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# A Toolkit for Prioritising Interventions in Informal Settlement Upgrades

## ABSTRACT

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Informal settlements are more than just a collection of corrugated iron units. They are not a building type but an urban phenomenon that is prevalent in South Africa due to reasons such as housing backlog (Huchzermeyer, 2010:132) and the need for livelihood (Huchzermeyer, 2011:33). It offers choice, it gives people what they want and it is affordable (Mills, 2012:1).

“Informalization is a process where the poor evade rules to produce outcomes that they need, but that are otherwise too controlled for them to reach” (Cross, 2005:3).

Urbanisation in South Africa is increasing every day (Mills, 2012:1) and the poor in shacks continue to deliver housing to themselves using informal mechanisms (Cross, 2005:2). There is a need to recognise and appreciate the economic, social and environmental benefits that informal settlements can bring to the urbanisation process (Mills 2012, pp1). Informal housing exists due to the gap in the market where the poor are unable to afford the available kind of housing (Cross, 2005:3). One must understand that formalising the informal does not always have to be through eradication of existing slums according to MDG seven Target 11 (Huchzermeyer, 2011:16) and it can also take place as an in situ upgrading (Huchzermeyer, 2011:30). It can sometimes be an “invisible” form of development of the community which leads to a self-sustaining future upgrade such as project that Nabeel Hamdi pioneered namely ‘the Buffalo Project’ (Hamdi, 2010:106). Sometimes the existing abandoned structures such as a community hall can be reactivated, resulting in an improvement of an area in terms of addressing the needs of the community for a market space (Hamdi, 2010:109) or changing the appearance of an informal settlement resulting in a change in people’s perceptions of the area (Feireiss, 2011:114). In this way the “small change” can grow over time and result in the development of an entire settlement by its own residents.

This dissertation explores the importance of the architectural facilitator as the “missing” profession amongst other professionals who are involved with upgrading projects such as architects, engineers, NGOs, government entities, private stakeholders and many more (Hamdi, 2010:96). The architectural facilitator will be able to accommodate the gaps that have been challenging the Upgrade of the informal settlements in South Africa by creating an understanding between the issues that exist in an informal settlement, prioritising the needs and

selecting interventions that address the most pressing needs in an informal settlement. The aim is to create a universal understanding of how one can approach the issue of upgrading informal settlements in order to derive a strategic framework that will lead to a long-term sustainable development.

A revised toolkit is introduced to guide the decision-makers such as the Architects, government entities or anyone with an understanding of Architecture, to be able to organise their findings in a prioritised manner and implement interventions according to what the priority needs in the context are. The important thing to highlight in this paper is the theoretical importance of livelihoods to the understanding of poverty in the urban context and the implication of these theories in practice (Hamdi, 2010:185). Therefore, designing an upgrade plan and intervention which will be a long-term project, accepted by the community and accommodating the community's need for livelihood. Topics such as ownership through tenure security and identifying existing nodes of energy are the main focus of this thesis document.

# Chapter 1\_Background

## Introduction and Background:

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Informal settlement upgrading can be described as any type of development of a settlement, in an area that has evolved outside of the formal system, which will increase the quality of life in the area. These developments may include the ad hoc installation of temporary services in a settlement, the relocation of the community to a temporary area while their settlement is being upgraded or a fully inclusive in-situ upgrade carried out in terms of the Upgrading Informal Settlement Program (UISP) (Tissington, 2011:8). The different upgrading techniques have been described in many articles and there are many toolkits and guidelines that revolve around the theme of informal settlement upgrading. However, in the current informal settlement upgrading context, with all the available guidelines, toolkits and systems of analysis, there is yet a gap which has made these tools to be partly inefficient in making finalised decisions. It seems that no matter how many of the tools are used in the process of informal settlement upgrading; there is always a certain percentage of uncertainty in making the final choices.

Within the realm of informal settlement upgrading in South Africa, the issue of prioritisation of interventions has not been researched from an architectural point of view, thus resulting in subjective decisions that are made by the professionals. Prioritising informal settlements in terms of their urgent need for housing has already been dealt with in the Housing and Municipal Integrated Development Plan (IDP) where "the development of Housing Chapters of IDPs is advocated to ensure that housing needs assessments, as well as the identification, surveying and prioritisation of informal settlements, are included in each IDP" (RSA: The National Housing Code, 2009:28). However as explained in Chapter 4 of Cities Alliance document 'Social Housing in Sao Paulo' (available on cities alliance website), there can be a large amount of data collected on the site of an informal settlement such as the type of informal settlement, their degrees of instability and their upgrading needs from the architect's point of view as well as the communities' point of view (Cities Alliance, 2009:84). In such a context, it is important to have a system of prioritised interventions in developing programmes to upgrade informal settlement according to the list of priorities.

Over the past 16 years, the South African Government has followed a conventional approach to housing delivery through provincial housing department and private developers using the National Housing Subsidy Scheme (Tissington, 2011:11). However, with all the allocated funding to these projects, the reality is that the housing crisis continues to exist in the country and millions of poor households lack access to basic services, transportation and security of tenure on well-located land (Ibid). There are concerns with the Government's approach to upgrading informal settlement such as mostly focusing on 'housing' as first priority when it comes to informal settlement upgrade. Nabeel Hamdi describes it best in his book "The Place Maker's Guide to Building Community" (2010), Place-making and upgrading a settlement is about "deciding a range of interventions for upgrading on site and building community using a variety of methods and toolkits to revitalize and transform an urban area" (Hamdi, 2010:xviii). In other words, sometimes a small and unlikely intervention when crafted carefully for the needs of a context and community can bring new opportunities for enterprise, social productivity and physical improvement of the area.

One of the important principles that emerge in Hamdi's book 'The Place Maker's Guide to Building Community' is that one must not only focus and invest on housing when upgrading informal settlement (Hamdi, 2010:3). Investing in building houses is an act that people can do themselves and they can do better with a bit of help, but "rather invest in the collective good that people can't provide for themselves: in land regularization, infrastructure planning, self-built opportunity and credit provision" to name a few (Ibid). In other words, it is important to understand the different types of interventions that could be applied in an informal settlement upgrading project and prioritising these interventions to make them as useful in the long term to the community as possible.

Currently there are a number of available toolkits, guidelines and systems of analysis that can help the project enablers (i.e. Architects and Engineers) to start a process and guide them through planning. The following list is a number of both South African and international tools:

- Nabeel Hamdi's "Tools" (Hamdi, 2010:69)
- Navarro-Sertich system of analysis (Navarro Sertich, 2010)
- National Upgrading Support Programme (NUSP) toolkit (NUSP, 2010)
- Adaptability Assessment Tool for Sustainable Building Transformation (for Residential Architecture) system of analysis (CSIR) (Gibson et al. 2011:83)
- The Sustainable Building Assessment Tool (CSIR) (Gibbert, 2008)
- Community Action Planning guidelines (Hamdi and Goethert, 1997)

However, the above mentioned toolkits each focus on different aspects of informal settlement upgrading and leave the final decision-making to the architect's personal interpretation.

Therefore it is the aim of this research to create a revised toolkit which gathers an understanding of the contents of the tools available in South Africa as well as internationally and make these tools more useful by guiding the enablers in the project in terms of what intervention is most needed in a specific context and should be the first priority in terms of implementation.

## Theory and Research Review:

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As mentioned above, there are existing toolkits, guidelines and systems of analysis that can help enablers of upgrading informal settlements with issues such as: a starting point to run an upgrading programme (Hamdi and Goethert, 1997:105), gathering data from the community (Hamdi, 2010:69), analyse the sustainability of an intervention (Gibberd, 2008:1) and creating an adaptable intervention on site (Gibson et al. 2011:83). As part of the literature review for this research paper, these available tools will be analysed in order to understand what they contain and how they are applied throughout an upgrading project.

Theories and concepts related to informal settlement upgrade are also necessary to be researched in order to inform the initial decision-making in informal settlement upgrade. Therefore, theories such as: ownership, tenure security in informal settlement, vernacular architecture, adaptable structures and community participation are a few that should be studied in order to grasp the importance of how one may create a sustainable and long-term informal settlement upgrade plan. These theories have been discussed by previous architects such as:

- Jane Jacobs: 'The Death and Life of Great American Cities', explains the theory of upgrade rather than relocation of slums (Jacobs, 1961:375)
- There are Government documents as well as international articles on the issue of 'tenure security and its importance when upgrading informal settlements (Smit et al. 2010:5). Tenure security may eventually lead to 'ownership' creation in the area (Tissington, 2011:49).
- There are a number of books and articles on importance of Vernacular Architecture in a context such as Rudofsky's 'Architecture without Architects' (Rudofsky, 1965). Vernacular architecture in informal settlement is also of great value as Ladd explores in 'What is Vernacular Architecture?' (Ladd, 2003:5).

The research for this paper will be through data gathering and analysing the existing tools (i.e. tools that are mentioned above) and applying these tools to existing interventions that have been done for upgrading informal settlements in South Africa or internationally. Through the application of the existing tools, conclusions will be derived about their effectiveness, strengths and weaknesses. The result will lead to guidelines to revise the most relevant toolkit and complete it in order to give a finalised intervention suggestion.

The case studies should be well known and there must be many critical articles about them in order to get as much information as possible on them. The local interventions that will be studied should be visited by the author in order to get a real life input and analysis of their situation.

Despite all the differences between the available tools and systems of analysis, they also have similarities. These similarities will be identified through a comparison process and new parts will be added in order to make a revised toolkit that is easy to understand and use. For example, some of the Action Planning toolkit characteristics will be incorporated into the proposed toolkit in order to help the prioritisation process of the interventions. These factors are the following:

- The proposed toolkit should be problem-based and opportunity driven;
- It must be reliant on local knowledge and skills;
- Non-reliant on complete information;
- Could be small in scale and community based, or it can be on a large scale;
- Incremental rather than comprehensive plans (Hamdi and Goethert. 1997:30).

However, in addition to the above factors which the proposed toolkit will share with Hamdi and Goethert's Action Planning, it will have the following characteristics:

- Give the less experienced architects the possibility to organise their findings on site into a list of issues
- Guide them in terms of prioritising their interventions according to what is priority need of the context
- Create an opportunity for young architects to make accurate decisions in the early years of their career and yet be equivalent to professional decision-makers choice who have many years of experience in the field.

Other relevant toolkits, guidelines and systems of analysis will be analysed, compared and parts of them will be incorporated into the final design of the proposed toolkit.

## Research Problem Statement and Objectives:

---

In 2010, a group of honours architectural students started a project of upgrading the Slovo Park informal settlement by designing an intervention with the aid of community participation. After a long process of interviews and research done in this settlement, it was decided that a community centre would be the appropriate focus of an architectural intervention in that context (Bennett et al., 2010). However, after two years, the community centre which was what the residents initially wanted was neglected. It appeared to be the least important intervention required in the area since they are in need of new services such as waterborne sewerage rather than a community centre (Author's observation on site visit, 2012).

Public participation is of great importance in the upgrading of informal settlements since it promotes 'community building', 'sustaining livelihoods' and tackling the 'root causes of poverty' amongst many other definitions, dependent on context (Hamdi, 2010:88). However, once public participation has taken place and the final intervention is completed, it is sometimes difficult to make decisions on what type of intervention is most appropriate for the site due to a large amount of data that has been collected by observation, interviews, games and other tools that Hamdi introduces in his book 'The Placemaker's Guide to Building Community' (Hamdi, 2010:69). The Slovo Park settlement upgrade intervention was successful and approved by the community before it was built (Bennett et al., 2010). The community of Slovo Park helped throughout the project, from decision-making to construction. Yet after 18 months, the priority need of service upgrade was still not addressed and the community hall did not address this issue (Interview with resident, 2012).

Limited time, budget, skills and policy restrictions have historically limited the ability of architectural designers to incorporate all the issues into one specific design project. Many important issues are in conflict with others and prioritisation is inevitable (Cole, 1997:183).

In design, there is typically no rational basis for choosing one strategy over another, other than the clients' willingness and budget (Cole, 1997:190). Interventions can be prioritised from a variety of different standpoints, e.g. contextual analysis; different modes of sustainability, budget and policies are some of the examples. "In building design the value of prioritization is that it offers direction to an evolving solution by providing a basis of comparison between alternative strategies" which means that it will give the designer an overview of what the first step towards



decision-making of an upgrading programme would be (Ibid). In the context of upgrading an informal settlement, it is necessary to prioritise the series of interventions that are to be constructed so that it is beneficial to the community and users.

## Problem statement

It is generally recognised that informal settlement upgrade covers a variety of issues. However, very little attention has been paid to the detailed links and relationships between specific issue areas and their relative significance and priorities (Cole, 1997:183). By observing some informal settlements around the world, one can observe that the architectural interventions are not always appropriate to the site due to lack of architect's prioritisations. For example, in Rio de Janeiro, due to landslides and floods in the favelas, the loss of a large number of houses and families has resulted. Therefore, in such a situation, upgrading the Favela by putting in new living units or a new library is not a long term resolution. Priority should be given to stabilisation of the slope. This matter indicates that the architects and communities need to start rethinking and reprioritising the interventions in informal settlements (Navarro Sertich, 2010).

One of the problems that arise from the above statement is how an architect can prioritise interventions that will help upgrade an informal settlement as effectively as possible. How can a toolkit assist the enablers of the project in their decision-making to prioritise the various systems that are connected to one another and lead them to a certain goal?

Therefore the revised toolkit will be a proposed improvement on the existing approaches to the same problem of informal settlement upgrade but from a new perspective. This time it will be a toolkit useful to young architects in order to help them prioritise their options of intervention for a specific site after they have gone through a process of collecting data and analysing the informal settlement's issues.

## Research objectives

By answering the above research questions, the objective of this study is to develop a toolkit which will help the architects understand the information that has been gathered on site and put it into use in order to identify the most useful intervention on the specific site. This revised

toolkit will guide them into prioritising their available choices in the simplest and fastest way possible, which will lead to an intervention that is most needed by the community.

In order to address the research problem effectively it is proposed/hypothesised that the following question should be answered:

How would application of a set of structures contained within a toolkit, which the architect is to follow during the lifecycle of an informal settlement upgrade, help to prioritise the architect's choice of execution of the intervention?

Therefore the hypothesis and proposition for the research paper will be the following:

- A toolkit can be developed that will assist decision-makers to arrive at a sustainable informal settlement upgrade by prioritising the options of interventions in the context, following accepted methods of research and analysis.

## Type of research/ research paradigm

The type of research which is required in this paper is qualitative research. This is due to the fact that the research will be a descriptive and analysing approach rather than numbers and quantities. By comparing different case studies and applying the identified existing tools and systems of analysis to the case studies, the strengths and weaknesses of the tools and systems of analysis will be explored.

## Importance of the research problem

The primary benefactors of the final toolkit are young architects and anyone with the background knowledge of architecture and development. Ultimately, the community receiving the intervention will benefit as it would be tailored to their needs. This will be a toolkit which will be used in order to save time and increase efficiency of the final intervention put in context and increases the chances for the intervention's success. It will become a user-friendly tool which will

put the thoughts and data gathered through analysis and community participation, into a toolkit which will identify the most appropriate and urgent intervention that the context needs.

In the process of upgrading an informal settlement, the programme can be divided into four phases:

- Phase 1: Problem identification and Prioritisation;
- Phase 2: Strategies, Options and Trade-offs;
- Phase 3: Planning for Implementation; and
- Phase 4: Monitoring (Hamdi et al, 1997:83-84)

The phases show the steps that will be taken during the process of upgrade. As it is mentioned, Phase 1 is the first step and it involves problem identification of the problems and their prioritisation. When the problems on site have been prioritised, it is important to have a toolkit that allows the decision-makers to enter the data they have gathered and prioritise the interventions accordingly. If Prioritisation of interventions is incorrect, the rest of the project will be affected by that decision and lead to an upgrade that is not useful to the community living in the informal settlements. This issue will cause waste of resources.

