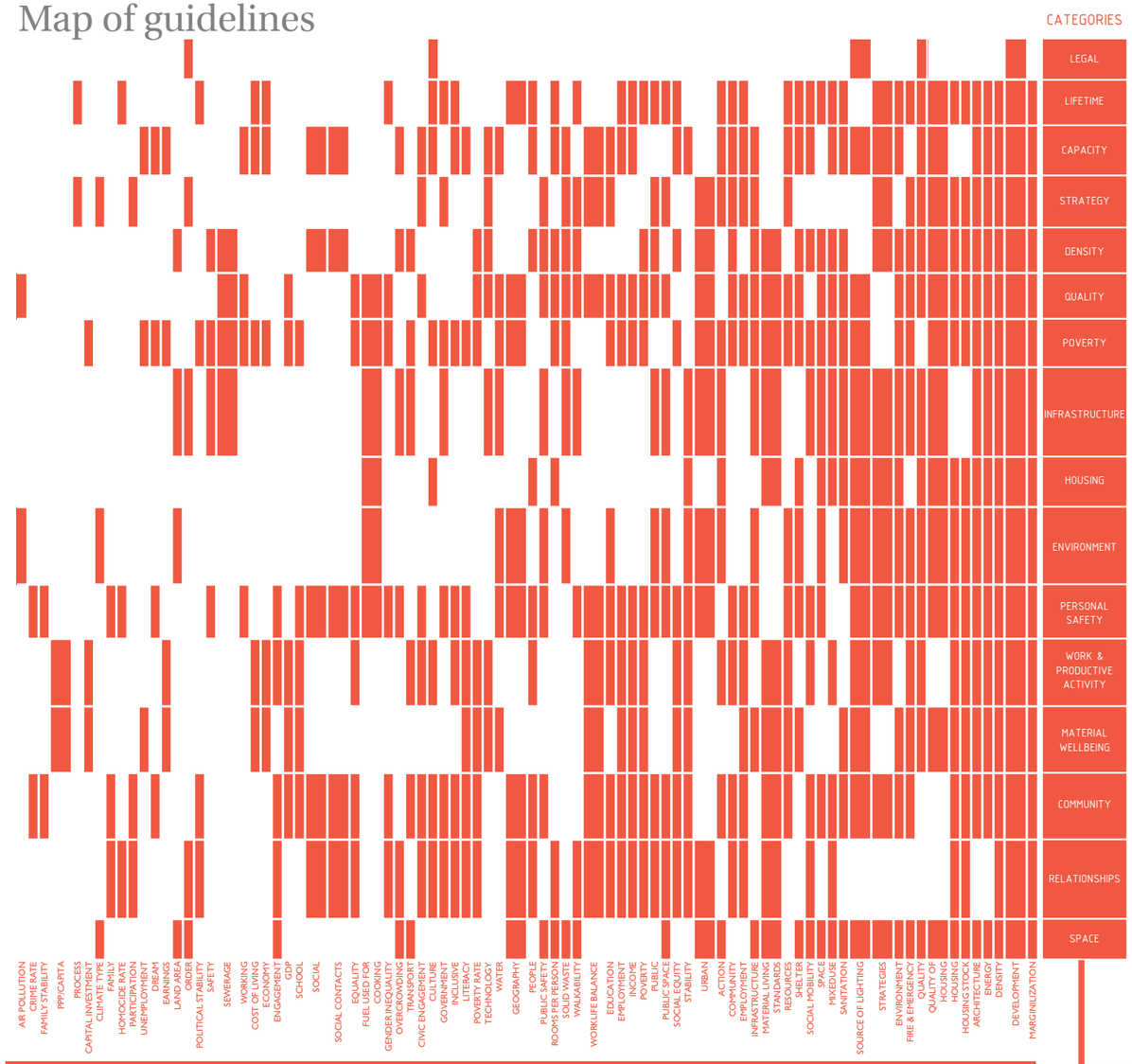
Parameters gained from the research may be quantified and qualified, in order to qualify the slum. This allows one to recognise potentialities of the site. The implication is that various different methodologies and tools will be utilised in order to qualify the slum. This approach is incredible useful in formulating a course of action for qualifying a slum environment as it allows one to consolidate a number of existing tools in a manner which allows one to fully understand the constructs of the site.

The guideline document puts forward a means of qualitatively appraising a site, thereby qualifying informal urban densification. The guideline document acts as a point of departure for a process of appraising a slum, and eventually formulating a means of upgrading said slum.

The flowchart represents the process of investigation which led to the distillation and investigation of certain tools which form the beginning of the guideline document.



Map of guidelines



number of applicable categories	TOOLS	on-site difficulty
8	semi-structured interviews	2
8	transect walk	2
8	mapping	1
6	stakeholder analysis	5
6	vulnerability analysis	4
6	drawing the slum	3
5	photography survey	2
4	timeline analysis	4
4	future projection	6
4	typology analysis	4
4	lessons	3
3	financial analysis	10
3	models	6
1	community action planning	8
1	planning for real	10
1	zopp	10
1	the problem tree	1
1	climate analysis	1

WHY MAKE A PLAN?

The map of the guidelines forms a complex summary of the preceding theoretical research. A map was produced in order to understand which tool applies to which parameter.

The multiple parameters were summarised into 16 major categories in order to simplify the process. These categories are assigned wit various tools which may aid in the appraisal of the site.

It is important to realise the multiplicity of tool usage. One tool may apply to several categories. Therefore it is suggested that a detailed plan is formulated, regarding which information is necessary and how that information may be gathered, before embarking on the mission to qualitatively appraise the context in which one is working.

	LIFETIME	semi-structured interviews timeline analysis photography survey
	CAPACITY	transect walk mapping stakeholder analysis
	STRATEGY	the problem tree
	DENSITY	mapping future projection
lessons models mapping photography survey	QUALITY	transect walk vulnerability analysis future projection typology analysis
	POVERTY	vulnerability analysis stakeholder analysis financial analysis
	INFRASTRUCTURE	transect walk semi-structured interviews mapping photography survey timeline analysis
	HOUSING	models photography survey typology analysis lessons
	ENVIRONMENT	transect walk mapping climate analysis future projection lessons
	PERSONAL SAFETY	transect walk mapping vulnerability analysis
	WORK & PRODUCTIVE ACTIVITY	semi-structured interviews stakeholder analysis vulnerability analysis
	MATERIAL WELLBEING	semi-structured interviews vulnerability analysis typology analysis
timeline analysis	COMMUNITY	semi-structured interviews vulnerability analysis transect walk mapping stakeholder analysis
	RELATIONSHIPS	semi-structured interviews stakeholder analysis transect walk
typology analysis lessons future projection	SPACE	transect walk mapping photography survey models

“If you want to know how the shoe fits, ask the person who is wearing it, not the one who made it”

Nick Wates (Wates, 2000)

TOOLS

WHY DRAW A SLUM?

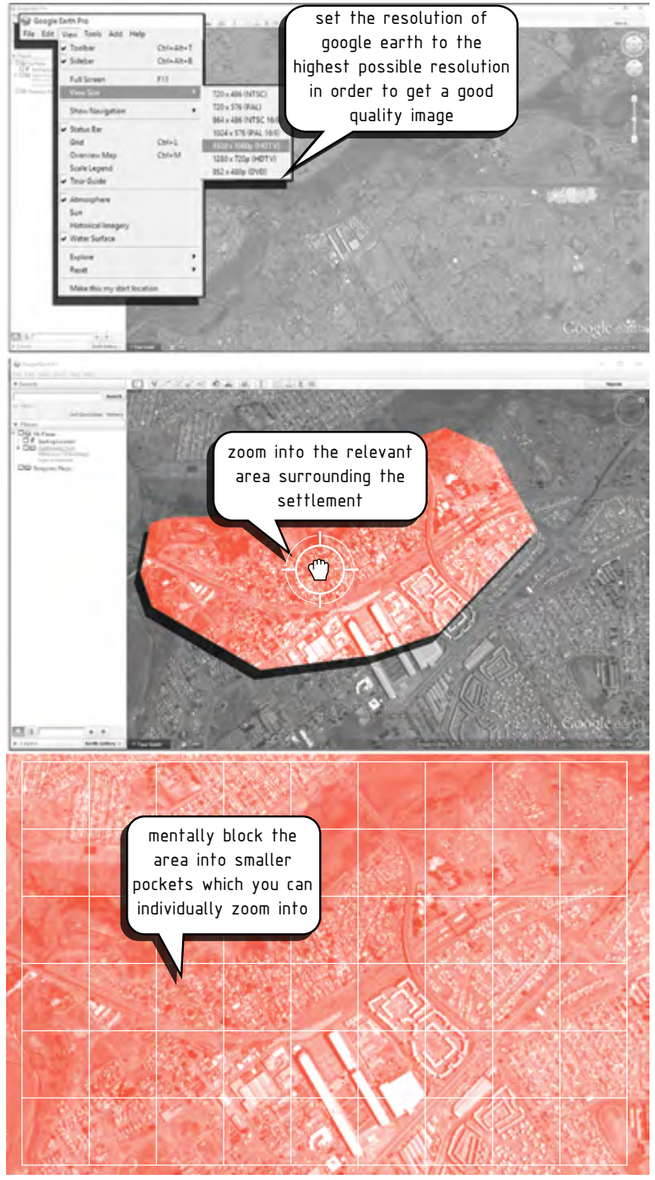
The majority of slums are not mapped, they don't exist on formal maps, and yet are abundantly clear on satellite images of the same areas.

In order to study a site it is important to first understand the morphology and topography of the site. The study of the surroundings and the rough study of the distribution of housing can lead to an in depth understanding of how people organise their own space.

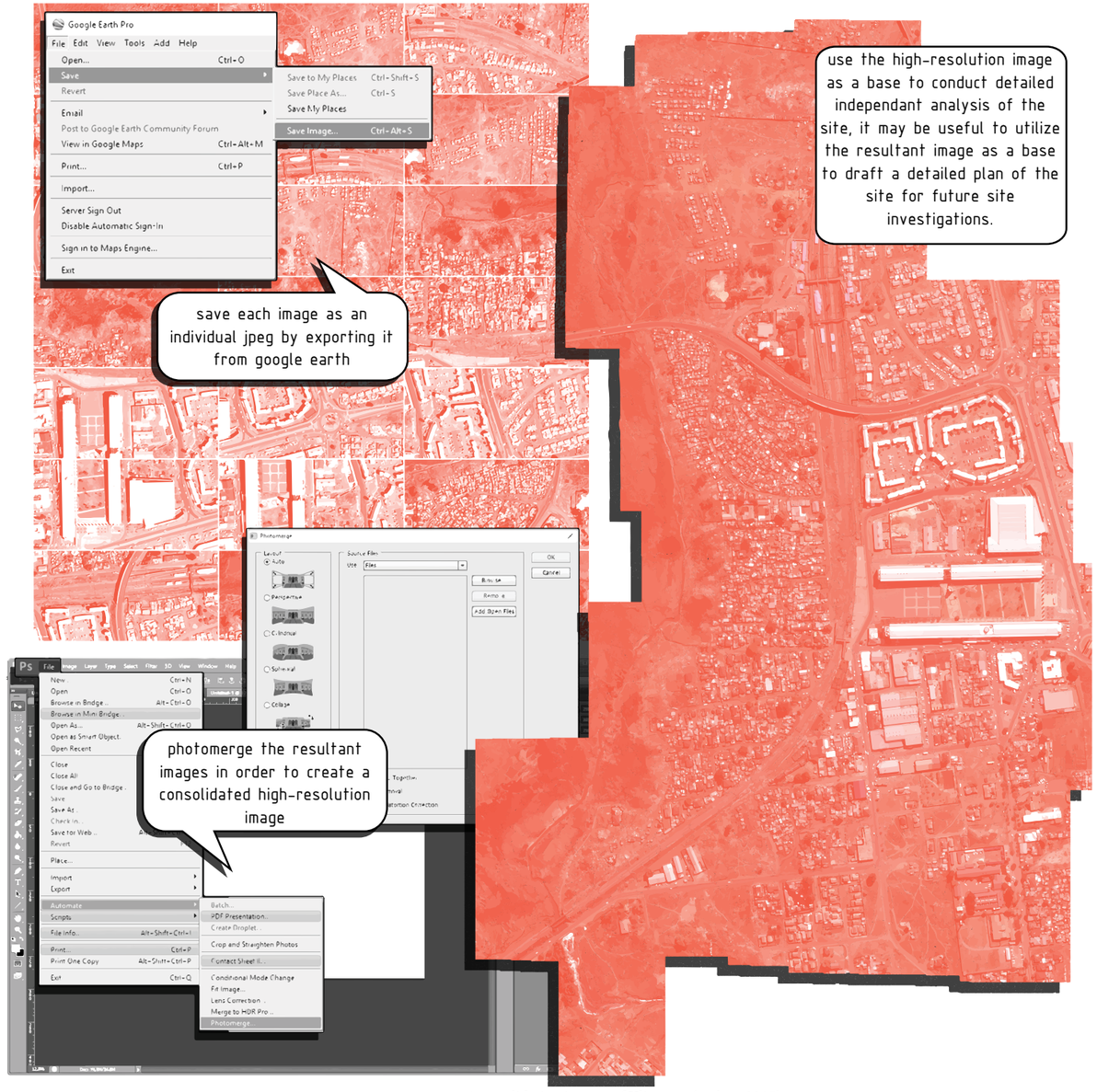
The act of putting marginalised communities on the map is in essence an act of empowering the people. Map Kibera, a project in Nairobi Kenya, endeavours to put Kibera on the map. By giving form to the settlement, its problems are highlighted and opportunities are exposed.