## Limitations and assumptions of the study

Since the research will take place by analysing existing toolkits and applying them to existing case studies, it means that the form of collecting data will be "documents". There are limitations with this method of data collection such as:

- This method is limited and may not be very accurate since it is dependent on what is already there (which is written and documented by someone else). The information cannot be influenced in the interviews and questionnaires are able to influence data. The author of the document or toolkits may have a different point of view and understanding of certain issues which one cannot realise by just reading their articles;
- The available data in documents are sometimes very specific and limiting which may create a biased data;
- Those who write the documents and articles tend to be the ones in power in this case;
- It is more difficult to test hypotheses and theories with large participants; and
- It may take more time to collect the data when compared to quantitative research (Johnson, 2006:table14-02).

## Proposed Research Approach, Strategy and Schedule:

The research approach will consist of a comprehensive literature review with substantiated analysis of existing toolkits and case studies from local and international context. The proposed schedule is shown in Figure 1. Some of the phases of research will take place simultaneously since the information of one phase will lead to the start of the new phase. It is important to go back to the problem statement of the research and the hypothesis in order to make sure the research conclusion will answer the specific issues. Therefore, in figure 1, the first phase is worked on again at the end of the project in order to make sure the conclusion and the introduction address one another to ensure alignment of the research.

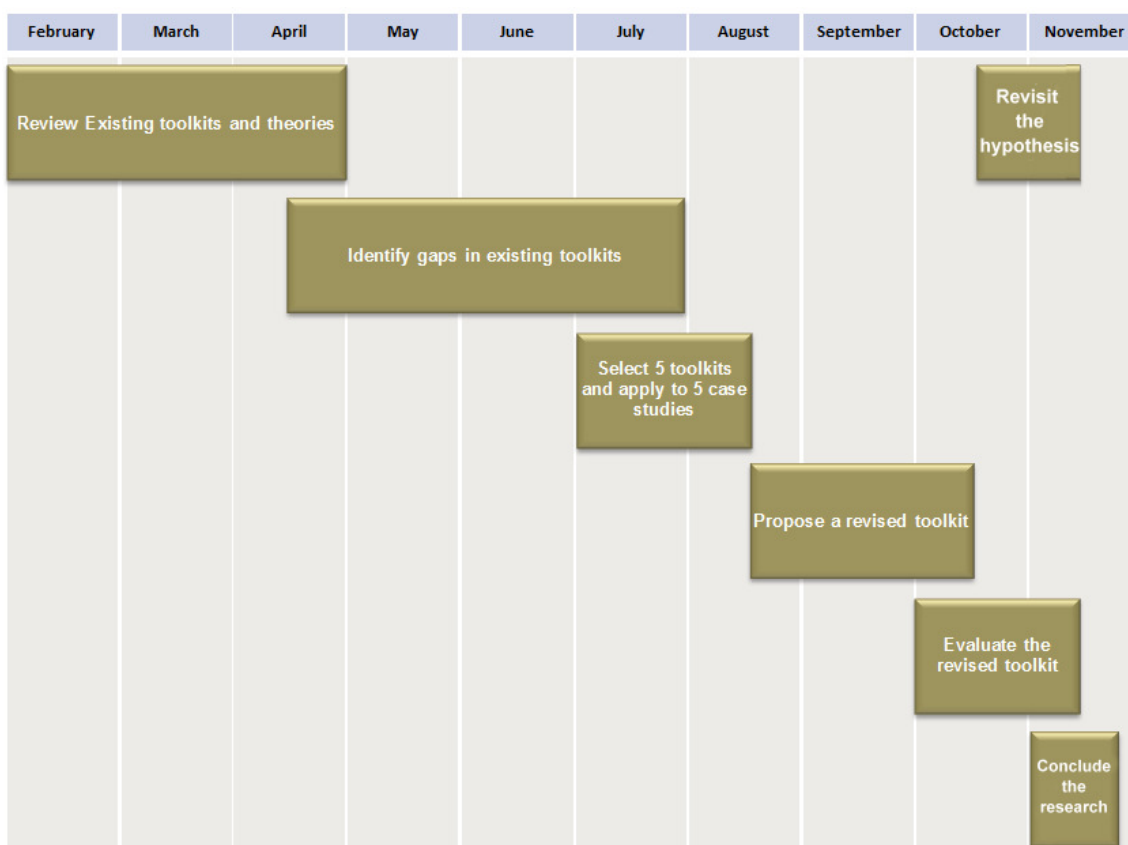


Figure 1\_Proposed schedule of the research study in Gant-chart format

## Conclusion:

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The objective of this research paper is to create a revised toolkit by understanding the gaps and flaws of available tools, and design a matrix in the form of a toolkit which will guide the architect to double check the choices they have made and prioritise their choices in a manner that will benefit the community in the most efficient way possible.

There are however risks that are associated with this study. One of the risks are that the data will be gathered from existing documents and it will be the author's interpretations. The international case studies will not be accessible for visit and observation and thus the data is merely dependent on what is available from other people's analysis. This may result in finding information that is biased and not necessarily true.

The final toolkit will be applied to existing informal settlement upgrade projects in order to test the proposed toolkit for its accuracy and response. The final revised toolkit will be a tool to save time and guide the architect's decision for appropriate intervention. The proposed toolkit will direct architects when they have collected data from the context and need to organise their thoughts and findings into a catalyst intervention which addresses the priority problems the informal settlement is struggling with.

# Chapter 2\_Role of “Architectural Facilitator”

## “Architectural Facilitator”

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Nabeel Hamdi refers to himself as a ‘development practitioner’ in the “The Placemaker’s guide to building community” where he addresses development in settlements through various types of interventions (Hamdi, 2010). However, another appropriate terminology for this type of practice could be an ‘Architectural Facilitator’ which can be defined as someone who guides the architect in his/her decision making to create a sustainable and long-term intervention that helps the needs of today yet is efficient and useful in the future. Architectural facilitator or agent of change is someone who links all the professionals involved in an urban development decision making to ensure synergy. The term ‘Architectural Facilitator’ will be referred to throughout this thesis.

Nabeel Hamdi is one of the pioneers of participatory planning. His book, ‘Small Change’, has been highly influential in describing the role that informality plays in urban life (Hamdi, 2004: xvi). He introduces the reader to a way of thinking on urban development that gives preference to incremental change over extensive projects (Hamdi, 2004) by explaining examples of works that he has done in informal settlements. In his book, ‘Small Change’, he explains with reference to his previous work, how the smallest change such as installation of a bus-stop can result in community upliftment and livelihood and allows for small scale economies and business nodes to form (Hamdi, 2004: 73). He observed how people cluster around place where buses stop and they wait for a certain period of time. This led Hamdi to identifying the opportunity of a small intervention that can bring people in by default and yet create livelihood in the place by further upgrading the surrounding spaces of the bus stop with small markets and commercial nodes. This small intervention eventually resulted in people wanting to come to the new market, thus buses were now bringing people in and not just taking people out (Hamdi, 2004:74-75).

“Architectural Facilitator’s” deliverables sit among three other built environment professions known as Town and Regional planning, Urban Design and Architecture. Here, the deliverables of each profession is discussed, thereby showing the importance of the “Architecture Facilitator”

job title through understanding the gaps that exist within these three professions. The Three professions description and deliverables are discussed below:

- Town and Regional Planner: Town planners develop long-term and short-term plans for the growth and revitalization of urban, suburban and rural communities. They take into consideration the social, economic and environmental concerns while taking into account the government policies that are out there on development of the urban area (SA Planners, 2010). Urban and regional planners resolve issues such as traffic congestion, air pollution and effects of growth and change on a community. Town and Regional Planners plan and develop the infrastructure of towns and cities and thus play an important role in improving spatial and social imbalances in urban and rural areas across the country (UJ, 2011). They also may be involved in drafting legislation on environmental, social and economic issues such as sheltering the homeless, planning new spaces within the urban context, providing public facilities and creating spatial frameworks which lead to Globalisation (SA Planners, 2010). Thus the scale of the Town and Regional Planners is very large since they do not only focus on the immediate city or region, but they must consider the global context and be able to create spatial frameworks that create a competitive city with the rest of the world.
- Urban Designer: "Urban design is generally accepted as the name for the process of giving physical design direction to urban growth, conservation, and change. It is understood to include landscape as well as buildings, both preservation and new construction, and rural areas as well as cities." (Velibeyoglu, 1999). Urban design is known to be a trend to formulate the interface between architecture and town planning, or fill in the gap between them. For example, Kevin Lynch saw urban design as a branch of architecture when Michael Southworth considered urban design as a branch of urban planning (Velibeyoglu, 1999). The difference between the role of urban designer and urban planner and architect is important to be clarified. As Barnett explains, an urban planner is primarily concerned with land use as an allocation of resources problem, without much knowledge of its three-dimensional characteristics or the nature of the building that could be place on it in the future. Architects on the other hand design buildings and they do their best to relate the building to its surroundings, but he has no control over what happens off the property he has been hired to consider (Velibeyoglu, 1999). There is a middle ground where neither of the two professions fulfils. On the one hand the town planner would be improved if it involved someone who understands three-dimensional design and on the other hand, someone is needed to design the city and not only the buildings and therefore there was a need for someone called an urban designer to fill in this gap in the built environment (Velibeyoglu, 1999).
- Architect: The job of the architect includes articulating the architectural vision, conceptualising and experimenting with alternative architectural approaches, validating

the architecture against requirement and assumptions (Bredemeyer et al., 2006:1). Architects have the responsibility to comply with their client's brief, as well as creating a functional and aesthetic building. Thus the architect does design the object (Building), but that is only after understanding the issues of their surrounding site and responding to those issues through an efficient design (Energy Star, 2012). Therefore an architect is known to concentrate on the clients concerns and he focuses on the issues that matter to the client. However there is more to a building design (Fowler, 2003). The architect is not responsible for creating urban spaces that comply with the policies and may not have a full understanding of the greater urban or regional issues.

Undoubtedly "Architectural Facilitator" cannot stand alone amongst the other built environment professions because it is a discipline which is meant to link all the professions and by having an understanding of their deliverables, design guidelines and briefs for the architect to work from. Thus there is a need for someone who understands architecture and the importance of design and yet has full understanding of the larger scale matters such as urban design and Town and Regional planning. This new profession could be called "Architectural Facilitator" who would give the architect instructions and a brief on how to approach a building within a specific site, by taking into consideration the existing policies, funds, possible stakeholders and design concerns.

One could argue that an "Architectural Facilitator's" deliverables are very similar to what the Urban Designer creates. However this is not entirely true. An "Architectural Facilitator" does not deliver a design, but only the parameters thereof whereas the "Urban Designer's" deliverable is his/her design. As Denise Scott Brown explains it best, the Urban Designers' problem is that they have access to many sources but they don't know how it can be applicable to their work. In other words, "they don't have a theory about how knowledge that comes with architecture should be used for the specific problems of urban design", therefore a bridging scholar between Architects and Urban Designers is needed. Thus Denise Scott Brown, as a practitioner believes that there is a need for a discipline who understands Urban Design theory and history and who has recently "flocked" to architecture (Kahn, 2002:66). He suggests that we should "co-opt some from architecture, get them interested in urbanism, and get them thinking about our problems" and this way the field will get richer with the inclusion of an "Architectural Facilitator". An "Architectural Facilitator" should be able to "recommend decisions to decision-makers" (Kahn, 2002: 68).

As portrayed above, the "Architectural Facilitator" is required to have an understanding of all the three professions and ultimately becomes the linking element between them. However, the final deliverable of the "Architectural Facilitator" differs significantly from those of the other professions in the following way: The "Architectural Facilitator" creates the programme and the brief for the architect, by taking into consideration the relevant government policies, available funding services, architectural theories, the practical side of the design such as the construction of the interventions proposed (i.e. use of local materials and vernacular architecture) and also



the design aspect of the intervention so that the programme can communicate with the architect. Therefore "Architecture Facilitator" is a profession that lies between Town and Regional Planner, Urban Designer and the Architect.

In terms of scale, the "Architectural Facilitator" falls after the Urban Designer and before the Architect (see diagram below):

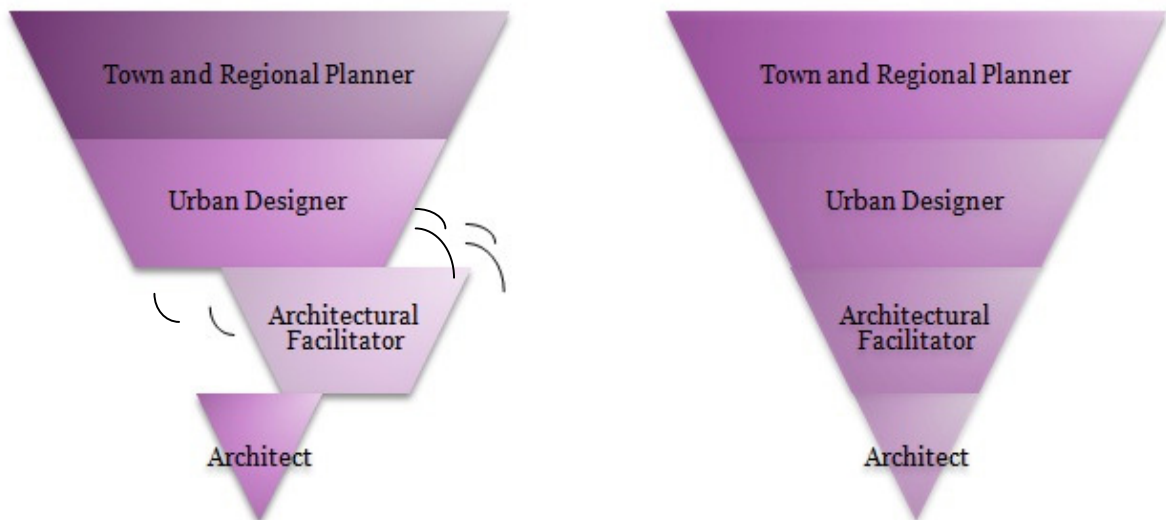


Figure 1\_"Architectural Facilitator" amongst other professions

An architectural facilitator is the "missing profession" in the development industry due to its specific line of work which is currently unrecognised. Currently it is the responsibility of the architects and designers to facilitate a comprehensive building process and interventions through full stakeholder participation. That is in addition to their larger responsibility of designing the final intervention. In order to achieve a strategic building process and yet be able to incorporate the government policies and available funding options, an 'architectural facilitator' is needed to facilitate the required information on site and available opportunities and challenges that are supposed to be addressed in the final product (Rolluda et al., 2009:1). The involvement of the 'Architectural Facilitator' will be valuable since the architect and the designer can now focus only on the designing of the intervention. The 'Architectural Facilitator', much like the 'development Practitioner' looks for "ways of connecting people, organizations and events, seeing strategic opportunities" in small nodes of existing yet invisible energies and then going to scale (Hamdi, 2004:140). He designs a set of strategic guidelines and solutions for development which is practical and also sustainable. He takes into consideration the existing policies and legislations and theories concerning with efficient architecture. In terms of scale, Urban Designers are more comfortable with Landscape Architects scale rather than that which Architects have been working at since the Urban Designer focuses on the larger structures rather

than the details which the architects design (i.e. Construction detail of a window). This issue suggests that there is still an existing gap between the Architecture and Urban Design profession. This is the reason why "Architectural Facilitator" is needed as a profession that could fill in this gap by providing applicable information for the architects with understanding the perspective of the Urban Designer and the policies of the Town Planner (Kahn, 2002:59). Therefore, currently the role of the "Architectural Facilitator" is distributed between a variety of disciplines such as Architects, Developers, Development practitioners, Urban Designers and Government officials. It is important to have one person in between all these professions to understand the basis of these professions and have a unique and comprehensive deliverable while linking all the professionals involved together.

The importance of having such a profession (Architectural facilitator) in the development industry is also to "create the kind of social space that enables individuals, including architects and communities, to engage with large organizations" such as government entities (Hamdi, 2004: 138). It enables them to work in "governance" in order to manage a development project (Hamdi, 2004: 139). The architectural facilitator is required to "mine relevant information, find common ground among participants, help the team to develop criteria by which all design options are evaluated throughout the design and construction process" as well as understand the network of government departments and ways to fund the project (Rolluda et al., 2009:2). An inclusive process of designing interventions for intended uses and users is valued by its community since they will feel a part of the institution and take pride in the finished product (Rolluda et al., 2009).

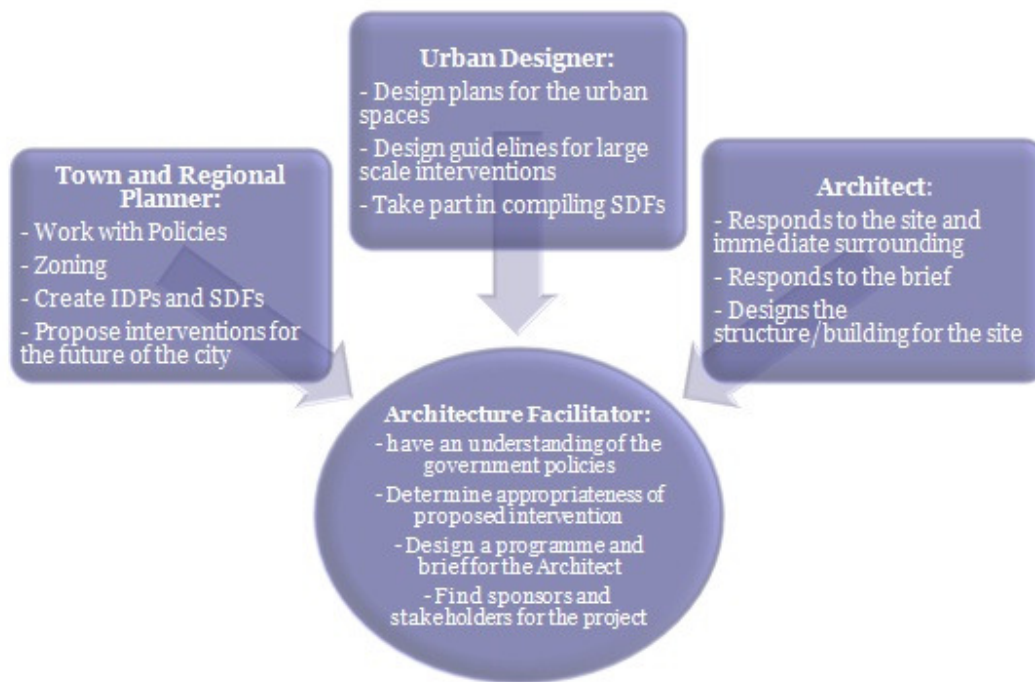


Figure 2\_Role of the "Architectural Facilitator"

## Influence of Architecture in development

The role of the architect in a development is not only to create new structures but to design interventions that identify future proposals for the development (Bennett et al., 2010:14). Understanding the community's needs through the eyes of the "observer, the visitor and for a moment in time being part of the community" is how the architect should approach such upgrade projects (Ibid:21). However, usually due to time constraints and small budgets this is often not a viable option since these kinds of processes take a long period for research and require long-term community participation. Therefore it is the responsibility of the Architectural facilitator to create guidelines and toolkits in order to make such an approach faster for the designer and be able to prioritise the most important need in a community to promote an efficient intervention for the context (Rolluda et al., 2009). Community participation may not be considered a time efficient approach, but it can achieve a more "efficient allocation of resources" if the research is thorough enough to lead to an effective intervention for the context (Reynolds Whyte, 2004).

## Objectives and vision

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The aims and objective of this project can be summarized into the following:

- To create a guideline that provides a simple understanding of how different professions should approach the upgrading of Informal settlements in the South African context;
- To define how ownership will be achieved for residents within a community through the implementation of tenure security;
- To define a simple starting point for designers on what type of intervention will be most suitable for a specific community; and
- To give reasons of why professions such as an architectural facilitator are needed in such projects.

Vision:

Designing simple interventions which cater for the community's priority needs will become an essential approach to the upgrading of informal settlements. "Simple resources conceived for multiple effects is what is known as 'sophisticated simplicity', the economy and elegance of achieving much with little" (Holcim Foundation, 2008:28). In other words, taking a small opportunity and resolving it by considering the future, will eventually lead to a sustainable intervention such as the bus-stop which was created by Nabeel Hamdi (2004:73). The new networking of these interventions such as the markets and people and their source of information (which they have learnt in the process of community participation) will enable the community to become the future "development practitioner in their own right" and in this way the settlement ought to grow and become more and more developed through time by its own residents (Hamdi, 2004:76).

Thus the vision for the proposing toolkit is to make the process of informal settlements upgrade a more systematic approach and make them a flourishing (up-and-coming) centre for their future generations. The revised toolkit is aimed to help the architects prioritise their choices for interventions and design the most needed intervention in an informal settlement. This way, the intervention put in place for the informal settlement upgrade will be used more by its community (since it is their prior need) and ownership will be achieved leading to a more self-maintaining neighbourhood. The goal for the above achievements is so that the settlement will sustain itself by learning new skills from the process, addressing their prior needs (to services for example), eventually achieve livelihood in the community by themselves.

# Chapter 3\_Theoretical Argument

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## *Site Location*

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Slovo Park is situated south of Johannesburg and it fits into a plot of land that is the remainder of the farm Olifantsvlei (Bennett et al, 2010:12). It is contained by the Moroka Bypass (N12) to the north and a declining industrial agglomeration to the South. It is an informal community of 2500 people where upgrade projects are taking place under strong leadership such as the new carwash (interview with resident, 2012). The exact address to the site is Slovo Park, Nancefield, Johannesburg, Gauteng, South Africa. With GPS coordinates of 26° 18' 17.87" S 27° 54' 3.57".

## Context [matters of concern]

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Slovo Park informal settlement was established in the early 1990s by Johannes Mthembu and a number of other people who moved to the site so that they were close to where they were working (Tissington, 2011:26). Slovo Park is far from being characterised as a slum development as has been defined by current statistics, but rather houses a well established community with meaningful and long standing relationship between its neighbours (Bennett et al, 2010:11). The well established community is one of the most important reasons why this settlement has lived for over 20years despite all the struggles they faced.

The existing community of Slovo Park's informal settlement show a unity in establishing themselves and gathering their energies to provide infrastructure (including supply of water and electricity) in order to service and house themselves. "The struggle for water united them" and together the Slovo Park community with a number of other organizations in the area, engaged with local officials around the water issue in 1994 and as a result they achieved having access to water (Tissington, 2011:27). The current community of Slovo Park is committed to the change and growth of their homes and living environment to ensure a bright future (interview with residents, 2012). As an architectural facilitator, the guidelines provided for the upgrade of such an informal settlement can not simply be a suggestion of possible interventions for now, but it must rather be based on principles which will lead to future self-development of the settlement

by its community. The following principles should be strongly present in the design of the toolkit of interventions:

- One cannot only provide housing without understanding the needs of the community first;
- One must develop communities through participation within the design and building processes;
- One must integrate and train the people who the building will serve; and
- One must maintain the longevity of the building itself through sustainable principles (Bennett et al, 2010: website).

With respect to the history of the Slovo Park and the importance of community amongst its residents, the architectural facilitator should act as an “urban acupuncturist looking for interventions that could release the energy in place” and that way create small interventions which have strong and lasting results which will enable the self-improvement of the place (Hamdi, 2010:64). In order to understand the needs and priorities of any community, one must be able to understand their everyday lifestyle as the connection between space and culture lies in the recognition of activities and lifestyle of the people who live in the settlement (CSIR, 2000:3-3). By understanding issues such as identity, tenure security, vernacular architecture, sustainable development and ownership, a sustainable intervention can be designed which will become part of the community's everyday life and they will take ownership and develop the new intervention to suit their future needs.

## Theoretical argument

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(From Eradication to Upgrade)

In today's world, there are two ways of upgrading Informal settlements:

1. “Eradicate and build new”, is the removal of shacks by building new houses and prevent new shacks from formation (Eglin, 2008).
2. “Recognition and upgrade”, is to recognise people staying in informal areas while providing some form of basic level of planning and services. Then over time these recognised areas are gradually upgraded to full service and tenure (Eglin, 2008).

The second option suggests that people can live in ‘temporary’ houses in the areas of their informal settlement until their areas are upgraded. However, informal settlement residents do not always need to relocate in order to have a better life. The reason for that is “moving slums from one location to another destroys neighbourhoods where improving communities exist and where the situation calls for encouragement rather than destruction” (Jacobs, 1961:353).

Therefore, when upgrading an informal settlement the same theory applies where one must avoid the simplistic approach which will only fix the surface of the problems the community is dealing with. One must rather build upon the existing “forces for regeneration” that exist in the settlement and which will help reintegrate the informal settlement as part of the bigger city (Jacobs, 1961:354) rather than “patronize people into a better life” (Jacobs, 1961:354).

The following five theories are applicable when upgrading informal settlements. These theories describe why is it important to upgrade informal settlements where they currently exist rather than relocate them to a new area. The five theories are namely:

- Identity;
- Tenure Security;
- Vernacular Architecture;
- Ownership; and
- Sustainable Development (Long-term intervention).

## Identity

Identity is a term which is used to explain one's expression of their individuality or group affiliations (such as national identity and cultural identity). However, the formation of someone's identity occurs through identification with a significant other such as parent and other individuals who are influential in their lives (McLeod, 2011).

According to Twigger-Ross, the definition for 'Place and Identity' is different to identity of an individual from social or psychological view. First definition which relates place to identity is what is called 'place identifications'. This refers to a person's uttered identification with a place, i.e. someone from Cape Town refers to himself as Capetonian. The second definition by Twigger-Ross is that identity may be recognized through the term 'place identity'. 'Place identity' is another aspect of identity comparable to social identity that describes the person's socialization with the physical world. Therefore, the main and most important principle of identity is the desire to maintain personal distinctiveness or uniqueness. This principle suggests that distinctiveness defines a lifestyle and institutes that person as having a specific relationship with his/her home environment which makes them unique from any other type of relationship (Twigger-Ross, 1996:205-207).

Therefore with consideration to all the theories regarding identity and place, one can conclude that sense of identity and place which already exists in Slovo Park must be identified and preserved in order to promote the livelihood of the place and also lead to pride and ownership of residents towards their living space which will further encourage the self-development of the settlement. One must understand how interventions can help shape or stabilize the identity of

the informal settlement and that sometimes the aesthetics of a structure can help form a characteristic and become a social intervention for the informal settlement (Dovey, 2010).

## Tenure Security

Informal settlements always suffer from the fact that their houses are only 'temporary' since it is land which they have occupied illegally. This sense of temporarily living takes away the idea of investing in their living areas for further improvement. The value of ownership is of great importance in the developing world. Therefore, Smit's argument in "incrementally securing Tenure" is a new approach for informal settlement upgrading in South Africa. Smit refers to the importance of tenure security in the following as such: "Once tenure security is in place in an informal settlement, opportunities increase for success to the economy, infrastructure services, social facilities and micro-finance" (Smit et al. 2010:5-7).

The "Incremental Tenure Approach" looks at how municipalities can make improvements in informal settlements during the period between settlement formation and housing subsidy allocation. In order for the informal settlement residents to enjoy the benefits of land access, Tenure Security is essential. According to Smit, tenure security includes levels of service, the possibilities of access to microfinance and economic opportunities (2010:31). One of the most important aspects of Incremental Tenure Security Approach is defined to be "its potential to alleviate the pressure on municipalities and to deal with the needs of informal settlement residents in the interim" (Smit et al. 2010:31). Tenure security is an approach to be taken if new interventions' objectives are to be sustainable and self-developing over time as well as being accepted by the community.

Building of security through an agreement on land tenure, the raising of dignity and self-esteem of ordinary people, their sense of place and belonging (Hamdi, 2010:190) is the most important matter in upgrading an informal settlement since, in this way, ownership will be achieved and the community will have the drive to invest in their living spaces.

## Vernacular Architecture

The simplest definition of vernacular architecture could be understood by paging through Rudofsky's book 'Architecture without Architects' (1965), which creates an understanding of this term by the black and white photography of vernacular buildings around the world. Rudofsky was the first who made use of the term vernacular in an architectural context by defining the term: "For want of a generic label we shall call it vernacular, anonymous, spontaneous,



indigenous, rural, as the case may be" (Rudofsky, 1965:58). Vernacular architecture is the original response to a society's or person's needs for shelter and it fulfils these needs because it is designed by the society or individual itself (Ladd, 2003:1). These building methods are tailored to the climate, function and sociological needs of their society and the building methods are perfected over time through testing by the society. Therefore, since the builder of the structure is the same as the final user of the structure, the design will be specifically customized to their particular needs and priorities which will create a sustainable architecture and ownership will formulate since it has evolved to fit a society's needs.

*Vernacular architecture in informal settlements:*

Human needs, culture, tradition and knowledge are the key determinant of vernacular architecture and the most basic human need is shelter. By combining the cultural needs (aesthetics, social, traditional) with the humanistic needs (shelter, warmth and food) the vernacular is created and mostly reflected in the home (Ladd, 2003:5). Vernacular Architecture reflects the particular local conditions, materials, and techniques. Thus the architecture in a slum counts as vernacular architecture since it is determined by local conditions (De Maat, 2009).

Squatter settlements are often assumed to be the opposite of vernacular architecture since it is not associated with traditional practices and forms. It is believed to be a threat to contemporary values and globalization (Goel, 2012:2).

The study of vernacular architecture is not about replicating the structures and methods of a different place and a different time but it is about how one can "better the interaction between the architect and the person occupying that building" (Ladd, 2003:11). It should be the objective of every architectural intervention to allow the end user a choice because this way the client will be happy with the final product and decisions which have been made (Ladd, 2003:11). This approach makes that piece of architecture theirs and it establishes belonging.

Today's architects must learn from vernacular architecture and understand why vernacular communities do not have as many of the problems as our society faces today (Ladd, 2003:12). Stewart Brand points out: "Vernacular Architecture is everything not designed by professional architects- in other words, most of the world's buildings" (De Maat, 2009). This includes the architecture of informal settlements, not their use of materials per se but more the spatial qualities of their living units.

## Ownership

The importance of upgrading an informal settlement is to be able to understand the needs of the community (the client). A development plan which is based on relocation of the

community is usually an unsuccessful approach since people take pride in where they live and have ownership, to an extent. Therefore many of the residents of informal settlements prefer to stay and not move out to a new neighbourhood and start a new life. The cost of relocation, not only to state, but also to the individual, in terms of the disruption to a precarious livelihood is much higher than that of infrastructure delivery (Huchzermeyer, 2003).

The existence of ownership in an informal settlement is how one can make sure that upgrade and development is an asset since ownership is regulated by providing tenure security which will allow for selling and transferring through inheritance and that will bring a sense of caring to the resident knowing that they are protected against eviction since they own the land legally (ICA, 2004). If there is no form of ownership and territoriality of space amongst the residents towards their living area, no matter how great the intervention may be, it will never be taken care of and accepted. Such intervention may even be vandalised or abandoned since it is considered alien to them. Therefore, community participation is the primary step to designing interventions which the community needs and takes ownership over. As Nabeel Hamdi describes the importance of authorship:

“Because without a large measure of control and self-determination, you cannot have ownership and without ownership you undermine commitment, over the longer term at least. And partnership, because it demands cooperation, not just to deliver on needs but also to forge alliances vertically with other authorities and horizontally with your own, which in time can influence politics or policy and which can both empower and transform”

(2010:92)

Relocation of informal settlements to a new area without considering other interventions which can upgrade the settlement where they already exist can cause issues of ownership. The community that is relocated to a new place often feel cut off from their friends, local community and their jobs (BetterCitiesNow, 2010). Therefore, they feel isolated from everything they worked for before, causing their new relocated neighbour to be unfavoured. Struggles with the new relocation can cause in lack of ownership being taken by the community.