Maps are incredible powerful. A map can be entered into evidence in court, to stop evictions. It can be utilised by other agencies in order to raise awareness. It can also be presented to government officials in order to highlight issues and garner a response.

A map can help slum dwellers negotiate with city authorities. They give slum dwellers a voice, show them that they are part of the city, and that they are important.



*choosing images of Kliptown (author, 2015)

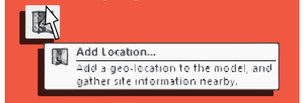


*consolidating images of Kliptown (author, 2015)

HOW TO DIAGNOSE THE TOPOGRAPHY

[1] open sketch-up and delete the man

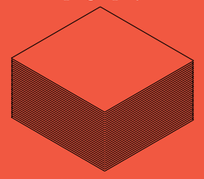
[2] insert the location from google earth



[3] draw a rectangle around the extents of the site, ensuring that it is below the lowest point on the landscape

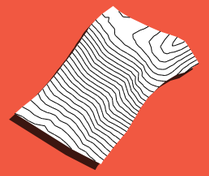
[4] choose at which intervals you wish for the contours to be at

[5] copy the rectangle vertically enough times to cover the topography

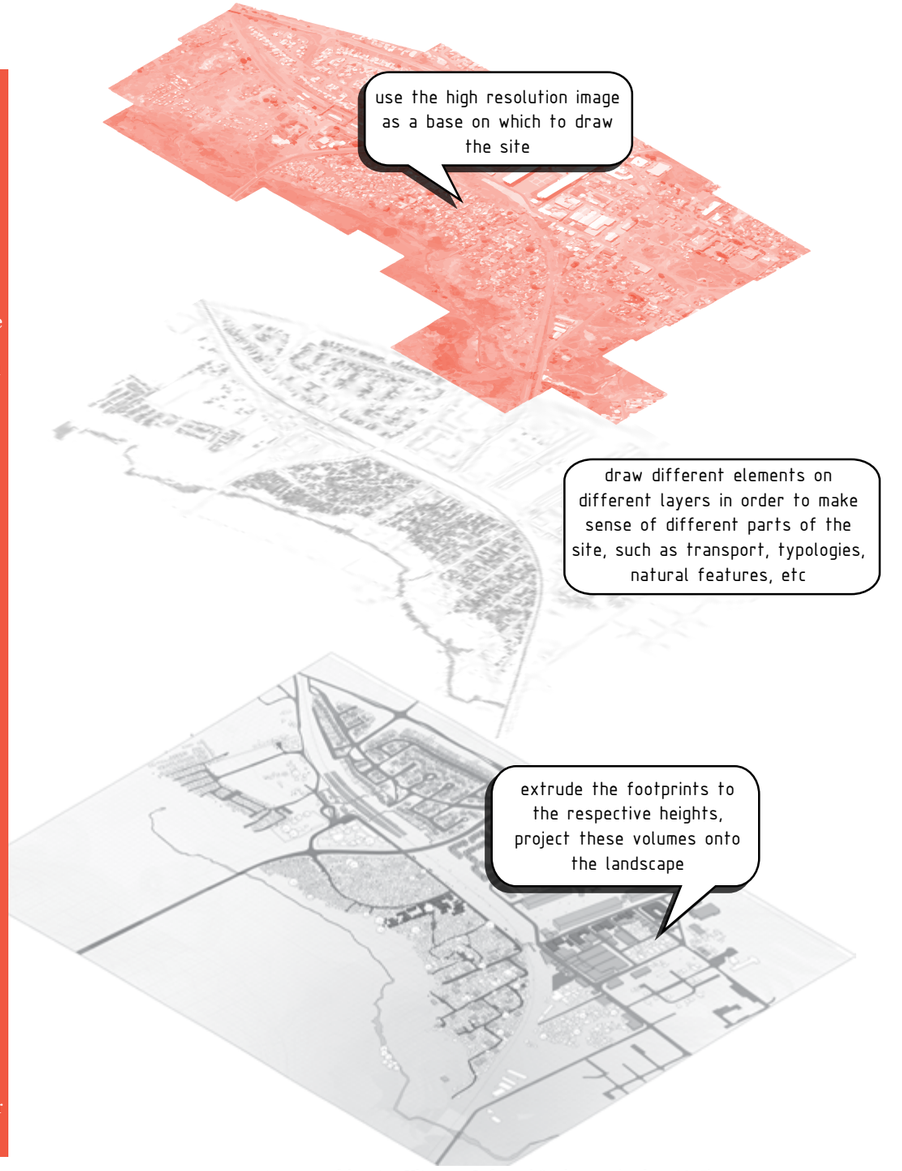


[6] select all the geometry and intersect with selection

[7] delete excess geometry



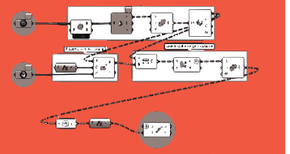
[8] use the map as a base in order to understand the landscape



*process of drawing Kliptown Informal Settlement (author, 2015)

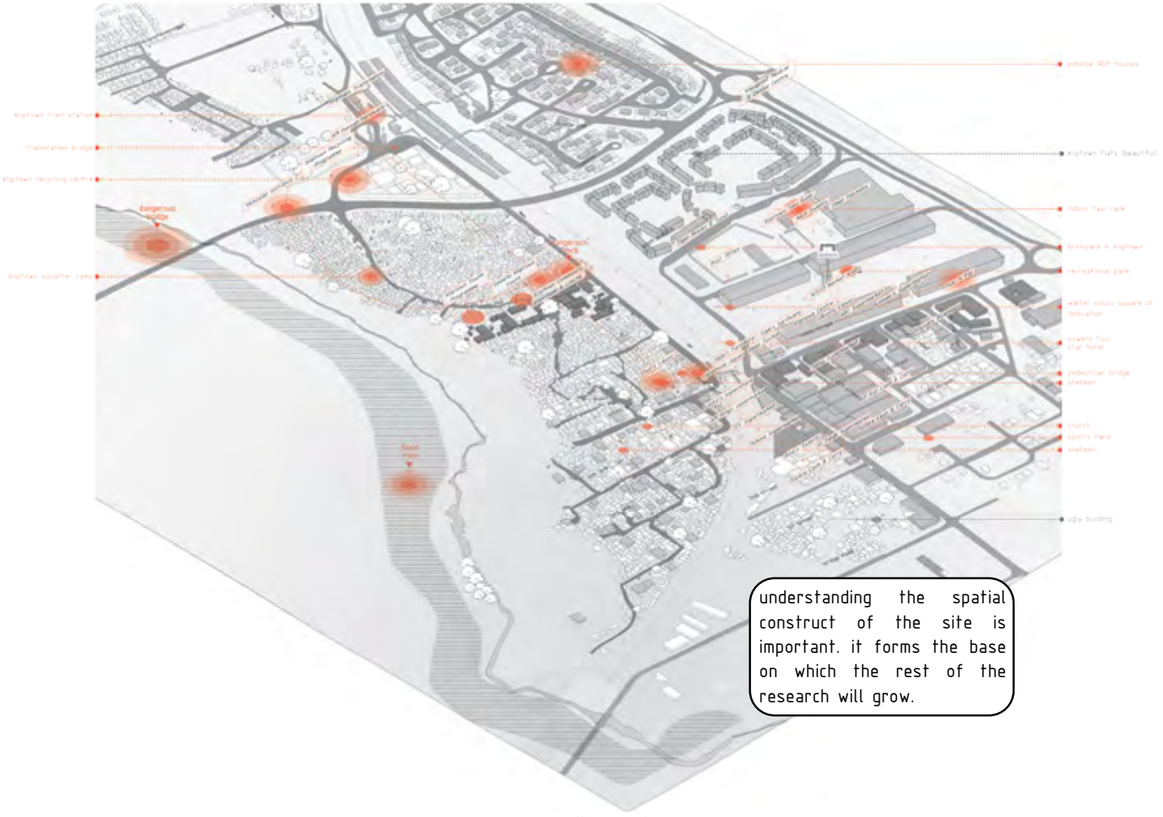
TIP: PROJECT GEOMETRY

grasshopper makes the modelling of settlements alot easier



use a script to project the volumes onto the landscape

USE GOOGLE EARTH TO REMOTELY ANALYSE THE SITE



*final map of Kliptown Informal Settlement (author, 2015)

Understanding the climate

WHY IS THE CLIMATE SO IMPORTANT?

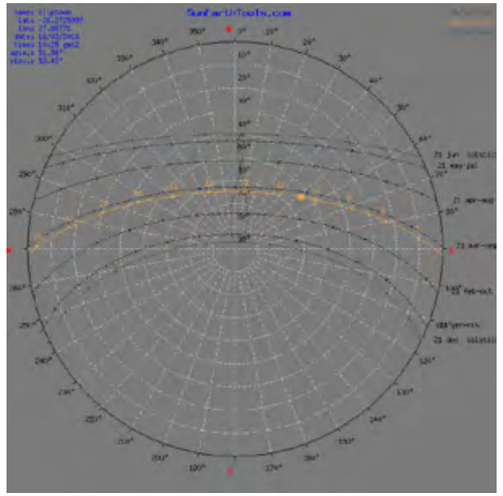
In order to fully understand the environment surrounding the site, one must analyse the climate of the area. Climate is the first thing that architects and designers should consider when designing a building, as it dictates which design strategies are most suitable for the site.

Issues that need to be analysed and presented are; temperature, humidity, relative solar position, average precipitation, and wind. These elements provide a comprehensive view on the climate and resultant strategies. Furthermore it is important to map how the climate affects the people living in the settlement, and what can be done differently in order to mitigate these effects.

The climate information may be presented in a number of ways. The most common way to show temperature is in a chart, mapping monthly averages and extremes, and average daily sun hours. Humidity will most likely be shown in a similar way. The solar position is commonly mapped as a sun path diagram, in order to ascertain the implications of the suns daily and seasonal changes. Precipitation is shown by means of a chart. The chart will include monthly averages and extremes. Wind is displayed by means of a wind rose diagram.

SUN POSITION DIAGRAM

The position of the sun in the sky provides valuable insight into potentials of shading structures. The sun diagram itself is readily available from http://www.sunearthtools.com/, but might prove tricky to understand. It is also possible to model the position of the sun in order to understand the direct design implications.



STEPS

[1] Select the chart of the correct Latitude.
[2] Select the date line.
[3] Select the hour line and mark its intersection with the date line.
[4] Read off from the concentric circles the altitude angle.
[5] Lay a straight edge from the centre of the chart through the marked time point to the perimeter scale and read off the azimuth angle.

Coming to terms with the functionality of modelling software such as Rhino, Ecotect or Revit will streamline this process.

TEMPERATURE

Temperature data is given as a monthly and daily average. Temperature is the most obvious metric to consider for passive heating and cooling design. The metrics can teach you both about the air temperature and the humidity.

TEMPERATURE STATISTICS (°C)	
January	20,4
February	19,8
March	18,5
April	15,5
May	12,1
June	9
July	9,2
August	12,1
September	15,7
October	18
November	19
December	19,9

HUMIDITY

Humidity is just as important as temperature for human comfort. People generally consider 40% to 55% relative humidity to be comfortable. Humidity affects which passive heating or cooling strategies are most effective. For instance, evaporative cooling is far more effective in a dry climate.

RELATIVE HUMIDITY STATISTICS (%)	
January	68
February	71
March	70
April	64
May	57
June	53
July	52
August	47
September	47
October	55
November	61
December	65

AVERAGE PRECIPITATION

Understanding the amount of rainfall that is projected to fall each year, leads to an understanding of how much water will be able to be harvested from well, as well as how many wet days will have to be accounted for in the project inception.

RAINFALL STATISTICS(mm)	
January	136
February	101
March	84
April	63
May	20
June	8
July	7
August	7
September	24
October	73
November	112
December	115

SITE DATA

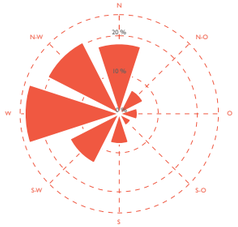
It is important to know various things about the site of the project itself in order to design in such a way that passive strategies may be utilized in order to better the quality of life of the inhabitants within the context.

SITE DATA	
Name =	Kliptown
Location =	Soweto
GPS coordinates =	26.2840° S, 27.8870° E
Vegetation type =	Reeds & Trees
Size of land (sqm) =	?
Size of building (sqm) =	?
Total roof area (sqm) =	?
North facing roof area (sqm) =	?
Area available for water tanks (sqm) =	3000
Mean annual rainfall (mm) =	62,5
Mean annual temperature (C) =	15,8
Rural/urban =	Urban
Proximity to running water (m) =	?
Average windspeed (m/s) =	9,75
Wind direction =	SW
Budget available for systems (ZAR) =	10000000

WIND

The average wind speed and direction of the prevailing wind is extremely important for the optimization of passive design strategies. Wind information is readily available on the majority of meteorological websites.

WIND STATISTICS (m/s)	
January	10
February	10
March	9
April	8
May	8
June	7
July	7
August	10
September	12
October	13
November	12
December	11



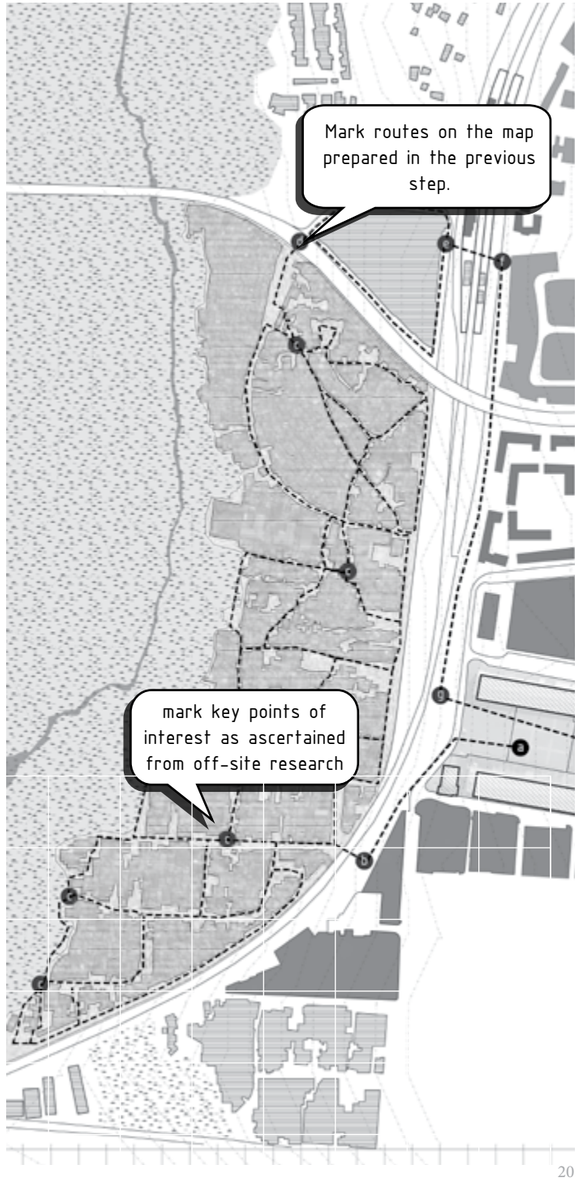
*climate data for Kliptown (author, 2015)

WHY WALK THROUGH A SLUM?

In order to get a good understanding of the feeling and atmosphere of the slum environment one must take a walk through the environment as a first step. The most widely used method of organized slum walking is the “transect walk”.

A transect walk takes approximately two to three hours to complete and involves systematically planning routes through the settlement in order to map the surroundings.

The transect walk is an information gathering exercise. It is important to find a local who will be able to advise as to the route through the settlement, and perhaps accompany you en-route. The simple tool is easily adopted and replicated at the community level. The method involves outdoor activities, on-field observation, discussions and diagramming.



EQUIPMENT

- map
- large sheets of paper
- notebook
- pens & markers
- pencils
- coloured stickers (for map)
- post-its
- cardboard

DELIVERABLES

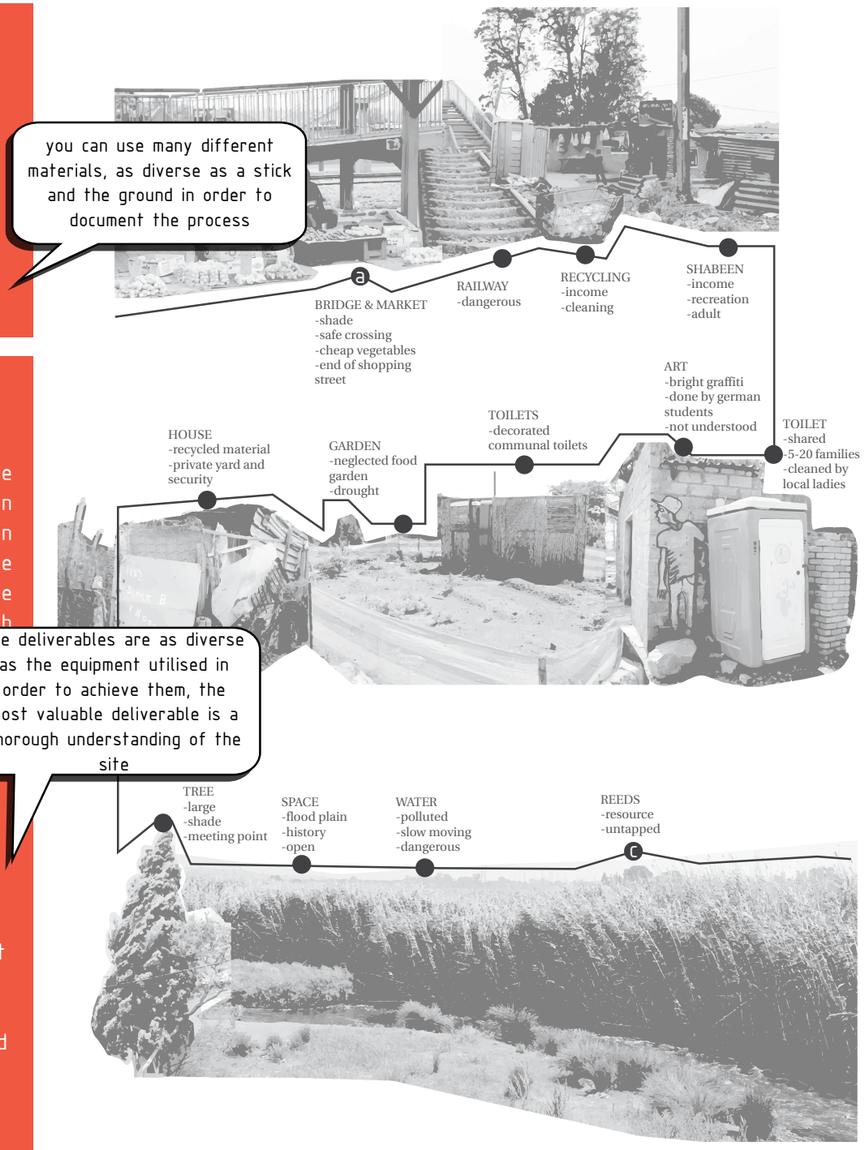
The deliverables include transect diagrams, drawn on large sheets of paper, and on the floor. The value of the transect diagram is in the analysis, key questions which may be answered are:

-What resources are abundant, and which are scarce?

-Where do people obtain water and firewood?

-What constraints or problems are in the different areas?

-Is the community segregated or mixed?



*transect walk through Kliptown (author, 2015)

Asking Questions

WHICH QUESTIONS MUST ONE ASK?

Through the use of a prepare semi-structured questionnaire, information will be gathered on site, in order to understand individuals and community dynamics.

The methodology of gaining answers to the questions will be through casual conversation, rather than the filling out of a form. The informality of the methodology is necessary in order to receive accurate answers to the questions, and it acts as a means to receive extra, unsolicited information.

If needed, a translator, or third party will be asked to assist with the questions. According to Michiel Smits, the inclusion of a third party in the survey process facilitates more honest responses to the questions asked. This third party will be responsible for asking the questions, and recording the responses, and should therefore receive a certain amount of training before hand.

The level of questions asked must be easy enough for all to understand, in order to ensure factual and to the point answers. The adjacent factors, categories and resultant questions provide a grounding to the surveying process, but are in no way conclusive.

TYPICAL QUESTIONS & FACTORS

SOCIO-CULTURAL FACTORS
- How do the community members cook their meals?
- What type of roles do women play in society?

TECHNICAL FACTORS
- Does the community have access to electricity? From where?
- What type of technology is present? TV's, mobile phones, cars, etc.

ECONOMIC FACTORS & CONDITIONS
- How do the community members make a living and earn money?
- How do they prioritize typical expenditures?

POLITICAL FACTORS & CONDITIONS
- What type of relationship does the community have with local, regional and national branches of the government?
- Is there some sort of social hierarchy?
- What does the power & authority structure within the community look like?
- Is there a local chief, mayor, or committee of elders?

ENVIRONMENTAL FACTORS & CONDITIONS
- What happens to wastewater?
- What is the local geography like?
- What happens to garbage and waste?

COMMUNITY HEALTH FACTORS & CONDITIONS
- How often are members of the community sick?
- Do they have access to clinics and doctors?

INSTITUTIONAL FACTORS & CONDITIONS
- Have there been ore are there now any NGOs or other service based organizations in the area and/or community?
- Is there potential for any partnerships between the team, the community & any local/regional NGO?

EDUCATIONAL FACTORS
- What kind of schooling to children receive?
- What level of education do children typically complete?

* RELATIONSHIPS	ENVIRONMENT
MATERIAL WELL-BEING	HOUSING
WORK & PRODUCTIVITY	INFRASTRUCTURE
COMMUNITY	LEGAL & POLITICAL

*Refer for the theory chapter on quality of life in order to understand the different sub concerns associated with the categories

EQUIPMENT
- Map (for reference)
- Notebook
- Printed questions (in easy to understand english, potentially augmented with diagrams)
- Clipboard
- Camera (optional)
- Voice Recorder (optional)
- Pen

DELIVERABLES

The answers to the questions will form a broadscale understanding of the construct of the community. A summarised report can be written, based on the answers to the questions in order to understand the information. If necessary or relevant infographics can be utilized in order to convey the outcomes found in the investigation. Videos of the conversations can form part of a final site investigation.

The survey outcome should provide insight into the psyche and construct of the individual and community dynamics. By talking to people you will gain a better understanding og their issues.

*visualising survey results in Kliptown (author, 2015)

WHY SHOULD ONE MAP A SLUM?

Participatory Mapping is the "bottom-up approach" that allows people to create their own maps, reflecting the true nature of their site (Warner, 2015). Community mapping is a form of participatory mapping which utilizes community spatial knowledge around a given area in order to quantitatively and qualitatively map the area.

When understanding a mapping it is important to consider three distinctive levels. The first level is the municipality data, or in the case of the majority of slums, the satellite imagery used as a base for mapping. The second level is too fine to be mapped by city officials, this is the layer that mapping is interested in. It is the layer that contains things that are there, but are not widely available to all. The third layer is how people actually experience what is already there (Warner, 2015).

Mapping is an effective way to understand how people perceive the settlement. It is a great way to gather vast amounts of data, and to understand the differences in perspective held by the stakeholders. The mapping exercise acts as a basis for joint planning. Individuals or groups create physical maps of their neighbourhood. Different layers of evaluation will be provided.

TYPICAL FACTORS TO MAP

LANDMARKS	FREQUENTLY VISITED PLACES
BOUNDARIES	DANGEROUS PLACES
PLACES FOR CHILDREN	COMMUNITY ELDERS
TRANSPORT NODES	SPORTS FACILITIES
RECYCLING CENTERS	DUMPING PLACES
ILLEGALLY ZONED SPACES	TREES
COMMUNITY CENTERS	HOUSE NAMES
TOILETS	BRIDGES
LIGHT POLES	SHOPS & SPAZAS
ELECTRICAL POINTS	WATER POINTS

*factors are recommended by MIT and Warner 2015

An example of community mapping in Kliptown (Author, 2015)

EQUIPMENT

- map (for reference)
- large sheets of cardboard
- notebook
- pens & markers
- coloured stickers (for map)
- post-its
- tape
-pins
- cardboard
- chalk

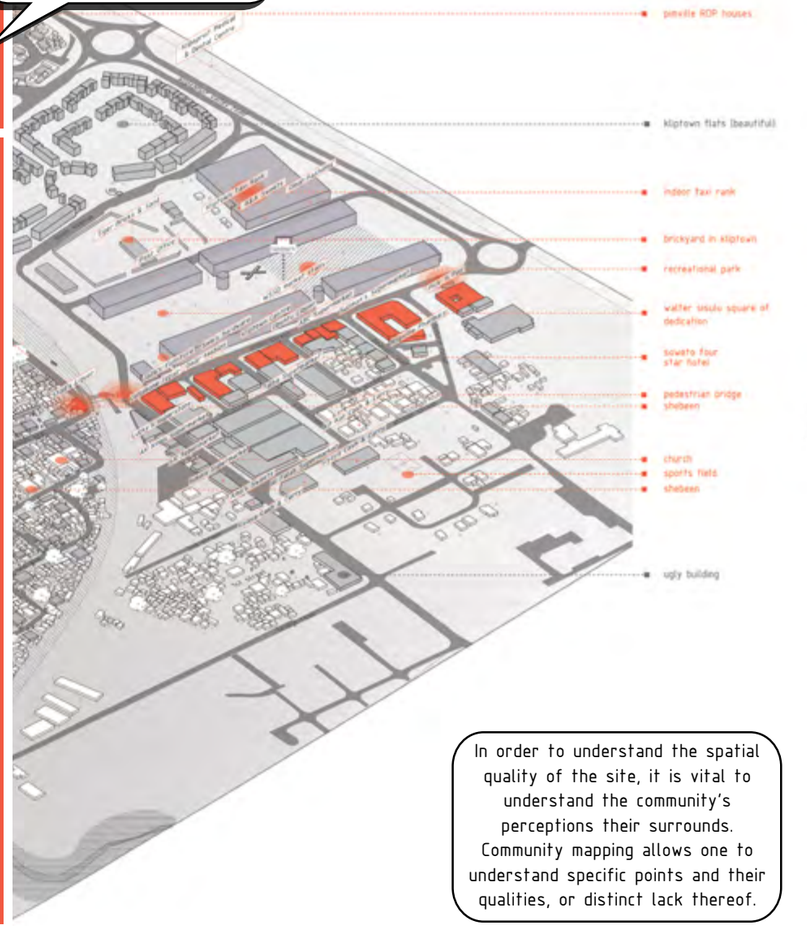
DELIVERABLES

The outcome will be a cumulative layered map created in order to provide a definitive understanding of the area.