## Sustainable Development (Long-term)

In the book 'Life and Death of Great American Cities' (1961), Jane Jacobs introduces the term “unslumming” which means formalising slum settlements without eradicating them (Jacobs, 1961:375). A successful and sustainable “unslumming” takes place when enough people have

an attachment and reason to stay in a slum settlement and it is practical for them to stay where they are (Jacobs, 1961:375). This is the situation that we are dealing with in Slovo Park. The community of Slovo Park have done so much in the settlement, they are comfortable with the place where they live, they have established long standing relationships between their neighbours and they want to stay in the same area, although basic service upgrades and development is needed in the area in order to improve the quality of their current life (Bennett et al., 2010:11).

The role of architecture in today's world is important however; architects can make a difference and make architecture significant by making someone feel positively attached to their place of being. This is by solving long-term problems since this legacy will carry on to the future and if it is a short term solution then they will be creating more problems for the next generations (Ladd, 2003:11).

In order to measure success of an intervention, one must understand how to open doors and get things going further. In other words, find an intervention which can "serve as a catalyst for achieving longer term and more strategic objective and tackle limitations and allow for the project to grow larger through time (Hamdi, 2010:165).

## Understanding the context in terms of the studied theories

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In this section, the theories that have been described above will be applied to the context of Slovo Park Informal Settlement in order to paint a clear picture of what they each mean in the real life scenario:

### Identity

The issue of identity is of great importance amongst the community of Slovo Park. Through unstructured interviews with the community, it was found that they love the place where they live and they like the fact that their housing layouts (i.e. fencing around their units) is different from the suburbs since it is "that" what defines Slovo Park. This is an informal settlement and not a suburb." (Interview with resident, 2012). Being part of Slovo Park and having the sense of belonging to the community that exists there has created a sense of ownership for place and has given the residents pride towards their settlement. They identify themselves as residents of Slovo Park rather than saying they come from Johannesburg or the any other larger city. This results in the fact that the Slovo Park community desires for their identity to remain the way it is

and they only need small upgrades such as their waterborne sewage. In other words, some of the problems that were identified in Slovo Park informal settlement point to the following imperatives: the need to improve integrated planning; the need to develop and implement pro-poor land strategies; the need to push for in situ upgrade; the need to pursue greater participation by communities and promoting community-based development (Tissington, 2011:64). Thus according to Tissington's report, there is a need to have much greater focus on issues such as in situ upgrading in terms of the UISP such as where access to services and security of tenure are provided prior to the construction of new houses. Therefore 'Housing' is not always the solution when upgrading informal settlements.

## Tenure Security

The big question which will be researched throughout this thesis is what is the reason for lack of self-development in this informal settlement? The founders of Slovo Park created this informal settlement on the abandoned land previously but now that there is need for service upgrade, there is no one interested in resolving the problems and everyone is dependent on the Government to come and participate/intervene, providing the settlement with appropriate upgrade. Research shows that as long as the residents of an informal settlement don't feel a sense of tenure security where they reside, they will never invest their money, energy and talents there (Smit et al. 2010:5). It is clear that the possibility of having to move to another area through Governmental rules creates a sense of temporality amongst the residents and thus results in no self-development in the area.

## Vernacular Architecture

When one looks at the existing patterns of built units in Slovo Park, certain types of planning can be identified that have been followed and displayed by all the residents. There is an open yard by the entrance to each plot, fenced off by chicken mesh in order to make a definition of the boundaries (see Figure 1). At the entrance is also where the residents do gardening or park their cars (see Figure 2). At the back of each plot, away from the public streets, is where the living units are placed (see Figure 3-4). This pattern is noticeable and seems aesthetically pleasing in the entire settlement; however the reason for this pattern is that within the community they have decided on a standard spatial pattern in order to leave space for the RDP housing that they are expecting the government to build for them. Since according to section 3.5.6 of the Tissington's report on Slovo Park, this informal settlement has been promised new houses from 950 in 1994 to 575 in 2010, which is problematic since the number of houses to be built has been reduced

whereas the size of the settlement has expanded over the years (Tissington, 2011:59). It is almost as if this pattern of spatial planning within Slovo Park has become the new Vernacular Architecture of the place even though the initial spatial distribution was for housing delivery they were promised (unstructured interviews with resident, 2012). Everyone follows the system in order to be part of the bigger urban plan.



Figure 1\_Slovo Park Informal settlement, 2012, Chicken mesh to define boundaries



Figure 2\_Slovo Park Informal Settlement, 2012, Vegetable garden at the entrance of each plot



Figure 3\_Slovo Park Informal Settlement, 2012, Open space in front of the living units



Figure 4\_Slovo Park Informal Settlement, 2012, Living units and shops are placed at the back of each plot with open space in front of them

## Ownership

The issue of ownership is directly linked to Tenure Security (ICA, 2004). In Slovo Park informal settlement, the community has taken ownership only of their immediate living spaces which is the boundaries of their houses. Everything else around them is not their problem and nothing has been done to it. Slovo Park informal settlement is filled with overgrown vegetation but this

issue does not seem to be a big concern to the members of the community (interview with resident, 2012) as they stress that they want services and move away from speaking about the aesthetic of the place (Tissington, 2011:49). Their houses and gardens are the only spaces that had been taken ownership of. Therefore in 2009 the role of SPCDF (Slovo Park Community Development Forum) was decided to be to mass mobilise the community to take ownership of their development so that they will care about their surroundings and not only their immediate living space (Tissington, 2011:49). Placing livelihood in the centre of our research for building community ensures a better synergy between people and place, needs and aspirations, and between solving problems and changing worlds (Hamdi, 2010:190). In order to create a livelihood within a community, it is essential to activate a sense of belonging in the community so that the project is accepted and the spaces are taken care of in the long-term.

## Sustainable Development

As recommendation number 11 in Tissington's report suggests, the energy and skills of community members and leaders need to be identified in the development processes especially while they are waiting for government interventions to transpire. This is due to the fact that there is very little of the apathy blamed on communities which means sustainable partnerships are required to be formed in order to accelerate development and ensure the improvement of living conditions for the poor during the waiting period (Tissington, 2011:65). Therefore the community will start working towards sustaining their livelihood by addressing their own needs rather than waiting for the government to provide for them and working towards a better tomorrow since they will no longer be threatened by lack of tenure security and possibility of eviction (ICA, 2004). This ownership will activate the area in terms of self-upgrading and taking care of the surrounding vegetation, outside of their immediate premises, fixing what is broken around them which will eventually lead to a community which is able to sustain a good living condition within Slovo Park itself. There should be limited reliance of the community on the consultants and professionals, rather an involvement in development process and promotion of community leadership (Tissington, 2011:65). One of the definitions of a sustainable development is one that can maintain a "balance" between today and tomorrow (Witoszek, 2007:3). This balance can only be achieved if the community takes ownership of their settlement.

## Conclusion:

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The five intangible aspects of well being that exist in informal settlements are: Identity, Tenure Security, Vernacular Architecture, Ownership and Sustainable (long-term) development. When upgrading an informal settlement, it is important to understand the importance of each of these matters and incorporate them into the upgrading programme in order to create a successful informal settlement. As Dr. Joan Clos, United Nations Under-Secretary-General and Executive Director of UN-Habitat, says:

“The cities of the future should be ones that are capable of integrating the tangible and more intangible aspects of prosperity, in the process shedding off the inefficient, unsustainable forms and functionalities of the city of the previous century or so and becoming the engine rooms of growth and development.” (Pocaterra, 2012)

This logic does not only apply to the large city scale but also when upgrading informal settlements. Integrating the intangible aspects of well being in the upgrading process can benefit the community and the future of the informal settlement self-development.



# Chapter 4\_Existing Tools for Informal Settlement Upgrade

## Application of Existing Tools to Slovo Park Community Centre intervention

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Each of the chosen toolkits, systems of analysis and guidelines will be applied to the Slovo Park informal settlement community centre intervention in order to evaluate how they would function in a real life example. The chosen tools are the following:

- NabeelHamdi's Tools (Hamdi, 2010:69)
- Navarro-Sertich system of analysis (Navarro Sertich, 2010)
- National Upgrading Support Programme (NUSP) toolkit (NUSP, 2010)
- Adaptability Assessment Tool for Sustainable Building Transformation (for Residential Architecture) system of analysis (CSIR) (Gibson et al. 2011:83)
- The Sustainable Building Assessment Tool (CSIR) (Gibbert, 2008)

Instead of giving an overview and description summary of the above tools, they have been applied to a local intervention (Slovo Park Community Centre) in order to understand their functionality through example. The reason for the local intervention and site is that if there are uncertainties, the author is able to visit the site and create questionnaires in order to clarify unknown data. The application of the existing development tools on this project is aimed to outline the strengths and weaknesses of these toolkits. However, not all the precedent studies will be analysed in such detail, but a table of how each precedent has theoretically applied the different steps will be provided indicating the positive and negative outcomes of approach. This table will show what the existing tools lack and how they can be improved by drawing a conclusion from the final results (Chapter 6 and appendix). The analysis below shows a summary of what was found in the process of applying the chosen tools and systems of analysis to the local case study 'Slovo Park Informal Settlement Community Centre':

## The NUSP Resource Kit:

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In order to design an revised toolkit for upgrading informal settlements, the Slovo Park precedent study will be analysed in terms of the theoretical application of existing toolkits and the positive and negative outcomes will be discussed to give an understanding of the gaps which exist in current toolkits. The first toolkit is the National Upgrade Support Programme (NUSP) toolkit.

### *Part one: Understanding your informal settlement.*

In order to be effective, there is a need to develop a real understanding of the informal settlement which one is working with (NUSP, 2010). In the case of the Slovo Park project, this step has been done through extensive mapping of site and site analysis. The history of the settlement is understood through interviews and conversations with members of the community. However, it is important to note that the NUSP resource toolkit does not suggest a method for understanding the informal settlement which is one of the negative points of this toolkit. In order to strengthen the community's capacity to take over the project once the professionals are out of the site, participation in the planning is required (Planact, 2012). There are different methods of community participation which is explained in detail in Nabeel Hamdi's 'toolkit', later in this chapter.

### *Part two: In-Situ Upgrading Principles and Policies*

This section of the toolkit promotes for the upgrading of informal settlements in their existing locations which is often called 'in situ upgrading' (NUSP, 2010). In the Slovo Park project, the community centre was built inside the settlement which means that it did comply with this section of the NUSP toolkit. Therefore, relocation should always be the last resort in order to have minimal disruption to the residents' lifestyle (NUSP, 2010). In situ upgrading in an informal settlement will ensure the improvement of existing conditions and allow the residents to stay in the same area that is convenient for them (Huchzermeyer, 2011:15). According to Jane Jacobs, people stay in the slums where there is less living quality compared to the rest of the city, due to their personal attachments to other people and their livelihood which has been developed over years and thus the in situ upgrading is always the best way to prevent the community losing all they had in their current settlement (Jacobs, 1961:365).

### *Part three: Building Partnership*

It is impossible to upgrade an informal settlement in situ without the involvement and participation of the community who live there (NUSP, 2010). Studies have proved that if the

residents are merely informed about the municipality's plans to upgrade their area they will not regard the project as theirs and are unlikely to feel responsible for taking care of what it provides (NUSP, 2010). However, in upgrading projects if the residents have to work during the planning and implementing the improvements to their informal settlement, a sense of ownership will be created as well as other benefits such as cost reduction and use of local resources since the community living in the settlement have the most useful information about their living area (Nour, 2011, 79). In the Slovo Park project, the community was involved throughout the project, from the planning stage up to the construction level of the project and thus they complied with part three of the NUSP toolkit (Bennett et al., 2010).

#### *Part four: Surveys, Registration and Security of Tenure*

According to NUSP resource kit (2010), the most important step after creating a partnership for upgrading an informal settlement is to create a shared understanding of who lives in the settlement, the conditions in the settlement and the needs of the community. Doing surveys and taking register of people who stay in the settlement are the methods of understanding the community. However, it is the role of municipalities to give residents some kind of right to reside there which is called 'security of tenure' (Smit et al. 2010:7). The existence of Tenure security in an informal settlement will increase the economy, infrastructure services and the interest of the community to take care of their living area (Smit et al. 2010:5). Therefore, in the Slovo Park community centre project, there was little influence of municipalities and therefore there was no 'security of tenure' given to the residents since an architecture student does not have authority to make decisions as such. In other words, the role of municipalities and government department in informal settlement upgrade is of great importance if sustainable settlement is the aim of the upgrading.

#### *Part five: The Planning Process*

After the priority needs have been clarified the planning process can begin (NUSP, 2010). In an Upgrade of Informal Settlement Programme (UISP) project the process of upgrading is done by the partnership with the help of the technical experts and professionals which means that the experts listen to the residents' needs and they work with the partnership members to establish some design principles for the upgrade (NUSP, 2010). This method was used in the Slovo Park project where the needs of the Slovo community were recognised and addressed in an architectural intervention. These needs were discovered through many different ways of community participation during the planning process such as surveys, mapping, model building and making problem trees. If the interventions are meant to be meaningful then an understanding of the complexities in the informal settlement and their community and the interaction of both must be taken into consideration (Mehta et al. 2008:7). However this

information can be translated subjectively by different decision-makers since there are currently no guidelines or toolkits as to how one can translate the needs to possible interventions. This is where the gap in the NUSP resource kit appears to be.

#### *Part six: Financing Upgrading*

The financial instrument that is most important in the NUSP resource kit (2010) is the UISP. Its objective is to finance the entire upgrading process, particularly with regard to partnership building, land purchase and rehabilitation, planning, design and the installation of infrastructure up to the point where a township is proclaimed (NUSP, 2010). However the big problem is that the success of the UISP rests on the willingness and ability of officials to make it work financially, which means being flexible and adaptable without being irresponsible (NUSP, 2010). Once again the NUSP resource kit (2010) mentions the importance of municipalities and government in an upgrading process of an informal settlement, showing how one should start understanding the routes of connection in governmental departments in order to be able to use the grants and subsidies for projects as such. In the Slovo Park project, most of the funding was done by the private sector and the labour was provided by the community residing in the informal settlement as well as the architecture students themselves. The funding was mostly done not in cash but in materials such as bricks and concrete (Bennett et al., 2010:45-60).

Involving the community at the financing level should be encouraged in order to maximise shared ownership and responsibility, however, due to lack of 'security of tenure' in informal settlements such as Slovo Park, it is unlikely for residents to be willing to contribute in the development of their settlement (Smit et al. 2010:7).

#### *Part seven: Design and Implementation*

"The value of development is not only the end product that is delivered but the process of delivery and how many people can benefit from jobs, skills training and capacity-building along the way" (NUSP, 2010). Therefore the partnership of the professionals with community should involve "satisfying objectives such as speed, cost, employment, job creation and skills development" (NUSP, 2010). This section of the NUSP resource kit (2010) has been satisfied in the Slovo project, however, the second section of this part suggests that one should develop "systems and procedures which incorporate sustainable standards for improving informal settlements" through learning from other precedents and case studies (NUSP, 2010). This section of Part seven doesn't provide more information on how this is possible and it only suggests what should be achieved without giving further guidelines of how to tackle this problem.

### *Part eight: Monitoring and Evaluation*

This part of the NUSP resource kit (2010) explains the importance of community participation at all stages of upgrading an informal settlement and keeping a report of satisfactory progress according to the residents at each stage of the project. The results must be carefully considered in order to accurately understand what effect the upgrade is having and to recommend any changes that could improve performance (NUSP, 2010). This part was taken through the Slovo Park project as every phase of the project from planning to construction was done together with the community (Bennett et al. 2010). At some stages, during the construction phase, the design was changed and alternative methods were used in order to suit the context better, thus resulting in correction of the initial analysis of the design by the architects (Ibid). Monitoring and evaluating the impact of the intervention and design stages on the community and site is of great importance since that is how the enabler of the project can estimate the degree of success and sustainability of the project (Feireiss, 2011:105).