The map will showcase the settlement as seen from the perspective of the inhabitants. The map acts as a second layer to the previous mapping excercise.

the formal deliverables depends entirely on what is relevant to the specific project, or endevour. The project may call for a formalised map, or simply a sketch.

it is important that the information gathered be portrayed in a geographical manner, showing the proximity of the activity



In order to understand the spatial quality of the site, it is vital to understand the community's perceptions their surrounds. Community mapping allows one to understand specific points and their qualities, or distinct lack thereof.

*mapping of Kliptown in 2015 (author, 2015)

Taking Photographs

IS THERE A MEANS OF PHOTOGRAPHING POVERTY WHICH DOES NOT SEEM DEGRADING?

Photography is often used to document an urban condition. When carrying out this process within slum environments, an outside researcher is confronted with two notable reactions. The first reaction is the hoards of children who will pose and request the photographer to “shoot” them. The excitement at seeing their face on the camera is contagious, and leads to a fair amount of distraction.

The second reaction is that of contempt, many people are tired of tourists with DSLR camera’s taking pictures of them. The degradation of the act of photographing them in their often desperate state is often too much.

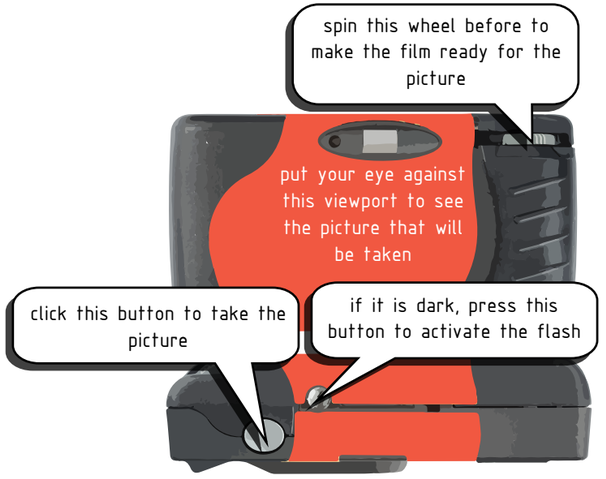
To counteract this a photography workshop, or survey is proposed. People are provided with cameras of some sort (disposable cameras are suggested, but digital cameras may also work), and are asked to photograph their surroundings pertaining to various themes. The individuals or teams take pictures of their settlement.

After processing the pictures. The photos are sorted, selected and placed on large sheets of paper or maps. Comments and ideas may be added to these sheets (Wates, 2000).

TYPICAL THEMES TO PHOTOGRAPH

MEMORABLE PLACES	BEAUTIFUL PLACES
UGLY PLACES	PLACES TO BE ALONE
PLACES TO SOCIALIZE	PRIVATE PLACE
PUBLIC PLACES	UGLY BUILDINGS
BEAUTIFUL BUILDINGS	THREATS

*themes are recommended by Wates, 2000



*instructional image (author, 2015)

EQUIPMENT

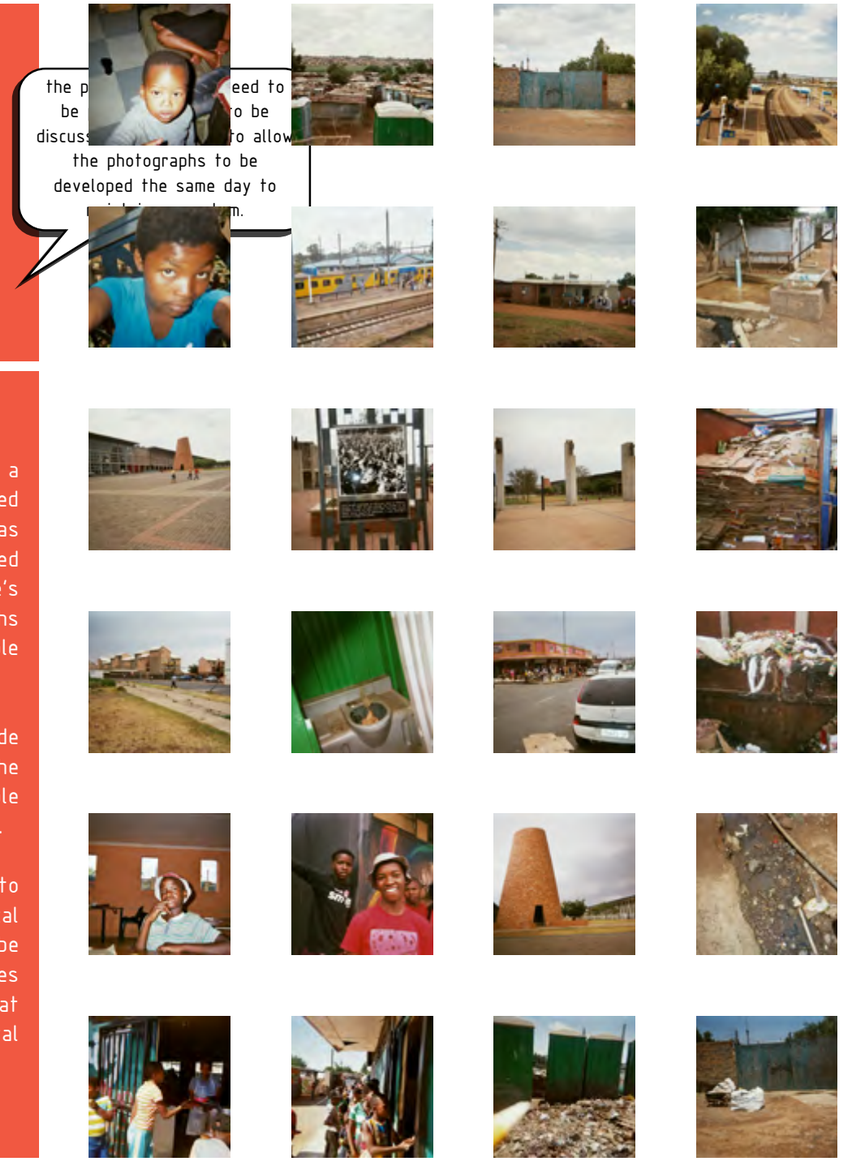
- disposable camera
- map (for reference)
- large sheets of cardboard
- notebook
- pens & markers
- coloured stickers (for map)
- post-its
- tape
- pins
- cardboard

DELIVERABLES

Ning Tan, a facilitator in a Phillipines workshop pointed out that she was surprised as to how the photographs added a new dimension to everyone’s perception. The photographs themselves are valuable deliverables.

The photographs provide valuable insight into the perceptions of the people taking part in the workshop.

The camera is allowed into places that the typical researcher would not be allowed, and therefor provides an extremely intimate look at the slum, from a societal perspective.



*images taken on-site in Kliptown in 2015 (various participants, 2015)

Building Models

HOW CAN MODELS INCREASE THE LEGIBILITY OF THE PROBLEM?

Models are extremely useful when interacting with people with little to no spatial awareness. When working in a slum environment it often takes a long time to explain the concept of a map, and the subsequent understanding of that map is also limited.

The use of models, in any shape or form, is therefore very useful when trying to understand the problem. In Kliptown, the objective of the model building exercise was to decipher the priorities of people when considering their dream home.

Using spatial techniques, based on scaled blocks that were to act as building materials and components, people were asked to build and explain the building of their dream house, from this exercise the priorities of different age groups could easily be deciphered.

Although the scale of the model was not understood, the blocks aided in providing spatial awareness to the problem, and acted as a platform to engage in meaningful conversation about the priorities of the various stakeholders.

EQUIPMENT

- Map (for reference)
- Cardboard
- Blocks
- Glue
- Tape
- Notebook
- Pen
- Clipboard

Many different materials and means of model building may be utilized, dependent on the design of the problem workshop

STEPS

[1] Identify the core problem to be dealt with in the workshop.

[2] Design a means of spatially representing the problem in order to allow people to build their solution.

[3] Prepare the materials necessary for the model building.

[4] Select and organise a venue for the model building exercise, this may be a community centre, a house, or under a tree; where ever it seems appropriate.

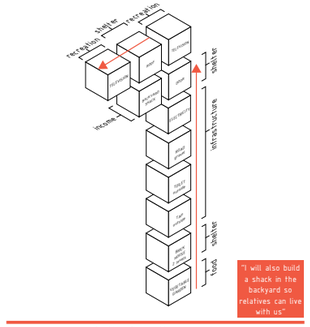
[5] In order to actively engage in the outcome, it is recommended that one researcher should observe the model building of each participant independently.

[6] Take note of the process, and photograph the end result in order to ensure that data is not lost.

[7] Consolidate the data graphically, or through a written report

Building models in the way it is suggested, is a means of engagement and not a means of design.

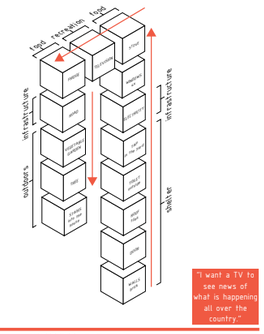
*model building in Kliptown (author, 2015)



"I will also build a shack in the backyard so relatives can live with us"

RITSHIDZE - 8 years - girl

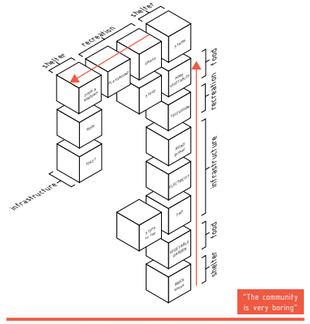
Ritshidze prioritises vegetables. She thinks food is the most important thing. She gives quick consideration to shelter, and spends time installing infrastructural items such as sanitation and electricity. She provides a backyard "shack" for relatives of the family. She wants a television so that she can watch Generations.



"I want a TV to see news of what is happening all over the country."

MBONGELENI- 15 years - male

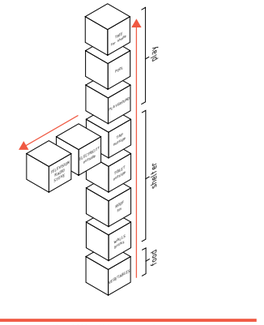
Murunswa prioritises the planting of vegetables, as she wants to eat above all else. She is so careful about where she places her objects as she wants to do her house nicely. She is a meticulous little girl who dreams of a better life.



"The community is very boring"

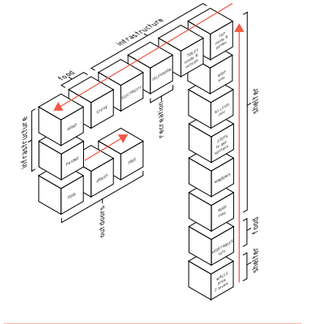
NOKUTHULA- 12 years - girl

Nokuthula speaks about a community where theft is a common problem. She also complains that Kliptown is very ugly. She prioritises a brick house for the safety that it denotes. Food is the next priority as without Kliptown Youth Program she would struggle to eat each day.



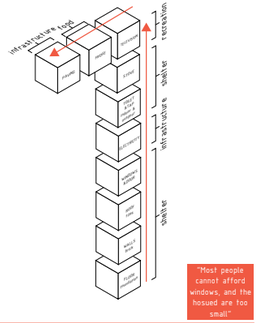
SINGO - 24 years -girl

Singo would build a house with four rooms. She dreams of a 12 room house, but will start at four. She places emphasis on vegetables as she sees the biggest struggle as food. She chose bricks to build her house as they are safer than the tin that she lives in at the moment. The playground and the pool were innovations that she felt necessary for her new house with her young family.



THEMBELIHLE- 12 years - boy

Tsakani has never stayed in a brick house before. She would really like to live in a brick house as it is difficult to burn and stays warm inside. She dreams of a four bedroom house with a kitchen, toilet and two bedrooms.



"Most people cannot afford windows, and the housed are too small"

THULISIWE - 29 years - female

Thulisiwe stresses the foundations of the house. She wants to have a strong house that can withstand all different weather conditions. Having two toilets is also important, one inside for private use, and one outside for visitors.

*understanding the priorities of the participants (author, 2015)

WHY SHOULD ONE ANALYSE THE TYPOLOGIES OF THE SITE?

Don't ask me what poverty is because you have met it outside my house. Look at the house and count the number of holes. Look at my utensils and the clothes that I am wearing. Look at everything and write what you see. What you see is poverty. - A poor man, Kenya 1997

The issue of slums raises a large problem in terms of accurate data collection, whether physical or socio-economic or spatial. Through on-site work, it is found that it is easiest to collect data on a small scale and then extrapolate that data and apply it to the settlement as a whole.

This starts with the analysis of individual typologies. There are many different typologies available in any informal settlement or slum, but one can extrapolate various categories which the majority falls under. By doing this, one can systematically and accurately model the situation in one of the dwellings within the larger category, in order to gain an in-depth understanding of the living condition within a slum.

By drawing the house, one learns about the construction methodology, by drawing the interior one will formulate an understanding about typical belongings, and by drawing the thresholds, one understands how the house interacts with its direct environment.

TYPICAL TYPOLOGIES TO MAP

HOUSING	SANITARY SPACES
COMMUNITY HALLS	SHOPS/SPAZAS
ENTERTAINMENT	BARS/SHABEENS
RECYCLING CENTERS	VEGETABLE GARDENS
MEETING POINTS	CHURCHES
WATER POINTS	MIXED USES
TOILETS	BRIDGES
LIGHT POLES	TRANSPORT

*places identified on-site bu author, 2015

STEPS

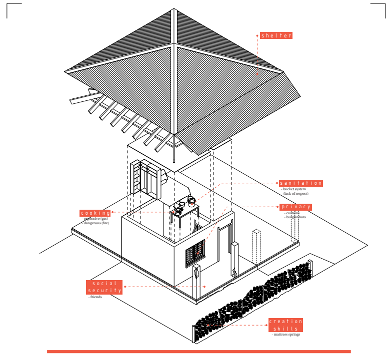
[1] When on site make sketches, measures and pictures of relevant typologies

[2] Draw the typologies, whether, sketched, modelled or simply drafted in order to understand the make up of the house/ centre.

[3] Consolidate the data in a comparable way.

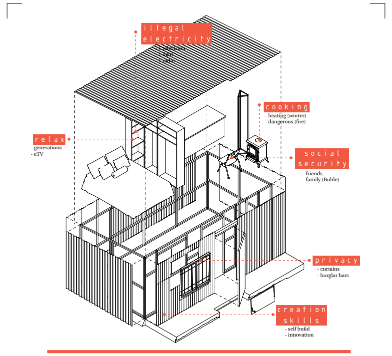
DELIVERABLES

The deliverables of this tool are bi-fold. A catalogue of typologies forms an interesting and important means of education. The typologies will also serve as an input to the tool which deciphers lessons from existing typologies.



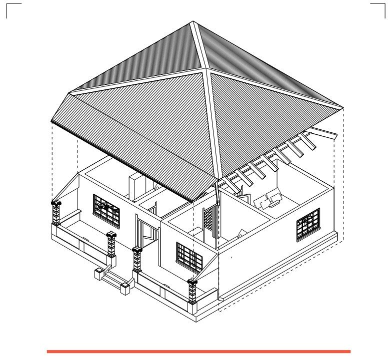
BARBARA'S HOUSE

Barbara has lived in the same room in the same house in Kliptown for the past 40 years. She lives there with her daughter, and has seen the rest of her family grow up and leave home. She asks for one thing, Kerosene for her stove. Her lack of electricity means that in order to cook her maize meal she needs to buy Kerosene, which is quite expensive. Maize meal is the staple of the Kliptonian diet, it is a grain which is essentially inedible without cooking it, making energy essential to the provision of bare necessities.



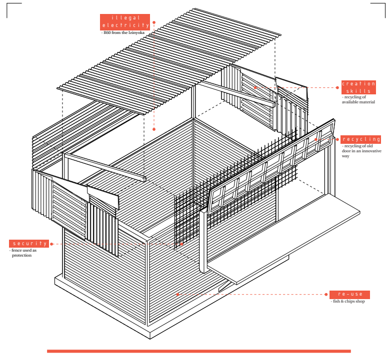
OCTAVIA'S HOUSE

Octavia has lived in Kliptown for a very long time. In 2010 she moved into her current house, after a flood washed away her old house. She lives there with her two kids. She has electricity from the "isinyoka" allowing her the luxury of one lightbulb and a television. The connection is very unstable, making her solar lamp and candles necessary for the children to study. She has a wood burning stove, which allows her to cook and heat her home during the cold months. Fires are a huge problem because of the proximity of the homes.



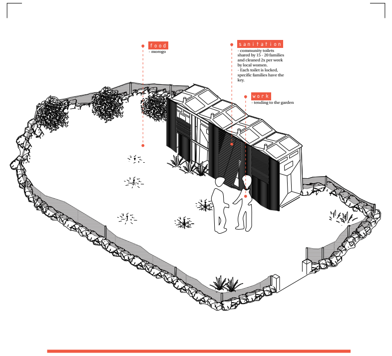
COLUMN HOUSE

The column house stands as tribute to the original houses of Kliptown. The house was built circa 1940's and has distinct architectural features of the time, including a Transvaal Pyramid Roof and distinctive columns. The house that was built for one family, now houses at least four, each room providing shelter and refuge for a family. Kerosene gas stoves are used, marking the walls in a foul brown grease from the fumes. The disrepair of the house is common to those in Kliptown, the heritage of the house disguised by the necessity for shelter.



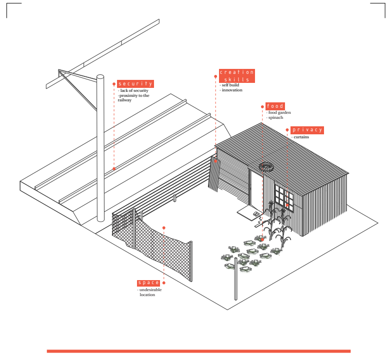
ELIAS'S SPAZA

Elias uses an old Fish & Chips shop as a spaza store. He hasn't been running the store for long, he sells chips, junk food and sweets. He currently makes R40 per day, but he has the goal of making R200 per day. His mother is a domestic worker, and he lives with three of his siblings. The spaza is placed in the street to maximise visibility. He has one single light bulb, allowing the store to operate at night. His electricity connection is illegal.



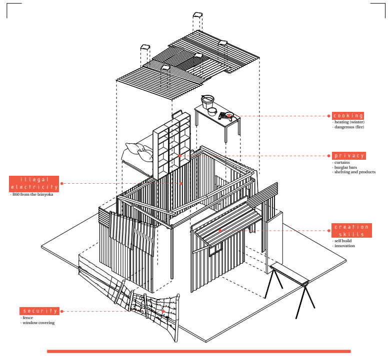
GARDEN & TOILETS

There are various vegetable gardens throughout Kliptown. This specific garden is run by the local community surrounding the area. There was not much growing in the garden at the time of the visit. There were whisps of Morogo- a local spinach type plant. The garden holds the potential for alot more growth, the soil is good, and there is water close by. The proximity of the toilets to the garden hint at the possibility of cyclical living, there are some merits to the idea of using excrement as fertilizer.



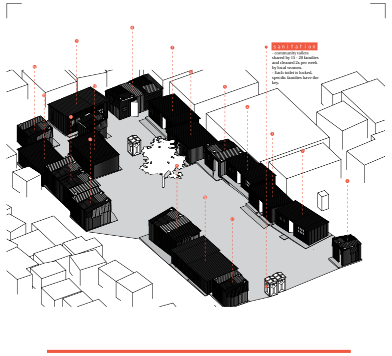
RAILWAY HOUSE

The house's proximity to the railway line poses a huge threat to the quality of life of its inhabitants. When a train passes by, the tin walls shake excessively. The proximity to the railway line allows for the luxury of space. The house has a vegetable garden which provides food for the owner. The house is in one of the most undesirable locations in the settlement. The owner works outside of Kliptown and was not home during my visits for interview.



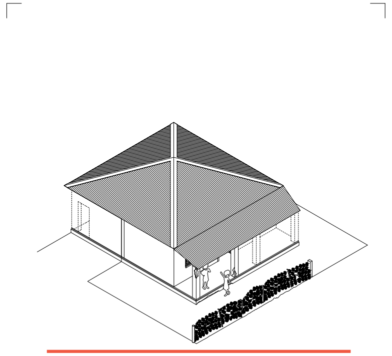
SPAZA HOUSE

The spaza house is a house-come-spaza shop. The mixture of functions within one small space allows the inhabitants to maximise earnings whilst minimising expenditure spatial considerations. The mixed use nature of this house reflects the organic nature of the informal, whilst reiterating the sustainable nature of the settlement. The proximity of the shop to the housing accounts for the success of the shop, it is a shop of convenience. The thresholds are clearly defined, private behind a door versus public at the window.



HOUSING CLUSTER

The housing cluster allows for manageable allocations of semi-public space. The public area around the tree is removed from the public street, and is passively monitered and secured by its residents. The importance of the central tree is paramount, it provides a place for meeting, shelter from the weather. It also orders the central space. Organisations such as this one are found all over the settlement. They are an organic way for the inhabitants to



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*typologies mapped in Kliptown, South Africa (author, 2015)

WHY SHOULD ONE LEARN FROM A SLUM?

Much can be drawn from analysing existing activities and practices within a slum. The slum itself acts as an autonomous settlement, and people provide what they need for themselves. It can therefore be said that by analysing what people have done, you can understand what they need. The lessons may be drawn from any of the tools and presented in a manner which makes sense to the project.

In order to get a grip on the detailed elements within a slum, it is important to analyse and withdraw lessons from the slum itself. Alfredo Brillembourg is one of a number of prominent urbanists who believe that we can learn a great deal from slums. He points out that slums are more resilient than formal cities because they work together, produce less trash, and use fewer resources.

Brillembourg adds that what is interesting about slums is how they act as one cohesive whole. An entire slum can be regarded as a huge house. This cohesion, resulting in a new type of urban village is one of the greatest innovations to come out of slums (Smedley, 2013).

The slum at its best is a “wiki-city”, one where there are no rules other than the resources that are available and the collective agreements that are formed by the residents (Smedley, 2013).

Brillembourg adds that the most important lessons to architects is that they are poised to become the person that designs the process rather than the form.

LEARNING LESSONS FROM SLUMS

ECONOMY OF RESOURCES
Analyse resource use patterns within slums by understanding the resource usage of various people and homesteads. In an interview in Kliptown Informal Settlement in South Africa, it was asked what was to be done with all the garbage, the reply was that there was little to no garbage, that everything was re-used to some extent.

RE-USE
Understand how resources are re-used within the slums. Resources can be in the form of waste, building material, houses, and many more.

CHANGE
The slum is a constantly changing organism, understand, through the use of time-line analysis how the people deal with change.

ADAPTATION
The constant change within a slum denotes the need for constant adaptation of the existing structure to accommodate the changes.

SOCIETY
A self-organizing society, such as a slum society, can teach one a lot about potential interactions that can be designed for, whether it is within the slum itself, or in a first world situation.

RECYCLING
Alfredo Brillembourg explains a costly system in Zürich which seamlessly deals with recycling, and draws relations to free systems within slums which deal with recycling just as effectively, illuminating the potential lessons to be learnt from slum recycling.

DENSIFICATION
The way that slums deal with densification may teach us how to design good quality density within urban situations.

ENTREPRENEURSHIP
Poverty within slums inspires a level of entrepreneurship that is incomparable to formal environments. The freedom to open up a shop and participate allows for the formation of many micro-economies, which may teach us a lot about informal economics.

PROXIMITY
Slums teach us about the importance of space within the urban cores and peripheries of the city. They teach us about the limits of human comfort zones and possible proximity.

PUBLIC SPACE
Public space in slums evolves organically according to the needs of the inhabitants. It therefore provides a meaningful tool for study, as we see the size and importance of various elements in public space.

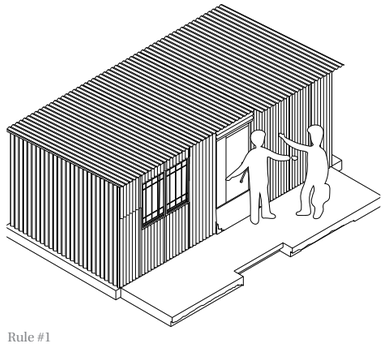
CYCLICAL LIVING
The new “green” trend has inspired a series of Eco-conscious people, who could learn a great deal from the cyclical habits of people living within slums.