### *Part nine: Sustaining Improvements*

The life of any development project is not limited to the project period and the required improvements are not limited to the infrastructure according to the NUSP resource kit (2010). "the responsibility for improving the built environment in the settlement and the quality of life of its residents must go on – perhaps for many years" (NUSP, 2010) and if this improvement is not sustained then the entire project will become undone after a few months after the project end. The NUSP resource kit (2010) suggest that a support structure group must be created in the community in order to ensure continued progress and it must be done from the early stages of the project so that the entire project process is regarded as continuous. The support group in the Slovo park project consisted of the residents who helped throughout the process of designing and planning. However, the community centre was left abandoned and vandalised by the children of Slovo Park. The destroyed sections were never fixed by the support group which means that there is a gap in the Upgrading process of Slovo Park where the Slovo Park community did not take ownership of the intervention due to reasons such as that the community centre not being their priority concern (Author's observation on site, 2012). How can one address this issue?

Two possible methods for sustaining improvements are known to be "supervision and strategic training of the community" according to Russ (2010:20). Investing too much responsibility in one professional individual to come and supervise the project will lead to less ownership amongst the community after the project's completion (Russ, 2010:20). Supervision is not an efficient way of concluding an upgrading project since it requires professionals mostly to do the job rather than the community taking over the responsibilities. However, strategic planning and teaching the

community new skills to maintain the project in later stages, is the better approach for a long term and self-sustaining intervention.

## Nabeel Hamdi's Tools for analysing a community and Proposing a Sustainable Development Intervention accordingly (The Placemaker's Guide-Chapter4):

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The following 'toolkits' of action planning and planning for real are introduced in Hamdi's book, 'The Placemaker's Guide to Building Community', and are reviewed briefly as in how one can go about the initial task of gathering information from context. It gives a starting point to the architects as to how they can prepare and what they must watch out for on site when trying to find the needs of a community (Hamdi, 2010:69):

### *Looking (direct observation)*

Direct observation enables the planning team to see for themselves the conditions of the urban setting under consideration (Hamdi, 2010:69). This method gives the designer (observer) the opportunity to spot clues and be able to ask questions from the community about the situation or matters that seem important and of significance to him/her. This way the observer has a starting point to work from. It gives the observer the chance to form a first opinion about how things work based on what is visible on site such as flooding, lack of services or roads (Hamdi, 2010:69). This was taken into consideration in the Slovo Park project where the architecture students had their initial opinions formulated without any interviews with the community and just by observing what already exists on the site. This helped them understand priorities more when they spoke to the community as well as realising how the needs of a community living in the informal settlement might differ from the views of an outsider who is not well informed about the context.

### *Transect walks*

Transect walks are a useful way of organizing observation and offering a quick insight into differences in the settlement (Hamdi, 2010:69). Walking through the settlement with local people, observing, listening and asking them questions in terms of what is observed will give the designer the chance to start understanding the context of study through the point of view of different groups of residents. The findings of this observation by walking through the settlement can be presented with a collage of thoughts and images (Hamdi, 2010:69). This process was

done in the Slovo Park project and it was combined with casual interviews and chats where the outcomes were then compiled in a set of collages and profiles for residents leading into a starting point on what the problems of the Slovo Park settlements are (Bennett et al., 2010:66). Oral testimonies and stories that the shopkeepers, women, children, elders and other members of the community tell the interviewer will inform the designer about how and why things work or do not work in a specific space and will explain who suffers and who benefits (Hamdi, 2010:70).

Transect walks are a way of spatial data gathering and it is also known as “walks taken around the community in order to observe the people, surroundings and resources” (Thies et al, 1991:41). This way the enabler of the development can formulate appropriate questionnaires in order to expand their knowledge in the areas of importance.

### *Interviews*

While observation reveals information about the visible structure of the community and settlement, interviews tell about the hidden social and economical structure of the community (Hamdi, 2010:70). Formal interviews are usually in the form of questionnaires and informal interviews are usually conversational and conducted in familiar settings but it involves open questions which advance gradually (Hamdi, 2010:71) and can take on a different direction due to the participants' answer. Interviews are a way of research methodology when the story behind participants is needed and it can pursue in depth information about the researched topic (Valensuela et al. 2012). This method was conducted in the Slovo Park participatory part of the project in 2010 by the group of honours architecture students (Bennett et al. 2010), a workshop held in Slovo park in 2011 and the outcomes were presented in different formats in 2011 (Combrinck, 2012). First was the “problem tree” which is a planning method based on needs of the community and it is known to be an analysis tool that identifies the major problems that a community is facing and their main causal relationships with what is causing the issues (ZOPP, 1987). The second way of presenting the data was through a “Manfred Max-Neef model” which includes a matrix that identifies fundamental needs on one axis and satisfiers of these needs on the other axis (Max-Neef et al. 1991). Such interviews should ask questions where the answer is more than only 'yes' or 'no' in order to get a descriptive answer where it can lead to more useful information about the context.

### *Harvesting the Resources*

Harvesting the resources and assets that are already available in the informal settlement will give us a sense of the human capital resources that exist and eliminate the need of bringing in outside sources into the project (Hamdi, 2010:71). There are different methods of finding available skills amongst the community which are through Workshop design, skills profile, action

plans and asking for certificates (SLIC, 2012). In the Slovo Park project, the available resources and skills were identified through interviews with community which lead to having a collection of skills existing amongst the residents already such as people with construction skills or management skills who helped the erection of the intervention and eliminated the need of outside labour (Bennett et al., 2010:66-67). The community learnt new skills in the process of construction. Making a realisation of the resources available in site will also partly sensitize people to resources that they may not recognize as useful before and making them understand the value of their skills they will increase their social networks and ability to invent new projects in the future (Hamdi, 2010:72).

### *Mapping and Modelling for Documentation of findings*

Mapping of the findings is important in order to put together the information and draw conclusions from them. This mapping can be done in many ways such as diagrams, problem trees and modelling through charts (Hamdi, 2010:72). Mapping can provide us with information about people's past and present experiences and reveal social and political relationships that need to be considered when preparing proposals (Hamdi, 2010:72). The mapping of Slovo Park was done through a series of problem trees, site analysis, identifying patterns of movement on a map of Slovo Park and also through making models and drawings (Bennett et al, 2010). Documentation of the findings will lead to patterns and help with evaluation of the information gained which will guide the designer in the decision-making process in a structured way (Thayer-Hart, 2007:45).

The physical mapping of what already exists on the site can be of different nature such as mapping of schools, hospitals, transport operation routes and footprint of current structures to name a few. This type of mapping will help the researcher understand the existing visual patterns. The patterns of clusters or open spaces can help evaluate the efficiency of the area for their community. The analyst can then analyse the impact of new services and optimise efficiency in the problem areas which they initially identified in that space (ITO world Ltd., 2011)

### *Cognitive and Social Maps*

This is the method of mapping all perceptions, feelings, sentiments, prejudices, wants, needs and suggestions which are important in making decisions for the final intervention in the area (Hamdi, 2010:72). In Slovo Park project, the information found through the different interviews and participation of the community was layered progressively and themes began to emerge which structured the planning process, the problems, insecurities and power relations. Models were made from the outcomes and patterns were formed from the layering which lead to the decision making of the intervention.



Social mapping consists of understanding the invisible interactions between the community who lives in an area. This information is not visible to the new comer since it is relations that have been developed through time for specific reasons. Social mapping leads to realisation of social interaction patterns, movement routes of the community and their reasons, effects of the neighbourhoods and the impact of community culture in the area (Anselin, 2002:4). Information gathering for social mapping is through interaction with the community in a variety of different ways such as living with the community for a period of time, asking questions from a focus group in the community, Scenario analysis of understanding what people think or feel through creation of physical change in the environment and observation of results by the analyst himself (Krueger et al., 2001:2).

### *Games and Role Play*

Games and role play are sometimes strategically helpful in action planning to sensitize professional or government officials or community leaders to key issues (Hamdi, 2010:74). Sometimes these games lead to answers through simulate actions and others teach skills and build awareness of planning procedures (Hamdi, 2010:74). Games and icebreakers are often used to encourage people to open up and be comfortable to participate in group activities and stimulate inclusion but an ineffective one can create discomfort or tension and prevent the community from giving any information or feel comfortable to participate through the project data gathering (Romero, 2010). This toolkit was not used in Slovo Park since the community was informed and conscious of their problems and open to discussions since they were previously involved in big picture planning of their settlement and they had a good understanding of what the priority needs are for the upgrade of Slovo Park informal settlement (Bennett et al., 2010). This allowed a more serious approach of collecting information in this context since they were already familiar with the basics of how to read a plan and the engineering issues that were involved in planning.

### *Picture Analysis*

The purpose of this method is to build an appreciation that differences don't need to be threatening but can add to the diversity of place (Hamdi,2010:76). However, the Slovo Park community are very proud of their settlement area and the way everything works around their living space according to the interviews and discussions in regards of their opinion on relocating to a better place. A number of the Slovo Park community don't want to change the way the houses are fenced with see-through chicken mesh for example and that is because they consider that as the image of Slovo Township and they don't want to turn their township into a suburb (interview with resident, 2012).

### *Inventing Toolkits*

Nabeel Hamdi describes tools as the “means with which to achieve ends” (2010:76). All the methods will have limitations and that is the reason why more than one tool is always used in order to derive a more accurate result from them. Inventing tools is also an option since sometimes the designer seems to know a different way to approach the specific community or settlement.

However, the Nabeel Hamdi analysis tools do not have a clear description of what the outcomes will be and how to question the situation according to the outcomes. It is only a toolkit on how to gather information and not a guideline on how to approach and analyse the findings so that it results in a sustainable long-term development for the informal settlement. He further explains examples of his work but one cannot use the same example in different context and that is why his tools would be more beneficial internationally if the guidelines were more focused on the global scale rather than the specific of what has worked for him (Hamdi, 2010:69).

## **Navarro-Sertich Analysis of Viable interventions for Informal Settlement Upgrade:**

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The Navarro-Sertich toolkit describes different tools which one can use in order to upgrade an informal settlement (Architect, 2011). These tools are namely: skins and signs, housing, urban connectors, plug-in services, icon, dirty works and tectonic uplift (Ibid). Each one of these tools have been applied to informal settlement upgrade previously and the analysis of specific precedents has resulted in the design of this toolkit. The following will analyse the Slovo Park project in terms of the theoretical application of the Navarro-Sertich system of analysis and how it could have been useful in this site.

### *Tectonic Uplift*

The Tectonic uplift tool is applicable to the Slovo Park project since the existing community centre/shelter was upgraded in order to become a more functional building which appeals to its users and brings the community together by their participating in the construction process of the structure (Bennett et al, 2010:28). The intention of the tectonic uplift was to change the existing function of the place (Architect, 2011); and create a new space where the community gets together and engage in meetings or any other group activity. The design could also be

used for other purposes such as small functions and playground etc (Bennett et al, 2010). The strategic plan for the future development of this site was also given to the community to take over and work towards, however that didn't happen exactly as was planned (Author's observation, 2012).

This problem indicates that the Navarro-Sertich set of tools (interventions) is of great value but it is not yet complete in achieving community upgrade by choosing the right intervention for site as well as the right strategy. Many aspects can lead to an unsuccessful intervention tectonic uplift design such as taking into account the role of the government, funding and policies. The 'Adaptive Reuse' approach or in other words the 'tectonic uplift' is an approach in developing an existing potential site, since it is the act of finding a new use for an abandoned building or unused space (Cantell, 2005:2). However, it requires extensive research in order to create ownership and interest amongst the community for the new intervention. The same community that never used the previous structure on that site are now given a new building which is a 'recycled' structure so the function must be strategically designed to sell (Cantell, 2005:2).

Navarro-Sertich set of interventions is a good starting point for when the decision-makers want to evaluate their options in order to upgrade informal settlements. However, it does not give a structured guideline as in how one can interpret their collected data and prioritise their set of intervention options in order to create the most successful upgrade programme where the community's priority needs are addressed as much as possible and a long-term intervention is achieved.

### *Icon*

The Slovo Park project also complies with the 'icon' tool since it created a node of energy for the community to come together and work towards the future of their settlement (Architect, 2011). It creates a collective identity (point of interest to everyone) and a destination to some of the residents of the Slovo Park where they can have meetings (Architect, 2011). Its main purpose was to have this new icon in Slovo Park so that it grows and expands over time but the Navarro-toolkit does not explain how one can achieve this.

Creating an icon in an informal settlement is a good way of bringing the community together if a sense of ownership is developed through strong engagement between citizens (Atlantic-community, 2012). However, an icon will not be taken ownership of if there is no 'tenure security' in the informal settlement (Werlin, 1999:11). In the Navarro-Sertich toolkit, the role of government is not detailed thoroughly and thus leads to issues such as what the Slovo Park is facing with the current status of their community centre intervention (known as lack of ownership). What we need is not "less government" as Turner proposes, but rather we need "good government" (Werlin, 1999:10), which we will only achieve by taking into consideration all the policies and the roles the South African governmental departments can play in upgrading

informal settlements. This way the upgrade in informal settlements will be taken ownership of by their communities as well as the fact that government will support the project.

According to Urban LandMark, the importance of tenure is its key role in determining development. Some of the important role of security of tenure is as follows:

- It makes investment in land more secure since it provides legal protection of tenure;
- It provides the basis where the poor can raise loan finance;
- It promotes official inclusion rather than unrecognised informal settlements;
- It activates the condition of municipal services;
- It establishes effective system for tax collection and establishes sustainable models of service delivery;
- It integrates informal settlement into the financial land markets and helps equalise land prices within the surrounding cities; and
- It provides substantial protection against eviction (Smit and Abrahams, 2010:8)

In other words, it is of great value that new intervention options be added to Navarro-Sertich set of interventions. One important intervention that an informal settlement's community can benefit from is 'Tenure Security' which will be discussed further in chapter 7.

## Sustainable Building Assessment Tool (SBAT):

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The sustainable building assessment tool (SBAT) was developed in order to establish the performance of buildings in terms of their sustainability in development (Gibbert, 2008:1). The tool focuses more on developing country context and it includes three different sustainability criteria namely Social, Economic as well as environmental indicators (Ibid). However, the SBAT system of analysis is not a set of guidelines to help the designer, developer or any other entity to be able to make decisions on the type of intervention needed in a specific site but it gives an understanding of what should be taken into consideration when one decides on what intervention should be designed and is on the designing stage (Gibberd, 2008). SBAT can also be applied to buildings which have already been built, due to the nature of rating system of this assessment toolkit.

### *Social Sustainability*

The social sustainability aspect was taken into consideration when the Slovo Park project was designed however it was not in much detail as the SBAT kit describes. The Social indicator in a design in the SBAT consists of Occupant comfort, inclusive environment, access to facilities, participation, education, health and safety (Gibberd, 2008:3). The Slovo Park project has

addressed each one of the above in the design of its intervention (community centre) but this alone did not drive the design of this specific structure. The Gibberd's SBAT alone is not enough to make final design decisions since it only focuses on the three main sustainability themes.

### *Economic Sustainability*

The economic sustainability of SBAT focuses on local economy, efficiency, adaptability, ongoing cost and capital cost (Gibberd, 2008:3). The community centre in Slovo Park was not designed for economic purposes however; the structure is very simple and adaptive that it can be turned into a market place or a carwash if the community want to (Bennett et al. 2010). Thus the adaptability of the structure allows the functionality of the building to change from social to economical.

However, if there is not 'tenure security', the community will never take the initiative of using the adaptable side of the building and change it into something they need (Werlin, 1999:11).