MIXED USE
Slums may be the places with the highest number of functions within the same vicinity. The settlements function as small micro economies, including all necessities within the limits of the slum. Modernist disaster projects would have done well to learn from the mixed use that occurs, and operates, in slums.

PEDESTRIAN PRIORITISATION
Slums inherently place the pedestrian at the centre point of operation. Much can be learnt from the organization around the pedestrian.

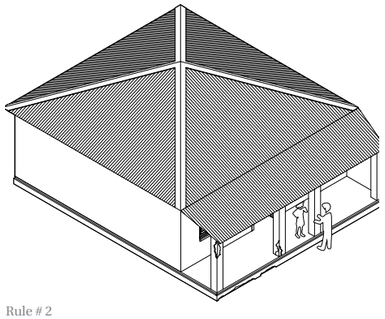
LOW ENERGY FOOTPRINT
Slum houses, if they have access to electricity, use little to no energy, at most they operate a light bulb and a television, only when absolutely necessary.

COMPACT FORM
The form of the house itself, due to resource limitations, is absolutely minimum size.



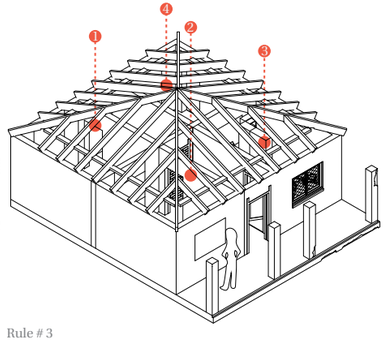
Rule #1

recycle — The shacks within the settlement are increasingly innovative in their use of material.



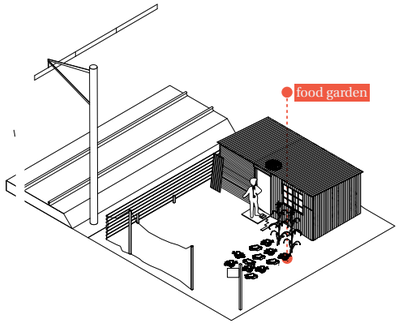
Rule # 2

re-use — Existing houses and buildings are inhabited and re-used in new ways. Houses are altered and added to in order to increase functionality. The majority of the alterations are clearly discernable from the original house.



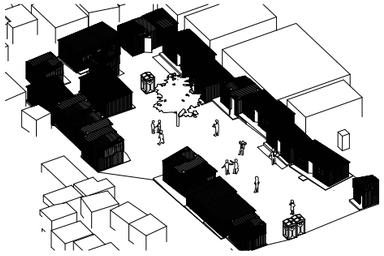
Rule # 3

densify — The typical tranvaal pyramid roofed houses were built for miners around the 1800's, they typically have four rooms and housed one family. The buildings now house between four and five families.



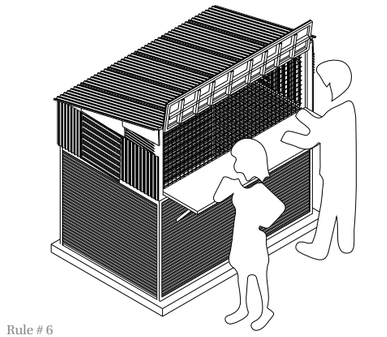
Rule # 4

proximity — There are a number of shacks directly adjacent to the railway line which runs adjacent to the site. These shacks typically have more space as the land is undesirable due to the proximity.



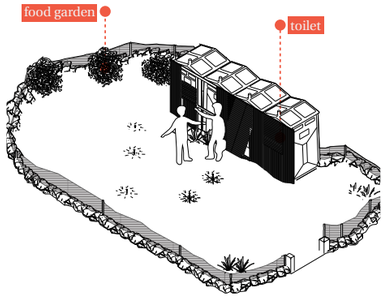
Rule # 5

public — Communal spaces are created and used in a manageable way. Communal spaces differ in levels, public spaces are large and shared amoung many. semi-public are shared amoungs families and private space is individual.



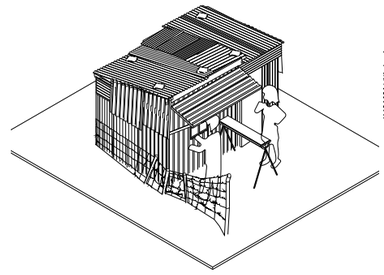
Rule # 6

entrepreneurial — The spirit of the settlement is entrepreneurial, people without jobs often start small shops, or sell services in order to get by. Stock is acquired across the railway track..



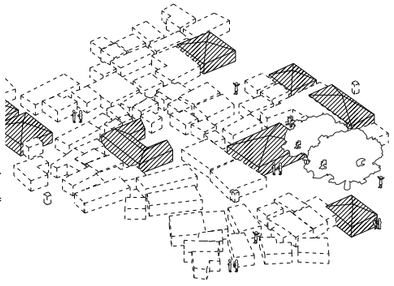
Rule # 7

cyclical living — The settlement is serviced by chemical toilets, without the chemicals. The toilets are situated adjacent to a garden. The faecal matter can be, but is currently not, used to nourish the food on the gardens.



Rule # 8

mixed functions — Many of the existing residences serve multiple functions. Programmes found on site include spaza shops, beauty salons, vegetable sellers, construction companies, and many more.



Rule # 9

change — The nature of the informal settlement is ever changing. The organic nature of formation and temporality of the dwelling means that the settlement is in constant flux, constantly growning and shrinking.

*illustration of lessons from Kliptown, South Africa (author, 2015)

Understanding stakeholders

WHY IS IT IMPORTANT TO UNDERSTAND WHO IS INVOLVED IN THE PROCESS?

Knowing the objectives of all parties involved is both "predictive & strategic" and is therefore very valuable to understand who is involved in the up-gradation of the slum.

The understanding of all the people involved in the projects' interests, serves to inform the riskiness and viability of the project. This is linked to institutional appraisal and social analysis.

Stakeholders are any persons, groups or institutions with interests in a project or programme. There are various levels of stakeholders within any given project. Shlomo Angel derives seven key categories of stakeholders, as shown in table ? (Angel, 1983).

Analysing the people involved in the project draws out the interests of the stakeholders in relation to the problems to be dealt with. It can also help to identify possible conflicts between stakeholders, and potential relations between them which may be built upon, and aid in the assessment of the appropriate type of participation to be utilized.

It is therefore important to conduct a stakeholder analysis at the inception of a project in order to inform decisions that will be taken throughout the research and design phases (Overseas Development Administration, 1995).

STAKEHOLDER CATEGORIZATION

HOUSERS | MUNICIPAL ENGINEERS

POLITICIANS | INTERNATIONAL FUNDERS

SLUM DWELLERS | LOCAL FUNDERS

COMMUNITY BUILDERS

*important stakeholder groups (Angel, 1983)

STEPS

[1] Draw up a stakeholder table.

	Interests
Housers	
....	
Municipal engineers	
....	
Politicians	
....	
International funders	
....	
Local funders	
....	
Slum dwellers	
....	
Community builders	
....	

[2] Assess the importance and impact of the various stakeholders & which are important for project success.

[3] Draw out risks affecting project design and participation

[4] Identify appropriate stakeholder participation

[5] Identify key stakeholders in the proposed project

[6] Identify power relations between stakeholders (who has the most say?)

[7] Determine stakeholder interest and potential involvement in the project.

*All steps are optional

	Interests
HOUSERS	
Johannesburg Social Housing Company	Social housing
NUSP	Basic service, Security of tenure, Community empowerment
MUNICIPAL ENGINEERS	
Johannesburg Development Agency	City-wide development, Economic growth, Access to jobs and markets, Sustainable energy consumption and land use
Nemai Consulting	Environmental and social, Consultant, Appointed to draw up the rehabilitation framework
Soweto Municipality	Disaster risk management, Electricity, Water
INTERNATIONAL FUNDERS	
Danida	Green growth, Social progress, Stability and protection, Environment and climate, Human rights & democracy
United Nation Development Program	SDG's
African Development Bank	Poverty reduction, Food production, Employment, Youth, Structural transformation
World Bank	Ending extreme poverty and promoting shared prosperity
LOCAL FUNDERS	
Blue IQ	Development
City of Johannesburg	Heritage & tourism, Improved life of local community, Sustainable and integrated development
Gauteng Department of Housing	Heritage & tourism, Improved life of local community, Sustainable and integrated development
Gauteng Partnership Fund	Housing
Jozi@Work	Street cleaning, Rubbish collection, Grass cutting Infrastructure repairs

COMMUNITY BU	
Jozi@Work	W... Sc...
Kliptown Employment & Skills Centre	...
Kliptown Eldorado Park Tourism Association	Tourism
Great Kliptown Our Town Youth & Community Service	Youth services & wellfare
Kliptown Crisis Management Committee	Self help, Personal social services
Save Kliptown Campaign	Development & Housing, Community & neighbourhood organisations
Kliptown Concerned Residents Forum	Development & Housing, Social Development
The Holy Redeemer Kliptown Community Development	Religion, Community development
Soweto Kliptown Youth	Youth programs, Care for the aged & sick, Visitors & tourism
Kliptown Youth Program	Youth programs, Skill development, Education
SLUM DWELLERS	
Phindi Better	housing
Betty	Access to kerosene, Needs and income
Elias	More business opportunity, Wants to expand to R200/day
Octavia	Access to electricity, Insulation, Water, Sanitation
Bonginkosi Maduna	Increased quality of housing, Sealed housing, Insulation, Safety, Drug addicts, Toilets
Ratebe	Theft of laundry, Illegal electricity, Winter cold
Kliptown Concerned Residents Forum	Development & Housing, Social Development
POLITICIANS	
Elizabeth Mabaso	Allocation of funds
Dan Bovu	Allocation of funds
Government : ANC	Allocation of funds

A possible next step is to map the relationship between various stakeholders in order to understand potential conflicts and partnerships

*example of stakeholder table from Kliptown, South Africa (author, 2015)

Understanding vulnerability

WHY MUST ONE UNDERSTAND WHO IS VULNERABLE IN THE PROCESS OF UPGRADE?

The vulnerability analysis is a qualitative means to understand the vulnerability of the community. Through the analysis of 9 possible vulnerabilities, one can map a picture of individuals vulnerabilities and family vulnerabilities and eventually community vulnerability.

There is considerable variation along “low-income groups” in the range and severity of environmental hazards present. Furthermore the presence of environmental hazards does not mean that it will harm someone; the characteristics of the individual, household or social group exposed to the hazard determines the effect that it may have.

Individuals or households that are unable to avoid environmental hazards are generally termed vulnerable. By assessing the vulnerability of specific houses, it may be possible to map the vulnerabilities within the settlement. This understanding will serve to inform the process of strengthening the asset base of the community.

The analysis reveals groups which are particularly vulnerable to disasters and environmental hazards, and would therefore benefit largely from the upgrade process.

TYPICAL VULNERABILITIES TO MAP

- NUTRITIONAL VULNERABILITY
- MARGINALIZATION
- SCHOOL ATTENDANCE
- SANITATION SERVICES
- WATER SUPPLY
- OVERCROWDING
- QUALITY OF HOUSING
- OCCUPATIONAL SECURITY
- DEGREE OF POVERTY

EQUIPMENT

- Map (for reference)
- Checklist of vulnerability
- Pen
- Notebook
- Clipboard

STEPS

[1] Prepare an easy to understand checklist with the categories shown on the right.

[2] Whilst conducting informal surveys throughout the settlement, it may be worth completing the check-lists in order to ascertain the family, or individual’s vulnerability

[3] Using a simple Excel Spreadsheet, tabulate the data, and produce radial graphs in order to graphically represent the data.

[4] Consolidate the data, in order to understand the mean vulnerability of the site.

ASSESSMENT CATEGORIES

NUTRITIONAL VULNERABILITY
0- No food
1- One meal a day (starch&veg)
2- Two meals per day (starch&veg)
3- Three meals per day (starch&veg)
4- Two meals a day(starch,veg&protein)
5- Three meals per day (starch, veg&protein)

DEGREE OF POVERTY
0- No income
1- Below extreme poverty line
2- Above extreme poverty line
3- Minimum wage
4- Above minimum wage
5- High above minimum wage

OCCUPATIONAL SECURITY
0- No employment
1- Contractor (casual)
2- Part-time (casual)
3- Part time (contracted)
4- Full time (casual)
5- Full time (contracted)

SCHOOL ATTENDANCE
0- no schooling
1- 1 to 3 years
2- 3 to 5 year
3- 5 to 8 years
4- 8 to 12 years
5- >12 years

MARGINALIZATION
- Literate
- Toilet
- Electricity
- Water
-Space
- Income of over 2 minimum wages

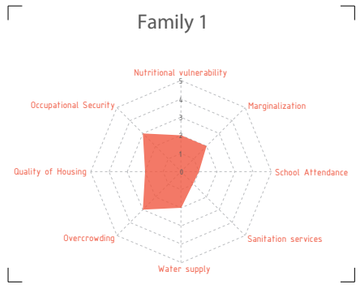
0- none
1- one or two
2- three
3- four
4- five
5- all six

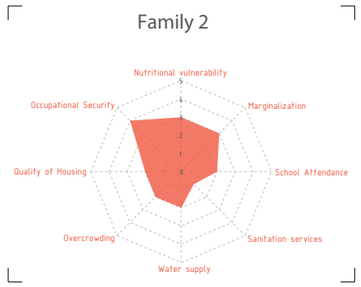
SANITATION SERVICES
0- No toilet
1- Bucket
2- Communal toilet
3 - Private toilet (not flushing)
4- Flushing toilet (private-outdoors)
5- Flushing toilet (private-indoors)

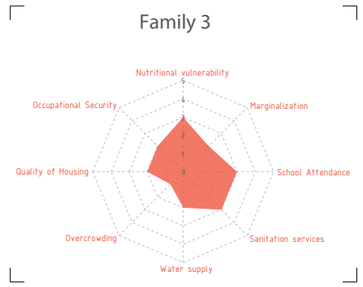
WATER SUPPLY
0- No water
1- Communal water supply (>1km)
2- Communal water supply (>100m)
3- Communal water supply (<100m)
4- Private water supply (outdoors)
5- Private water supply (indoors)

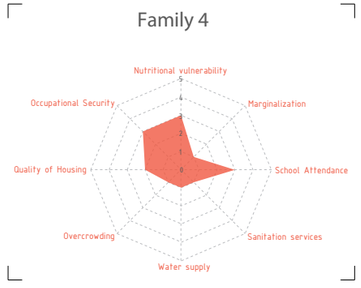
QUALITY OF HOUSING
0- No employment
1- Contractor (casual)
2- Part-time (casual)
3- Part time (contracted)
4- Permanent, unfinished, serviced
5- Permanent, finished, openings, serviced

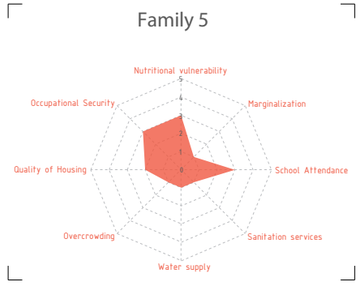
SCHOOL ATTENDANCE
0- no schooling
1- 1 to 3 years
2- 3 to 5 year
3- 5 to 8 years
4- 8 to 12 years
5- >12 years

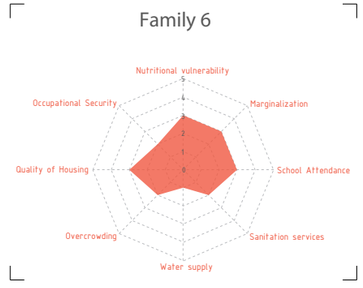












*example of vulnerability graphs from Kliptown, South Africa (author, 2015)

Understanding the problems

HOW CAN ONE UNDERSTAND THE PROBLEM AND ITS CAUSES?

The problem tree analysis tool is central to many forms of project planning and is well developed amongst many of the leading development agencies. Understanding the problem, and the anatomy of it's causes and effects around the issue, in a similar way to a mind map, helps to find suitable solutions.

The problem can be broken down into manageable and definable chunks, to enable prioritisation and clear project planning (Evaluation Toolbox, 2010).

The problem tree identifies consistent issues and arguments, through a process of analysis which helps build a shared sense of understanding, purpose, and importantly action.

Problem tree analysis is best executed in small groups of six to eight people, using a large sheet of paper, in order to encourage conversation. This participatory process of planning encourages a deeper understanding of problems perceived in other parts of the qualification.

EQUIPMENT

- Map (for reference)
- Large paper/ flip sheet
- Markers
- Notebook
- Clipboard
- Sticky notes

STEPS

[1] Settle on the core problem
Identify the problem that the projects seeks to overcome. Debating the with key stakeholders is a good idea. Write the core problem in the middle of the page.

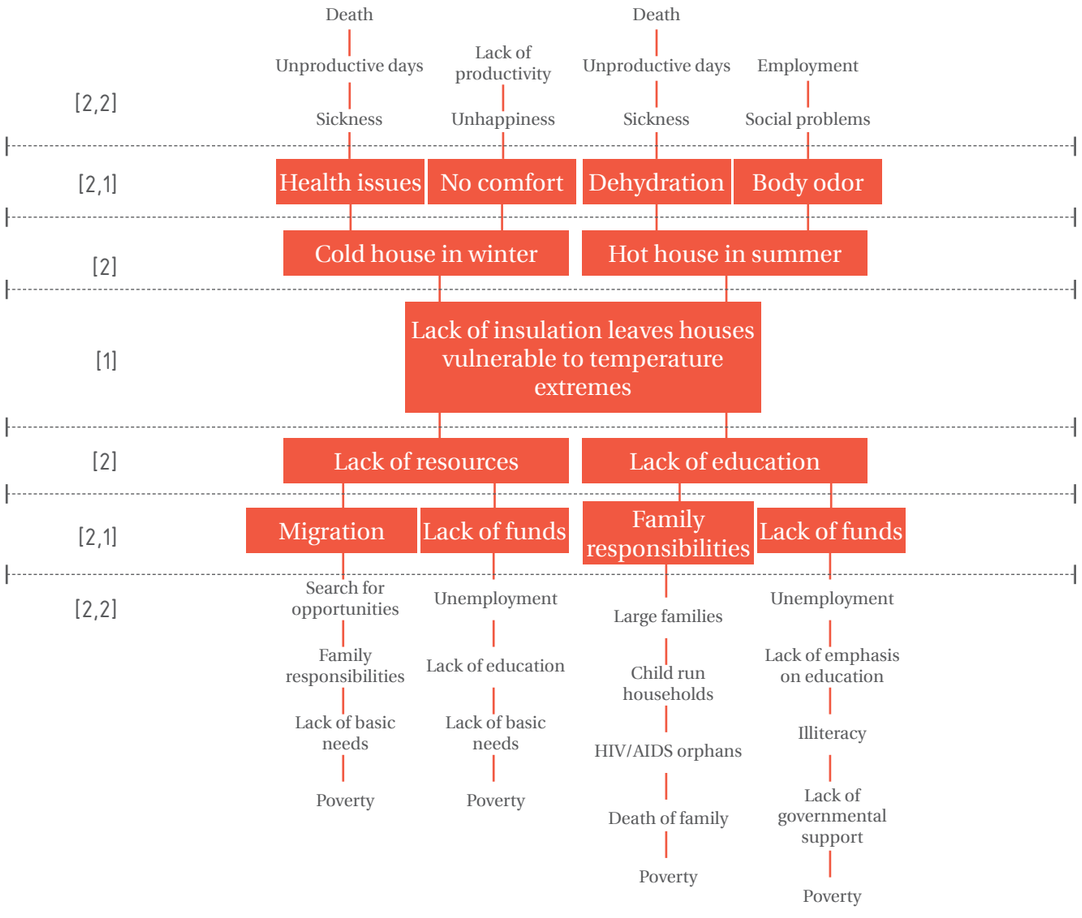
[2] Identify the causes and effects.
Participants in the focus group must collectively decipher the direct causes and effects of the problem. The aim is to produce a linear cause-effect relationship for a problem tree.

[3] Develop a solution tree, also known as an objectives tree. It is developed by reversing the negative statements that form the problem tree into positive ones.

[4] Select the preferred intervention. The solution tree may present a number of separate of linked interventions which may be undertaken in order to solve the problem. The final step is to select a preferred strategy for upgrade.

The problem tree is a rudimentary means to spark a conversation between stakeholders about key problems, and therefore,can easily be tweaked to suit the situation



*example of problem tree analysis from Kliptown, South Africa (author, 2015)

Three important concepts are evident when analysing the myriad of available literature, and become even more evident when one conducts any type of site investigation. These are density, autonomy and time; three fundamental building blocks behind the development of slums. Density refers to the current high density situation of slums. Autonomy refers to the condition of many contemporary slums, acting as proto-cities, largely independent of governmental services. Time refers to the events and policies which formulate the grounding on which the slum grows.

DENSITY, AUTONOMY, TIME

IS THERE A WAY TO PROJECT PROBLEMS AND POTENTIALITIES OF FUTURE GENERATIONS?

Designing for the future of slums means that one needs to understand the implications of acting in a slum environment. The environment changes so rapidly over time, that one may project a means of upgrade that works one year, and not the next.

In order to mitigate this eventuality, one can project population numbers within the slum using data from countrywide census, and mathematical projections, often available from country based statistical websites or the World Data Bank. The data should provide information that through a series of logical steps, can be distilled in order to understand the implications that the growth has on the specific settlement that you are working in.

It is important to understand the expected growth within a settlement in order to design in such a way that the present and future generations are accounted for in the up-gradation process.

The process starts from country wide data, and slowly filters it down through considering ratios of provinces/states to the global growth projections, and then down to city wide projections, and finally to area based ratio calculations.

STEPS

[1] Ascertain relevant data for the population projections.

[2] Make a table from the data

	Year	Year	Year	...
Urban population				
Rural population				
Population total				

the information is available at;
http://data.worldbank.org/data-catalog/population-projection-tables

[3] Understand the percentage of the population currently residing in each province/state, and then divide the projected population growth by the ratio to understand how much population growth will occur in the specific province/state.

The information will be available on governmental statistic sites

[4] Within the population of the specific region, work out the percentage of people that the current population of the settlement accounts for within the provincial/state population.

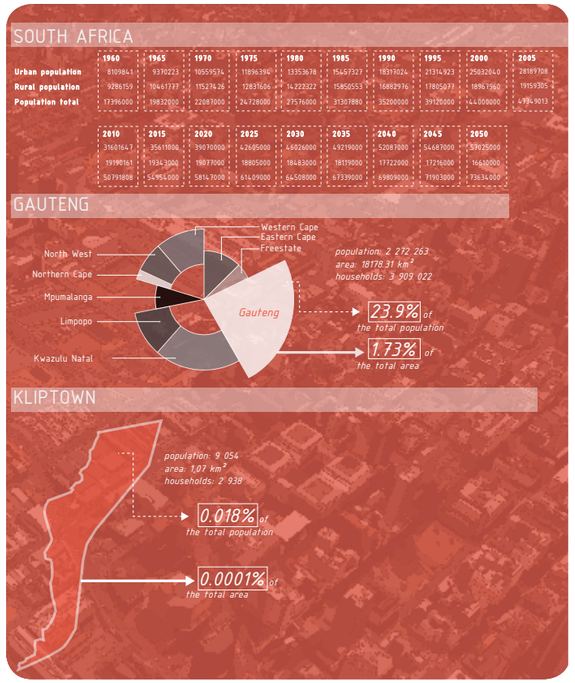
[5] Use this percentage to understand the amount of the projected population growth that will occur within the given settlement.

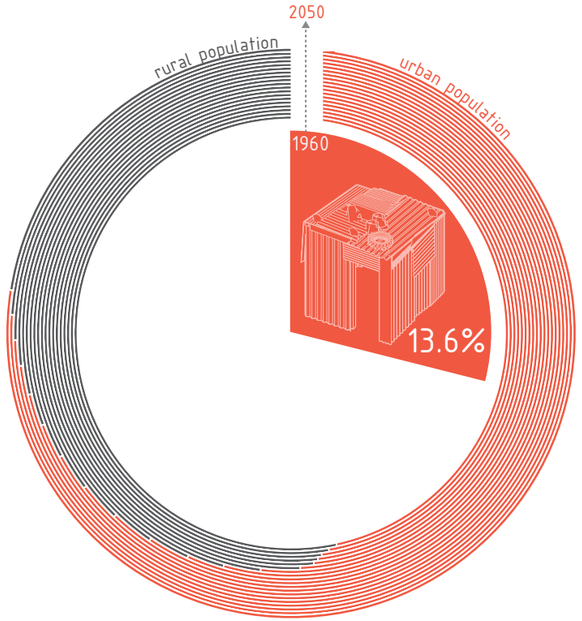
[6] project that increase over a period 50 years or more to indicate the future projected population growth of the settlement.

Delimitations: It is not possible, without a certain extent of mathematical expertise, to accurately model the projected population growth within a settlement. This method makes use of a series of logical deductions in order to make an educated guess in order to inform the development goals of the informal settlement.

DELIVERABLES

The deducted data may be presented in any way deemed appropriate for the project. The use of infographics such as graphs, makes the data more accessible to the viewing audience as well as to the designer themselves.





HOW CAN ONE UNDERSTAND THE AUTONOMY OF A SLUM?

Current trend in architectural education point to the use of models and typologies as a means of setting up precedents and understanding spatial constraints. The oversimplification of social capital into spatial norms may undermine the future of development.

Greg Chrysler points out that cities cannot be considered by their boundaries, but rather by the interconnected urban networks that define them (Crysler, 2003). John Habraken describes networks in the built environment as a series of levels, with corresponding hierarchies (Habraken, 2008).

Engaging with an unfamiliar network poses many challenges. In order to understand the autonomy (or lack of autonomy) of a settlement, one must first organically interact with the network of people, resources and services in order to fully comprehend the conditions.