### *Environmental Sustainability*

SBAT focuses mostly on Environmental sustainability and it defines it in terms of water, energy, waste, site and materials which are used in the building (Gibberd, 2008:3). The Slovo Park community centre is not a 'building' per se and it should rather be called an open structure. Therefore water, energy and waste analysis is not applicable in this scenario. The site and materials sustainability of the Slovo Park intervention could be given a high rating since it was local material and the site was reused and barely changed (Bennett et al, 2010:27). The structure was more of an upgrade to what already existed on the site and therefore the site was not altered too much in this intervention.

Thus, as previously stated, the SBAT system of analysis is not a set of guidelines to help the decision-makers make decisions on the type of intervention needed in a specific site but it rather gives an understanding of theoretical elements which should be taken into consideration when the goal is to create a sustainable informal settlement upgrade and is at the designing stages already (Gibberd, 2008). SBAT can guide the decision-makers as to how they can set out actions in order to achieve a sustainable future development in a context, but it does not give directions on how one can decide on a priority intervention that is needed in that context.

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## Adaptability Assessment Tool (AAT) for sustainable building transformation: Residential Architecture in South Africa (CSIR-Amira Osman)

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The Adaptability Assessment Tool (AAT) is developed in order to assist architects during the design process (to assess a design before implementation), developers and government (to assess an architect's design for a new development or to help in decision-making when existing buildings are to be transformed into another function) (Gibson et al. 2011:83). The AAT is applicable to any building type (Gibson et al. 2011:83) however it is not applicable to any type of intervention such as 'favela painting' intervention which is not a tangible building but nevertheless is an intervention that can create change in the community's lives.

The tool ultimately aims to achieve a numerical and graphical portrayal of the adaptability and transformability qualities of a residential development (Gibson et al. 2011:83). In essence it is a decision-making tool and it is aimed at various typologies of buildings such as detached house on an individual site to a multi-storey residential development (Gibson et al. 2011:83). The tool can be used to influence decision-making as well as it could be used to make decisions about which buildings could be bought for re-development (Gibson et al. 2011:83). However it is not applicable to any type of intervention such as the ones described by Navvaro-sertich in her set of tools for upgrading informal settlements namely 'skins and signs' (Architect, 2011).

This assessment toolkit has been considered in the general terms of its concept of adaptability which is the reason why the Slovo Park project structure is an open structure with not only one function. The Slovo Park Project is not designed only to be a meeting place for big community meetings but it can be used for other purposes such as a voting place, playground, family functions or a shaded area to have picnics (Bennett et al, 2010).

Thus one can say that the AAT is a very detailed toolkit which is applicable to specific building typologies, mostly housing. It does not give guidelines on how to make decisions on type of interventions needed in a context or how to achieve adaptability in a building, but it does give a variety of options on the specifics of building finishes, circulation, openings in a building and many more details (Gibberd, 2011:86). This Assessment Toolkit is very rich and valuable and yet it is too detailed for general use of prioritising intervention, especially for informal settlement upgrade where there is a need for a relatively flexible guideline on variety of interventions. Such a detailed toolkit could limit the designer or other project enablers.

## Conclusion:

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The above toolkits, systems of analysis and guidelines are very useful individually. However, they each provide specific information which is needed in an upgrading program. In conclusion of the above analysis, one would realise that none of the above tools give direction to the

architects, developers and other decision-makers as to how they can prioritise their choices of interventions. Some of these tools (i.e. Navarro-Sertich system of analysis and SBAT tools) are of a very open ended nature which can possibly be applied to any context due to lack of details that are included in the system. These systems of analysis may result in a subjective choice of intervention since the decision is made by the project enabler without any guidelines to arrange their findings into a system. The AAT tool however, is extremely particular and it can only be applied to very specific projects (Gibson et al. 2011:83). These findings show that all the above tools and systems of analysis are needed when upgrading informal settlements, however, there is a gap between gathering data and translating the data into what is priority needs in context. A revised toolkit is required that can guide the architects in their approach to upgrading an informal settlement without being too specific or too general but rather be a guideline which they can use to prioritise or test their prioritising in terms of what is most needed intervention in a context that will cater to priority needs of the community and result in creating a sustainable informal settlement upgrade.

# Chapter 5\_ Table of Analysis and Findings

In Appendix A, Table 1, each of the five case studies that were discussed in Chapter 4 are analysed through theoretically applying the five different tools and systems of analysis which were studied in Chapter 5. The table presents the positives and negative aspects of each toolkit when applied to a real life case study. It is meant to show the gaps that exist in the five tools and systems of analysis that we discussed previously as a conclusion. Therefore, by examining the outcomes of this comparison, the following was found:

## Findings:

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The overall conclusion of the Table 1 of analysis (Appendix A), between the different toolkits and assessment tools, is that when upgrading informal settlements it is important to know what the options of interventions are that we can implement on site. The studied tools and systems of analysis provide the decision-maker with an understanding of how to start a project, what steps to take and what different options are possible to create a sustainable upgrade program. However, these set of tools are not complete in isolation from one another. The Nabeel Hamdi toolkit can contribute to making Navarro's toolkit more informative, since it introduces the available methods of collecting data in an informal settlement and understand the needs of the community (Hamdi, 2010:69). Navarro-Sertich system of analysis provides the decision-maker with seven different types of intervention that can be applied when upgrading informal settlements, proving that 'Housing' is not always the solution (Architect, 2011). The NUSP resource kit provides the decision-maker with the steps that should be taken from start to finishing an informal settlement upgrade planning (NUSP, 2010). Therefore, the revised toolkit for prioritising interventions will also be a toolkit that is not complete in isolation but would complete the process of informal settlement upgrade by being used as part of the upgrading program. In other words the Navarro-Sertich system, SBAT, AAT, The NUSP Resource kit and Hamdi's tools for gathering information from context can all contribute in informing an upgrade plan for informal settlements.



Figure 1 is a summary of what each tool and system of analysis (which were discussed in this paper) contain. As it can be observed, most of the tools and systems analyse information, however, it is not according to a systematic approach which result in a subjective outcome of what the decision-maker understands.

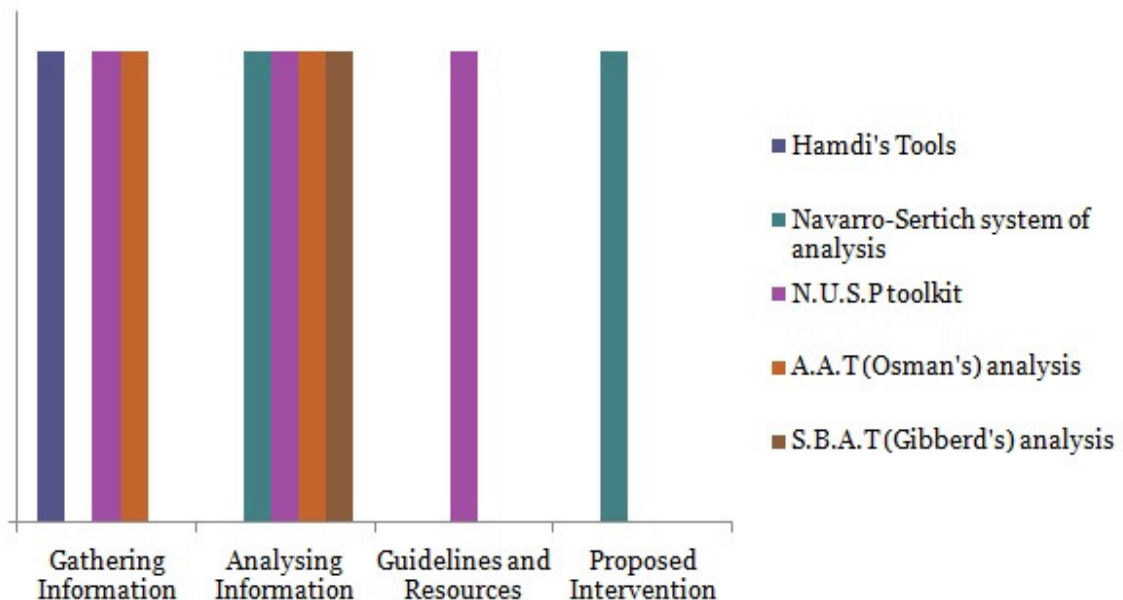


Figure 1\_Graphic summary of Findings from table of analysis

## Visual Comparison of the existing tools and systems:

According to 'Action Planning for Cities', Hamdi and Goethert have designed a guideline for Community Action Planning (Hamdi et al., 1997:134). This guideline contains the four different phases that one must follow strategically and simultaneously in order to achieve a successful informal settlement upgrade with the aid of community participation (Ibid). These strategic phases are as follows:

- Phase 1: Statement of Problems and Opportunities;
- Phase 2: Documentation of Key Information;
- Phase 3: Set of Actions and Related Tasks (Gather prioritised Actions and decide on an action); and
- Phase 4: Plan for Implementation (Identify tasks and prepare plan of action) (Ibid).

The NUSP resource kit has nine stages of how to start an upgrading project until how one can maintain it (NUSP, 2011). All the nine steps can fall under Hamdi and Goethert's 'Community Action Planning' phases. But the resource kits and toolkits are missing a step as to how one can evaluate the findings from the context and prioritise their options of interventions (see figure 2):

# COMMUNITY ACTION PLANNING

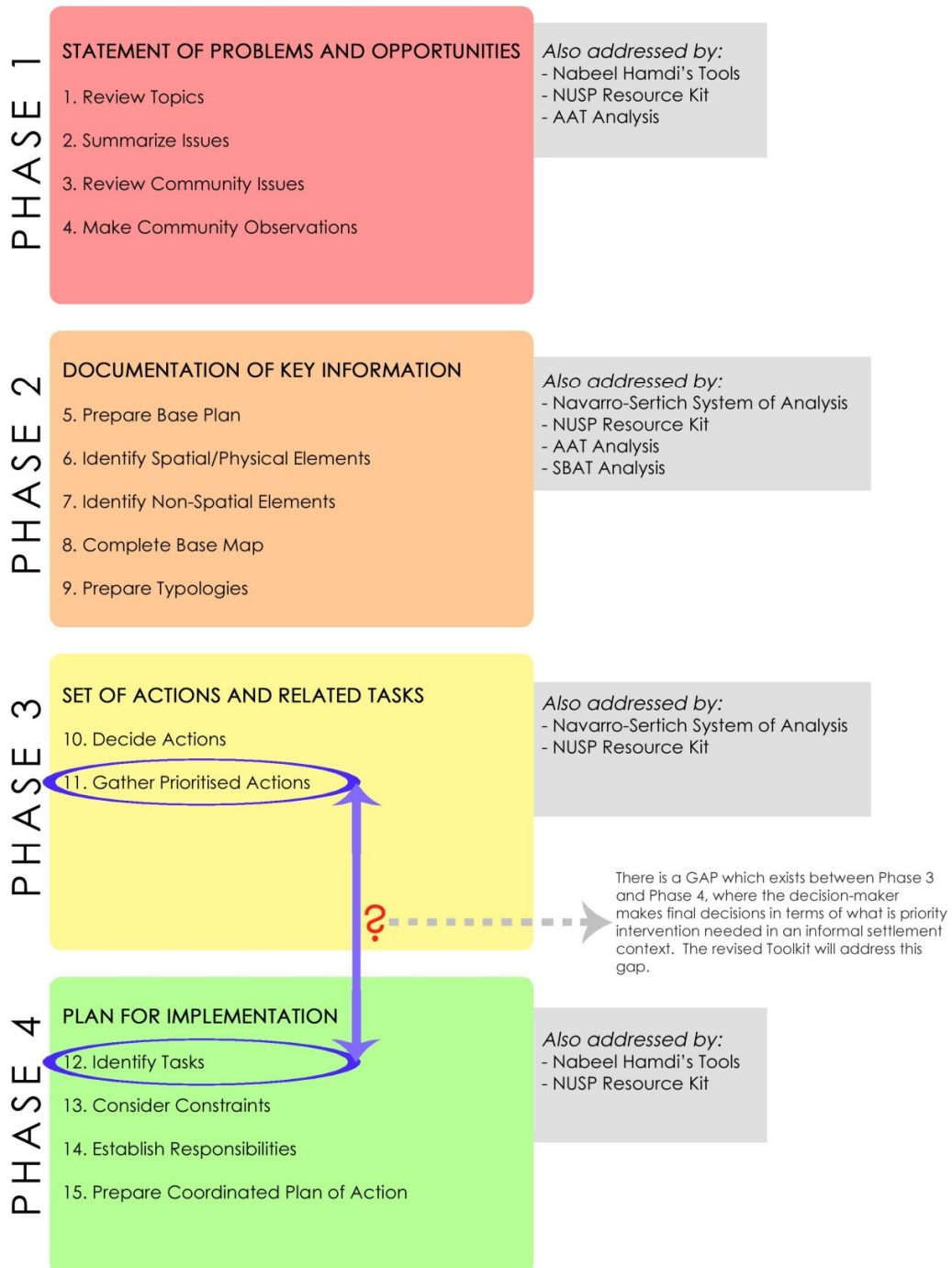


Figure 2\_Gap within the existing tools and systems of analysis

A "Super tool" that combines the strengths of each of the five tools which were studied in this paper would not do (Hamdi et al., 1997:106). This is due to the fact that each of the tools have different underlying concepts and are intended for different purposes. Therefore, in order to complete the process of informal settlement upgrade and yet guide the decision-makers, it is recommended that the proposed toolkit needs to work simultaneously with other tools and systems of analysis rather than in isolation. The proposed toolkit for upgrading informal settlement through prioritising interventions can accommodate for the gap between Phase 3 and Phase 4 of the 'Community Action Planning' (see figure 3), and it will be an incorporation of the three toolkits which have been discussed previously, namely:

- Nabeel Hamdi's Tools;
- NUSP resource kit (Part 5: The planning process); and
- Navarro-Sertich System of Analysis

Figure 3 shows that the proposed toolkit cannot work in isolation from other existing tools and systems of analysis, but is merely a toolkit that will guide the young architects identify priority needs and input their data into a system in order to be able to decide what intervention is priority need of their context. It is aimed at young architects with less experience in the field of informal settlement upgrading, to be able to make similar decisions as a professional experienced architect would.

Hence, the proposed toolkit works in the following manner:

- Step 1: Gather information about the context of the informal settlement by making use of Nabeel Hamdi's tools;
- Step 2: Prioritise the findings in terms of urgent to less urgent issues that exist on site;
- Step 3: Sort out the priority issues according to the six given 'problems found on site' and identify the first three colours;
- Step 4: Find the first three colours (order is irrelevant) into the proposed toolkit and figure out the priority interventions for your context; and
- Step 5: Locate the symbols found in the proposed toolkit in Navarro-Sertich's set of interventions system to see what each symbol means.

For a visual understanding of this process, refer to figure 4.