It is important to consider the larger tangible and intangible networks within a settlement in order to understand the relationships and roles of people in the autonomous actions within the settlement.

TYPICAL NETWORKS TO MAP

HUMAN CONNECTIONS	INDUSTRY
BUSINESS & ENTREPRENEURSHIP	BIOLOGICAL ORGANISMS
RELIGION	COMMUNITY ELDERS
CULTURAL FACTIONS	ENVIRONMENTAL INFRASTRUCTURE
SPORTS & RECREATION	EMERGENCY SERVICES
YOUTH	ECONOMIC FACTORS

STEPS

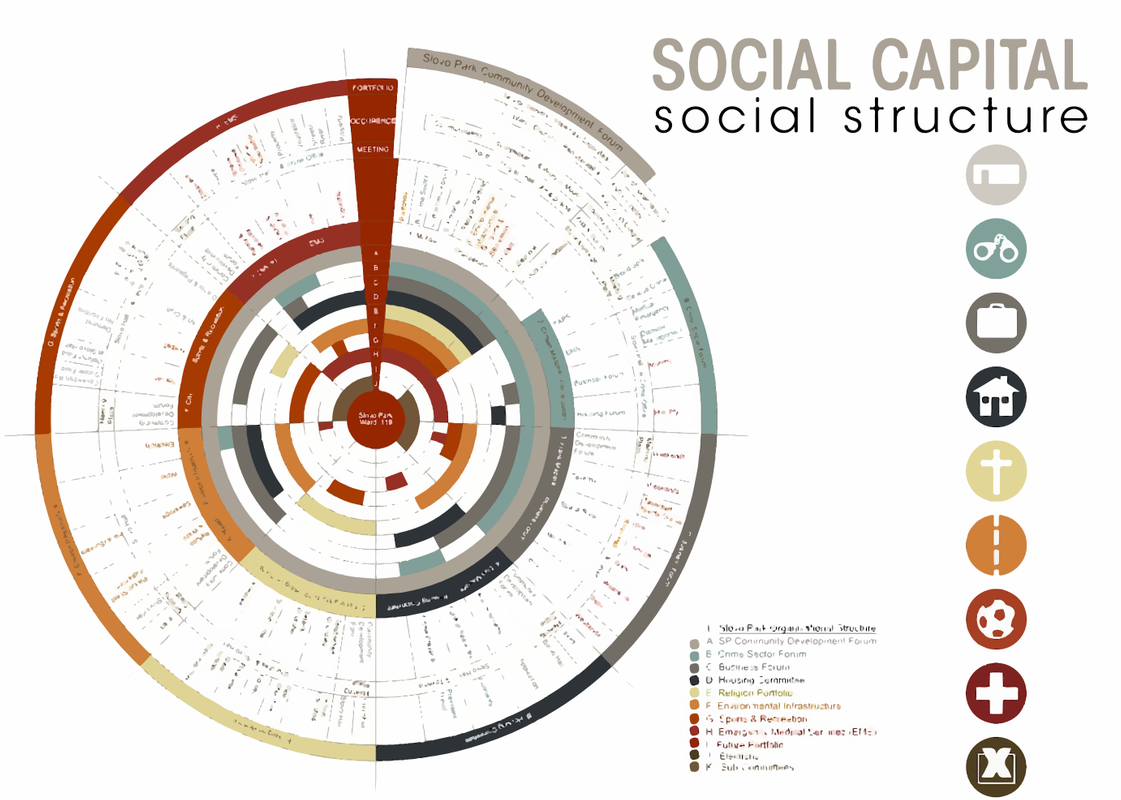
[1] Decide which network to map. (The list above is in no way prescriptive, and may be edited and added to)

[2] Select a means of depicting the network, a flow diagram or organogram may be the most logical choices.

[3] Understand the key stakeholders, and roles of the stakeholders within the prescribed network.

[4] Sketch your understanding of the network, and double check it against with the community involved in order to ensure that you have perceived it correctly.

The network diagram may be extremely complex, but may also be very simple- depending entirely on the complexity of the network.



*organogram of networks in Slovo Park (Buchner, et al., 2012)

Analysing History

IS THERE A WAY TO UNDERSTAND THE VARIOUS LAYERS OF THE SITE

It is essential to gain a thorough understanding of the settlement or slum that you are working in. In order to do this, the history of the settlement must be understood. It is crucial to understand why and when it was created, by whom and why the specific site was chosen.

It is also necessary to understand how neighbours and landowners reacted to the occupation of the land in order to ascertain a general feeling for the attitudes surrounding the settlement.

The role of the municipality in providing for the community should also be thoroughly understood in order to understand at which level they have acted.

In order to effectively design interventions within any context, it is essential to understand the context to the best of one's ability.

It is easiest to understand the history of the settlement after already drawing the slum.

STEPS

[1] Consult literature in order to formulate an idea about the origins and reasons for the formation of the settlement

[2] Consult historical aerial imagery in order to understand the formation of the settlement in terms of expansion over time

historical imagery may be difficult to find. Google Earth has historical imagery for about 10 years back, but firther than that it would be wise to access the archives of local municipalities in order to access useful imagery.

[3] Formulate an understanding of the political and social context in which the settlement grew and extended.

Often occurences within a slum are closely linked to the polical context. For example; within South Africa, surrounding election time, you are more likely to notice informal settlement upgrade programs.

[4] Visualise the data in a means that makes it accessible to the greater public of the settlement.

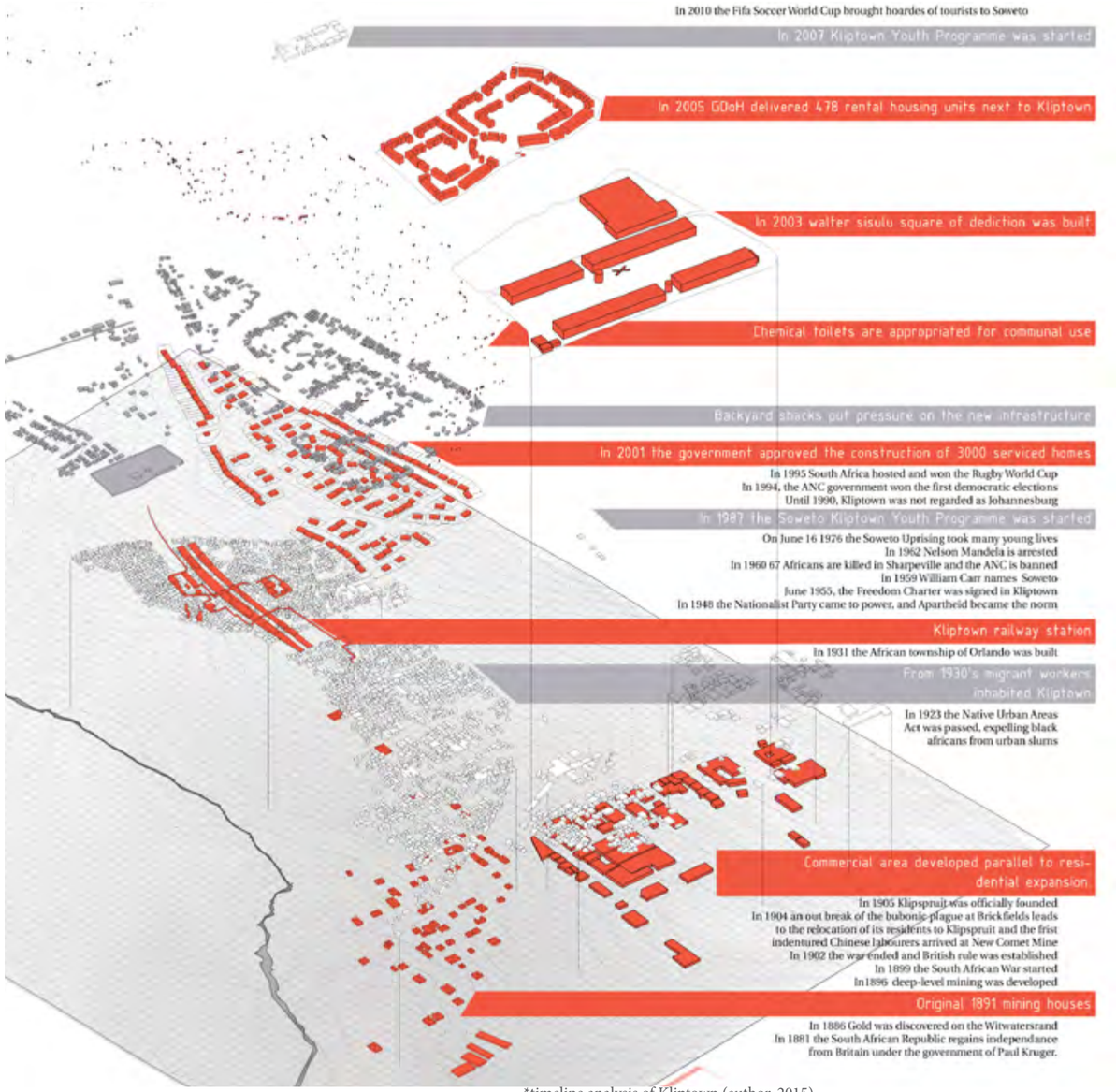
The layering of site is extremely important when considering a settlement which may have significant heritage value. It is essential to ascertain a timeline in order to understand the scope of historical relevance.

[5] Consult local oral history in order to validate and add to your findings.

Oral history is an extremely powerful way to include all people in the formation of their history. Historical accounts are no longer limited to the famous or literat, but are made to include all people, and therefore gives a more inclusive and hopefully accurate picture of the past. Oral history depends on living people, and therefore can only go back one lifetime.

DELIVERABLES

The suggested means of delivery is a graphical representation of the historical layering of the site, as shown. The output may also take the form of a report or written document whichever form is deemed appropriate for the project.



*timeline analysis of Kliptown (author, 2015)

WHY IS IT NECESSARY TO EXPAND UPON THE EXISTING GUIDELINES?

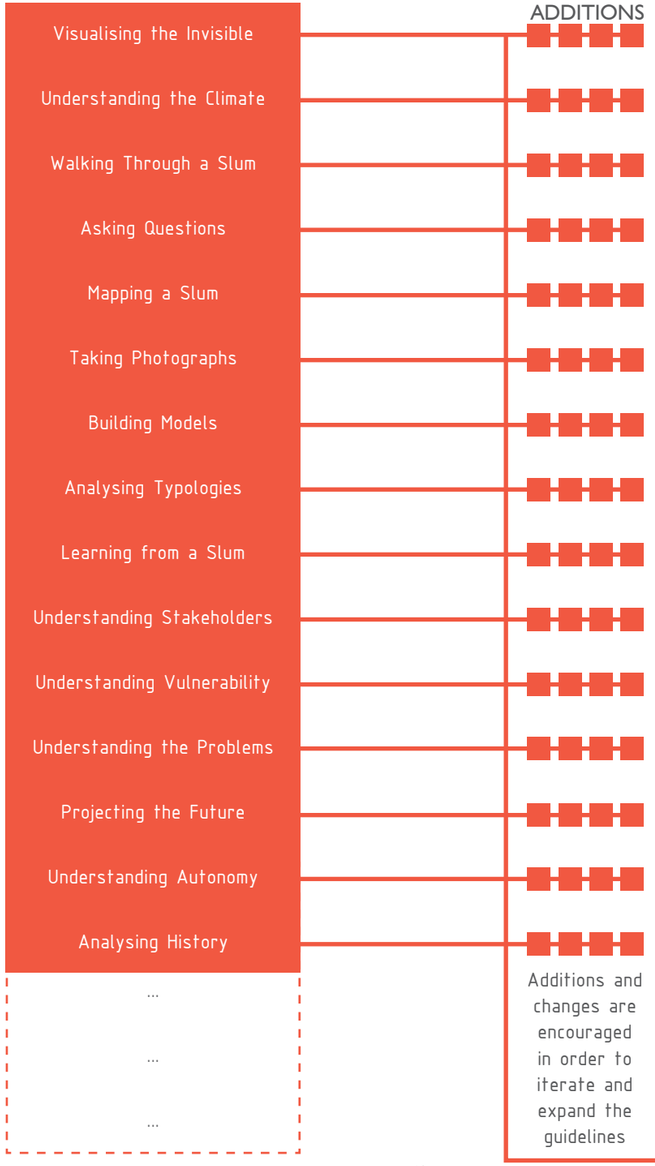
It is naive to assume that research of this nature may ever be finished, or that it may belong to one person. The guidelines produced in this thesis form a start to what should be regarded as a process of iteration and additions.

More examples need to be added through comprehensive fieldwork, and more tools need to be added in order to fill the gaps which are inevitable within the short time frame of a masters research.

The guidelines are therefore presented as an incomplete base which is open to interpretation and addition.

The guidelines must be personalised, and adapted to ensure that they are relevant to the site under question.

The intention is to provide a means of comprehensively qualitatively appraising a site in question. Therefore in order to act, one must free themselves from preconceived ideas and notions and allow the process of enquiry to inform the formulation of a feasible course of action within the upgrading efforts of a slum environment.



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