## COMMUNITY ACTION PLANNING

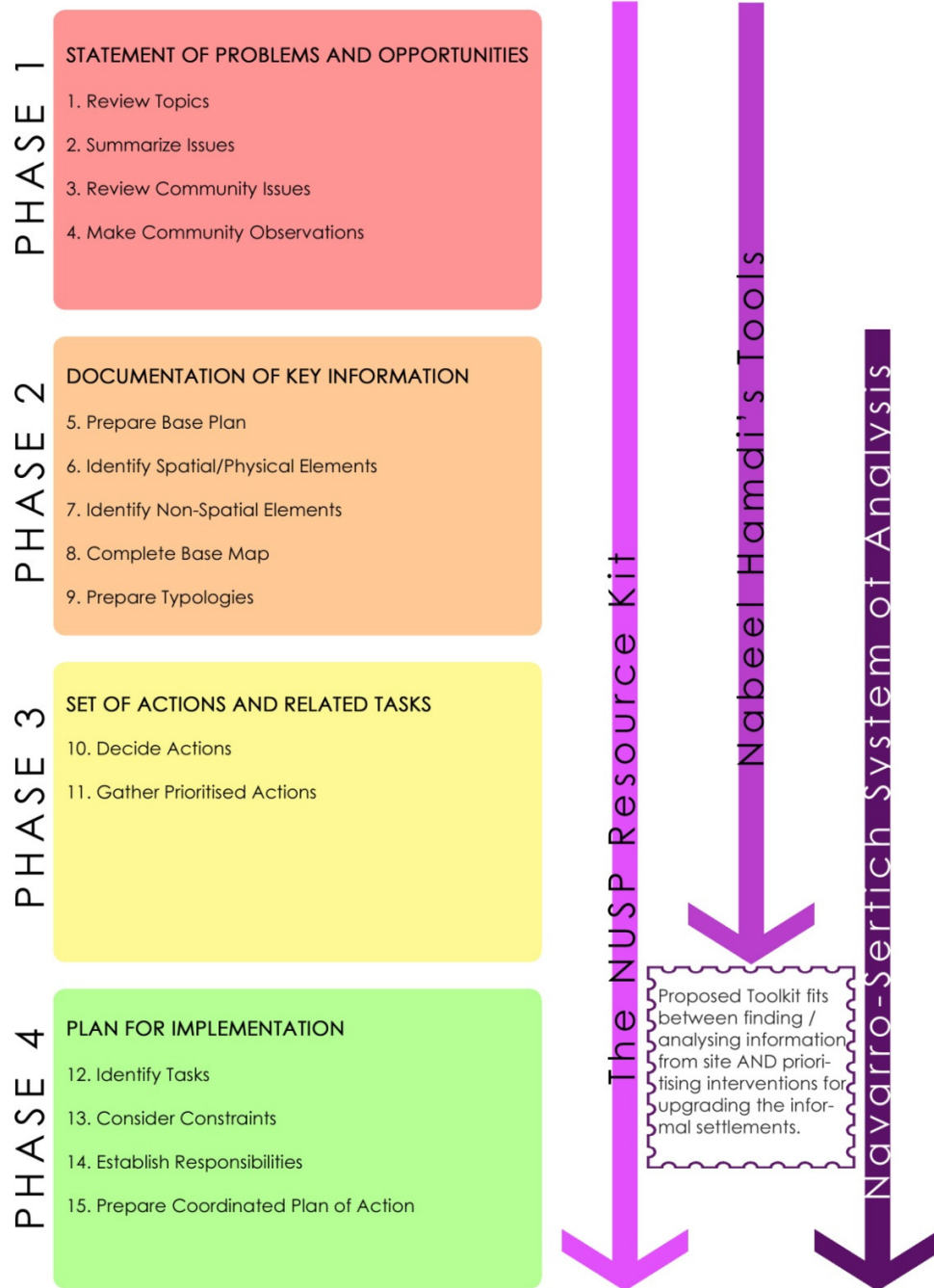


Figure 3\_other toolkits placement in upgrading informal settlements

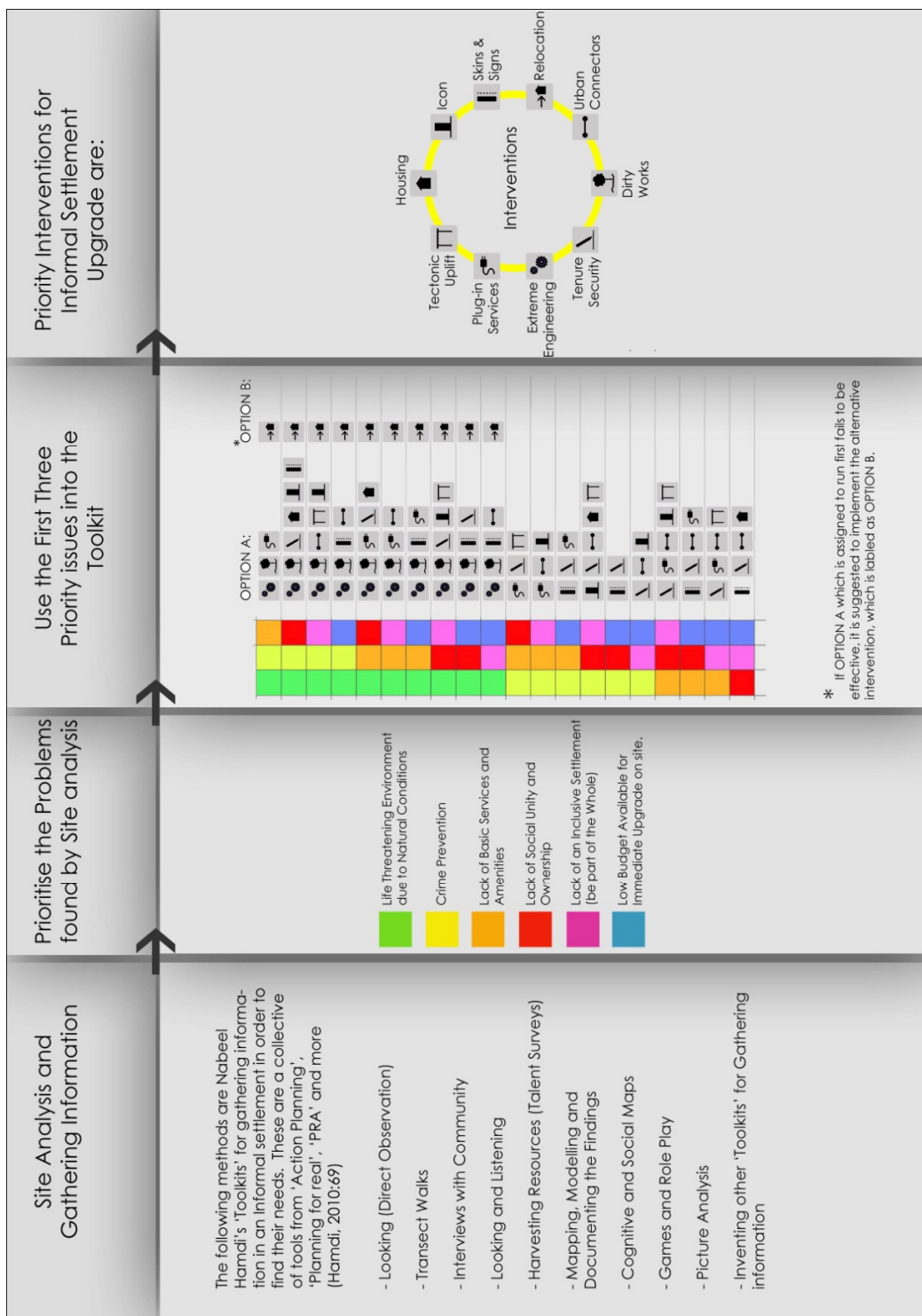


Figure 4\_Guideline on how to use the proposed toolkit in practice

## Conclusion:

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All the tools discussed above are clear in the different phases of the 'Community Action Planning', however, they are either too general and subjective towards the decisions the individual users make, or they are very specific to a certain purpose. For example the AAT is aimed at adaptable residential architecture (Gibson et al., 2011:83) and SBAT is focused on the sustainability assessment of the structure (Gibbert, 2008:3). However, the least specific toolkits which were analysed in this paper were compared to the phases of Hamdi and Georthert's 'Community Action Planning' and the gap where specifications are important in order to make final decisions was identified (see figure 3).

In other words, the proposed toolkit cannot work in isolation of the other available tools and systems of analysis, but it must form a part of them in order to complete the process and give the young architect (who has less experience in field), a more precise choice of implementing their gathered knowledge into a useful intervention which will aid the community the most.

The Proposed Toolkit for upgrading informal settlements through prioritising interventions will be discussed in further detail in Chapter 7 'Proposed Toolkit'. The process of prioritising the needs from the gathered data from site will be expanded further and new interventions will be added to Navarro-Sertich's set of interventions and explained in detail in Chapter 7.

# Chapter 6\_Precedent Studies

According to Feireiss, it is the modern architect's intention to make architecture relevant again in their designs and in discussion but the success of a design can only really be 'proven' if it actually works the way it was planned to in practice. To achieve this, one has to look beyond intentions and the design analysis and rather listen to the users themselves, those who experience day to day whether the designers' good intentions came true (Feireiss, 2011:16). These users are the witnesses who will be able to judge the quality of good architecture since they will be the consumers who will test the final outcome of the architectural intervention and decide if it suits their everyday needs. Thus community involvement is important mainly for the following reasons:

- Identify overlooked local knowledge: community members have more useful information about the context than any outsider who has done research.
- Streamline efforts: community members always have needs and concerns that if incorporated to project, may help reduce the likelihood of challenges to risk assessment result or revitalization plans.
- Gain acceptance: community members who contribute to the revitalization planning process will better understand and be more likely to support the project, thus creating a sustainable project which will have ownership amongst its users (Argus et al., 2010:5).

However, in this section the importance of case studies and understanding the reasons for their success or failure will be examined. This evaluation will mostly be focused on their technique used to accommodate community participation in the making of the projects.

Architecture is reinventing itself and it is fascinating to understand what architecture is and how it can turn out to be addressing social needs (Feireiss, 2011:17).

Predicting the future can't be done, but one can get more accurate by examining what has happened previously in similar context. Through a closer look at the past consequences, a new architecture can be created. "We look backward only in order to look forward" (Feireiss, 2011:19) and thus learn from the positive and negative outcomes of previous projects in order to create the perfect plan for future. Case study research brings together complex issues that can extend experience or add strength to what is already known through previous research. Case studies emphasize detailed context analysis of a number of conditions and their relationships. As researcher Robert Yin defines case study as "a research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries

between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Soy, 1997).

The following precedent studies are aimed to give an understanding of positive and negative outcomes that come with architecture interventions. Having negative outcomes are not always the worst scenario because if "one doesn't get lost and make mistakes every once in a while, then they haven't moved enough"; Mistakes can become, as Irish novelist James Joyce puts it, "the portals to discovery" and show us what needs improvement (Feireiss, 2011:21). It is through case study methods where a researcher is able to go beyond the quantitative statistical results and understand the behavioural conditions through the society's perspective (Zainal, 2007:1).

## Precedent 1: Slovo Park Community Centre

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### *Location*

"Slovo Park" informal settlement (the site was initially referred to as Nancefield Township; however after the death of Joe Slovo who was the first Minister of Housing in post-apartheid South Africa, the community renamed the settlement to Slovo Park in 1995 in the honour of Joe Slovo), Nancefield, Johannesburg, Gauteng, South Africa (Tissington, 2011:27).

### *Public Participation Method*

Many forms of public participation took place in the process of research for this project. Some of the methods used were mapping of the macro and micro site, interviews, drawing exercises and model building as well as participation in the decision making and construction of the final structure (Bennett et al, 2010).

### *Public Realm (defining the needs of community)*

With the help of the mapping exercise, the research team were able to identify significant conclusions to help their decision making for the proposal of an architectural intervention:

- The cemeteries were important places within the cultural landscape;
- The dumping of refuse on South side of the site shows that it is less valuable space to them;



- There was no important street within Slovo Park;
- The road between the bridge and the industrial area through Slovo was used often;
- There was an outstanding problem with the waterborne sewage system that needed to be attended to urgently;
- The mapping also concluded a strong reliance on two major shopping centres that were used often and both were outside of Slovo Park (Bennett et al, 2010:23-34); and
- Thus, according to Tissington's report on Slovo Park informal settlement, some of the key issues were security, empty government promises, lack of in situ informal upgrade, problems with land use planning, lack of information and community organisation (Tissington, 2011:1).

#### *Intervention*

A community centre/meeting space was designed, aimed at creating an incremental civic space and platform of engagement between the community and other built environment professionals. This intervention was done due to the common understanding between the community members that the existing community meeting space still had value as a public space and it was located on a site which required development due to flooding problems after rain (Bennett et al, 2010:34). The storm water flooding on site during Highveld storms was a big problem at Slovo Park (Bennett et al, 2010:43).

#### *Reasons for Failure/success*

The designing and construction process of the community centre was meant to contribute to upgrading the informal settlement. Therefore the community centre was designed to be an open building which could be used for other purposes due to specific programme being given to it. Lack of programme for the new community centre was one of the main reasons why it was abandoned and not taken care of after the architects had left the project (Author's observation on site, 2012). This was due to the fact that the residents only believed the new community centre was for meetings and no other activities, thus they barely used this space due to its very specific programme (Unstructured interviews with residents, 2012). The second issue that took the project downwards was lack of ownership (Author's observation on site, 2012). As it is mentioned in the Tissington's report "it is clear that there is a need for collective ownership of the development process and strengthened relations between committees and independent society formations in the promotion of meaningful engagements between local government

and community members" (Tissington, 2011:8). One of the goals of this intervention was to create a self-developing structure where the community develops it further by themselves and with the aid of provided drawings by the architecture students. However, there are issues such as tenure security and programme for interventions which play an important role in creating "urban acupuncture". Therefore without the existence of tenure security, the community will not take ownership and develop the structure further without supervision of professional team (Smit et al. 2010:5)

As long as tenure security is nonexistent, the community feels that they are living in Slovo Park only temporarily and they will not take initiative of improving their living space since there is the possibility of relocation. The reason for this issue is that lack of tenure for those living in the settlement and inability of households to invest too heavily in their living area is due to lack of information on the future of the settlement (Tissington, 2011:55). Since the land does not belong to them, their status in the area remains temporary.

Having a programme such as rare community meetings in the community centre is not enough if the intention is for the intervention to activate the area. The structure would have been more successful if there were more than only one function to it. Flexibility is one of the key roles in temporary informal settlement where living status is not permanent. In the contemporary built environment, stability and change are both realities, thus the challenge that exists is making these two work simultaneously (Kendall, 2006).

The priority need of the Slovo Park community was service upgrade of the waterborne sewage system since that can create health problems (Author's observation on site visit, 2012). An intervention of such scale needs professional knowledge to achieve. The community themselves cannot resolve this technical need and it is important that priority needs which affect livelihood, are resolved first in an informal settlement since it can affect everyday activities.

## Precedent 2: Metrocable system in Bogota

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### *Location*

Medellin- Antioquia, Columbia

### *Public Participation Method*

In 2010, the opportunity of field research in Bogota allowed the researcher Adriana Navarro-Sertich to develop a comparative analysis with a focus on current 'slum' upgrading strategies in

Latin America (Navarro-Sertich, 2011). Methods such as cognitive mapping workshops with local residents in different settlements took place. These mapping exercises aimed to measure the "socio-spatial integration" produced by the Metrocable based on a comparison of perceptions between local residents and inhabitants of other "formal" areas of the city (Ibid). The network of funicular tramways for the hillside slums integrated these areas back into the city and aimed to restore its livelihood (Mazzanti, 2010).

The history behind the Metrocable intervention goes back to year 2000 when the project was initiated by former Mayor Luis Perez and the project was completed by Fajaro in 2007 by Colombian Architect Giancarlo Mazzanti (Navarro-Sertich, 2011). This project also included the participation of the cities governor, environmental minister and Sena director in order to take an active role in the project (Business news America, 2009), however there is no mentioning of community participation in the decision-making process of this intervention.

#### *Public Realm (defining the needs of community)*

The Metrocable was designed to connect the Santo Domingo Favela to the city's metro system and this system extends up the hillside with three stations and the final one connected to a separate cable car system (Navarro-Sertich, 2011). The intention of making such a sophisticated intervention was also to create a new tourist attraction that takes passengers to the national park Arvi from Santo Domingo rather than only connecting the 'slum' settlements to the centre of the city (Ibid). Enhancement of the connectivity and permeability of the informal settlements was the main aim of this intervention and thus it has become a social change tool in the city by also placing a strong emphasis on the image and representation.

This area of the Santo Domingo favela was inaccessible with limited roads, where only donkeys were used to carry the building materials on while the project was in process (Stone, 2010). Therefore the Metrocable was aimed to be a tourist attraction as well as catering to the local people along its route. Previously they had to take three buses in order to get to the city and they didn't feel like they were part of Medellin, but now the new metrocable takes them to the city within a few minutes (Ibid).

The other advantage of the cablecar intervention in Medellin was decrease of crime in the city especially in the favelas. Medellin which was once the "command-centre of drug lord Pablo Escobar" and one of the most dangerous cities in the world, was transformed by the aid of the new urban planning project. This project included libraries, schools and the cable cars. Within five years, Medellin, Columbia's second largest city saw its crime rate drop from more than "200 deaths for every hundred thousand inhabitants to around 62" (France24News, 2010). This would be the result of making the area more accessible and transforming it to a tourist attraction which increased the social traffic in the place, providing more surveillance.

### *Intervention*

The intervention for this context was the Metrocable as a transport system that connects the centre of the city to the periphery where the favelas are situated.

### *Reasons for Failure/success*

Navarro-Sertich's public participation occurred after the Metrocable intervention was complete in order to understand how the community of Santo Domingo feels about the intervention and how Navarro could propose further interventions in order to upgrade this area of the city. Navarro found that the main issue concerning the community in that context is the matter of safety (Navarro-Sertich, 2011). The majority of the residents identified only their houses as the 'safe' places in the area. They lacked elementary public goods while they were overwhelmed by intense violence and ruled by criminal gangs before the Metrocable was constructed (Felbab-Brown, 2012). However, some of the residents believe that the Metrocable has helped the safety of the area increase (France24News, 2010). This outcome was not apparent in all the parts of the settlement as there is dual understanding of this issue between the community members.

A great majority of the groups identified the Metrocable as a 'negative' intervention. They believed that things were better before the Cablecar due to the fact that they could carry large bags of food and some chickens up to their homes from the city centre, it was cheaper to travel and they had more options for transport such as buses and taxis. However, now that they had the cablecar, their means of travel is reduced and there are very few routes the cablecar can travel. The cablecar is too expensive to use all the time (Navarro-Sertich, 2011). A sense of connection with the rest of the community was also lost since the community could not have a relationship with the person operating this transport (like they had with the bus-driver previously), which eliminated their chance of getting to places even if they couldn't pay the transport at that specific day. There is no 'cablecar driver' who would understand their situation of their poverty (Ibid).

According to France24News, the Medellin Metrocable intervention transformed the Santo Domingo part of the city since more famous since people now started knowing about areas they never knew existed in their city. The Metrocable intervention started creating neighbourhoods that belonged to the city and their communities (especially the youth) felt that they exist on the map now (France24News, 2010). As Daniel Casas, an engineer from Medellin says: "Medellin is no longer the Medellin of Pablo Escobar (a former powerful criminal of Medellin)" and that is a change in the imagery that the youth of the area needed in order to rebuild their future hopes and dreams on (France24News, 2010).

In conclusion, this intervention seems to be a naive approach at first since there was no public participation that took place in order to understand the community's prior needs; however it did eventually help the community in other ways. Converting a two hour bus ride to a seven minute "floating experience" sounds great to the tourist. However, it is quite disconnected from the existing realities and priorities of the current residents of the area (Navarro-Sertich, 2011). This shows that understanding the context and community's needs is the first and most essential requirement for any informal settlement development if one wants to create a sense of ownership amongst the final users of the intervention.

Safety was found to be a priority concern in the area, which the Cable car can eventually eliminate through bringing tourist in the area and advertising the place as a attraction (Navarro-Sertich, 2011). Thus, although community participation didn't take place prior to the intervention decision-making, the needs of the community were unintentionally addressed by the Metro-cable.

### Precedent 3: S.L.U.M Urban Flashes

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#### *Location*

Oshiwara river bed slums, Mumbai, India (CasagrandeTEXT, 2007).

Architect Ti-Nan Chi launched the project of urban revitalisation in the area; Marco Casagrande from Finland, Chi from Taiwan and Sohn-joo Minn from Korea were the architects who led the project by understanding the community and priority needs. These architects, with the aid of four Tamkang University's Master's students and around ten Mumbai students, concentrated on the existing fact of the slums working as urban waste treatment zones and resolved the issues with their intervention which will be discussed in this section (CasagrandeTEXT, 2007).

#### *Public Participation Method*

The Oshiwara river bed slums is not a homogenous urban fabric but instead its a chain of 20 slum societies in different illegal-legal settlement stages with different ethnic and religious backgrounds. Casagrande's group of architects worked with the existing fact of the slums in the area working as an urban waste treatment zones. They proposed solutions on how to make this manufacturing ecologically sustainable and reflecting in socially constructive ways to the slums and to the surrounding city (CasagrandeTEXT, 2007).

People of the slum became the biggest resource and urban nomads who had a lot to give to Mumbai and thus the project was focused on them more than anything else that affected the

space. In order to show the community of the slums a glimpse of possible future in the area, Casagrande's group of architects placed a mirror in the toxic Oshiwara river which was saturated with waste (organic and non-organic) (C-Lab, 2007:4). This mirror reflected the clean blue sky above and painted a picture in the mind of the viewer of what the river should be like as opposed to what it was at the time (CasagrandeTEXT, 2007).

The intervention for this context was a farm that the community starts together and carry through the way of the founder of the settlement area who was also a farmer once (Ibid).

The secondary aim of this project was to create livelihood in the neighbourhood by creating an opportunity for them by teaching them skills of what one can do with the products a buffalo produces such as dung cakes and dairy and how to share these products and make other useful things from it (Casagrande, 2009). The Buffalos were useful, from their milk to their dung and nothing had to go to waste (Hamdi, 2010:107). Thus a simple system of storage was designed and the agriculture was formulated around their initial resource, the Buffaloes.

#### *Public Realm (defining the needs of community)*

The approach to this newly occupied neighbourhood was to upgrade the quality of living by building a new income generator, creating jobs (farming) and cleaning out the natural resource (the Oshiwara river) to promote a healthy environment which would serve everyone's needs, a place they could use for working, playing, meeting and enterprise (Hamdi, 2010:107). Although the community participation is not described in detail, the needs of the community were taken into consideration by understanding the site and the primary needs of a healthy living. The volunteer Taiwanese students from the Tamkang University who became ill during the project, made them realise how the health issue is priority (Casagrande, 2007). Therefore, cleaning the river by recycling methods and making an agricultural landscape around the river was the best intervention for this site. It was a desire voiced by many in different ways, a focus to their settlement, a place for young people to be cared for, grow up in and informed outside the school and possibly a new source of income (Hamdi, 2010:107).

Initially they had a piece of land where they stayed alive by recycling the inorganic plastic from the river and reselling it but their living environment was turned into an unhealthy place filled with sickness (Casagrande, 2007). The agricultural landscape and clean living area intervention gave them pride and status. It created an opportunity for the Oshiwara river slums to be able to become part of town and the larger city, be included and not marginalised and ignored anymore (Hamdi, 2010:107).

Although the lack of permanent houses in the Oshiwara river and lack of services and facilities were a big problem one can conclude that a housing intervention designed and built in this neighbourhood is a community 'want' and not a priority 'need' (Hamdi, 2010:107). The families

were informed about the benefits that the buffalo has such as better source of milk, twice the quantity of butter, a source of cheese and that they remain productive until the age of about 20 years and many other useful sources. However, Buffaloes breed and the quantity of their products increase too. Lack of space for the herd and their products in the settlement could cause chaos and possible disease as Hamdi also describes in his Buffalo project approach. The families had neither the help nor place to manage their primary source of livelihood and food (Hamdi, 2010:108). The large number of buffaloes, their products and maintenance started to call for an individual space in the settlement in order to keep the residential part clean and presentable. An example of the quantity of buffaloes dung and place to keep them can be seen in the S.L.U.M project done by Casagrande (2009).

The agricultural landscape for farming and the space around a clean river was the intervention which also helped in accommodating the free graze of Buffaloes in the area.

### *Intervention*

The intervention that this community therefore needed was a place in which to grow a community-based enterprise around the resources that buffaloes offered and scale them up to benefit everyone (Hamdi, 2010:109). The solution was to create a strategic plan that will grow over time and benefits the community in long-term. Cleaning out the Oshiwara river from the inorganic waste and developing the surrounding land to a farm is the "urban acupuncture" in the area which will allow the Oshiwara river slums to grow and become part of the city by reinventing their livelihood with a healthy clean area (CasagrandeTEXT, 2007).

The architectural intervention that was proposed to help the process of community development in this settlement was not a new structure like it usually ends up being in projects of a similar nature. Most of the activities were home-based (small scale enterprises) and the existing land was given a new programme in order to accommodate the new resources and offer new job opportunities such as Hamdi suggests in his prototype Buffalo project (Hamdi, 2010:109). 'Adaptive reuse' is the right terminology for the intervention that is chosen in this project, which means a process that changes an ineffective item (in this case the abandoned land surrounding the Oshiwara river) into a new item (a place which brings agriculture, new jobs, food and health to the community) (Commonwealth of Australia, 2004:3).

### *Reasons for Failure/success*

River restoration is the key to protecting the ecosystem but it will not become a reality without the involvement and participation of the citizens. It is the community who have to feel pride in

their natural assets and use them to improve their current as well as their future quality of life (Datta, 2012).

However, access to clean water and sanitation facilities alone does not necessarily lead to improved health. As UNICEF describes, without water there is no hygiene and the less available water decreases the likelihood of good hygiene practice in the household (UNICEF, 2003). Therefore in order to keep the health levels of the community of Oshiwara river high, it was important to create a hygienic environment where the possibility of having diseases is decreased. This could be achieved by educating the community about the situation and informing them more about the diseases and ways of prevention (Ibid).

Livelihood in a slum or informal settlement is important and of great value, but more important is achieving a healthy environment with less diseases in order to decrease health issues. Therefore, providing service upgrade is needed to be considered priority when health issues are involved.

## Precedent 4: Favela Painting

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### *Location*

Rio de Janeiro, Brazil

Created by Haas and Hahn / Jeroen Koolhaas and Dre Urhahn

Rio de Janeiro's favelas present a negative imagery to the city, not only due to the way they look, but also because of what they represent (Feireiss, 2011:110). Over time favelas have gained reputations as immoral, failure and terror-filled places but that is not entirely true since not absolutely everyone is involved with drug-related violence (Feireiss, 2011:110).

### *Public Participation Method*

In the heart of Rio de Janeiro's favelas, the Dutch artists Haas and Hahn have encouraged pride and created job opportunities by painting the surface of the concrete structures and residential facades. The intention of this activity was to give a fresh face to the neighbourhood through colour and imagery in order to create a positive representation of this favela to media (Feireiss, 2011:109). For the artists, this coverage of the surface meant a chance to bridge the gap between the neighbourhood's perception and its reality. This is due to the fact that the people living in this favela are proud of where they live but the perception of the outside world is that



these neighbourhoods should be ashamed of themselves due to their poor status of living and the level of crime that takes place in their favela (McGetrick, 2008).

This project therefore did not initially include any public participation that led to this specific intervention but the intervention itself was completed by creating job opportunities and teaching skills to the locals of the favelas since the buildings were painted by the local youth and they earned wages for their work (Feireiss, 2011:113). Later at the opening event of this favela painting project, a local Brazilian singer performed and thousands of people showed up from the favelas and the centre of the city (Firmeza Foundation, 2012). During the party, News crew of GLOBO TV came back to the favela for the first time after one of its reporters was murdered there while investigating drug dealing in the favela. This represented a positive start to the transformation of the community and perception created through changing the skin of the favela (McGetrick, 2008).

#### *Public Realm (defining the needs of community)*

The needs of the community in this context are a major problem of security and safety which will not be simply fixed by painting the surface of their buildings. However, favela Painting is much more than just a simple cosmetic change of the urban realm (Feireiss, 2011:113), it is changing a public perception to an extent where the community becomes more acceptable in society that they were before. The favela painting artwork received worldwide recognition and it has become points of pride in the community and throughout Rio (Firmeza Foundation, 2012).

#### *Intervention*

The Dutch artist duo Haas & Hahn started an idea of creating community driven art intervention in Brazil for a main aim of creating a new imagery to counter the stream of negative coverage of Rio's favelas (McGetrick, 2008).

Over a month of work in Vila Cruzeiro, a trusting relationship with people was built in a community that grew wary of outsiders (Feireiss, 2011:113). The painting project did not change the problems of the community of the favelas but it started a positive node of energy by bridging the gap between the neighbourhood's perception and its reality. As the artists of the project describe, in this favela, there were so many difficulties and bad press that the only priority intervention was to create something that was totally detached from that, something that was just beautiful and visible to the outsiders (McGetrick, 2008).

### *Reasons for Failure/Success*

This project was not a failure but it did not help the great problems that the community in the favelas were facing at the time which was mostly crime and lack of safety (Feireiss, 2011:109). However, the goal of the project was to open up the conversation about slums in Brazil and by painting the buildings, Vila Cruzeiro was on the cover of every newspaper with a positive message which changed the perception of the public (Feireiss, 2011:114). As Daniela Capistrano explains "a work of art isn't just something beautiful to look at – it transforms the space that it occupies into an environment ripe with possibility" (Capistrano, 2010)

Financing was also mentioned to be a problem for the designers and thus lead to a simple project as such since it is the least expensive option for the time being (Feireiss, 2011:114).

A big problem the community is facing is the drug trade and violence which comes with this activity such as killing and gunshots in the area. Sanitation is also very poor in Vila Cruzeiro and there is often a lack of water and the community suffers from the risk of landslides during rainfall (Feireiss, 2011:114-115). However, none of these issues were addressed by this intervention and only the community's image was the focus of the intervention. The goal of the project was to provide the local community opportunities to become skilled workers; to give them a source of pride; to call a positive way the media and authorities attention on the situation of the favelas (Mara, 2011).

The painting of favelas intervention was successful in achieving its specific goal since the community of Vila Cruzeiro like the paintings done in their favelas (Feireiss, 2011:115). It makes them proud to have a work of art that attracts tourist and media attention all over the world and this helped the situation of slowly clearing out of the drug gangs since they don't appreciate media being in their territory and through a dominant military presence. Many visitors come to Vila Cruzeiro and the bars make extra money by selling them water and beer which means the economy of the place has increased slightly due to this project (Ibid :115). The community's perception of the impact of this intervention is positive as one of the residents of Vila Cruzeiro favela: "I've never been to a museum in my life, and now I'm living in one" (The Coolist, 2011). Therefore, this intervention may not have resolved the issue of security and poverty of the residents in this favela but the impact of the painting can be a starting point and eventually lead to investments and designing to improve the other challenges this favela is facing.

## Precedent 5: Le 56/Eco-Interstice

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### *Location*

Paris, France

The architects are Atelier D'Architecture Autogeree (AAA)

The main aim of the architects was to do research concerning urban mutations and emerging practices in the contemporary city. The AAA collective of architects, designers and social scientists act as a creative leader by strategically planning to empower local communities to carry out and sustain their own ideas for urban regeneration (Bustler, 2011). The area that this project took place in is very dense and the passageway in which the project was completed was previously abandoned and considered unalterable (Feireiss, 2011:101).

### *Public Participation Method*

Through micro-political actions, the AAA collective hoped to participate in making the city more ecological and more democratic and make urban spaces more accessible to daily users. The project engaged a partnership between local governmental structures, local organizations, inhabitants of the area and a professional association that runs training programmes in eco-construction (Feireiss, 2011:101).

The open building site hosted different events, allowing participants of the project to meet each other and to participate in the decision making process during construction (Feireiss, 2011:101). The concept of 'self-managed architecture' was conducted in this project by the Atelier d'Architecture Autogeree also known as AAA (Pyburn-Wilk, 2011). This approach promotes architecture of relationships, processes as well as desires and skill, it asks for new forms of association based on exchange and involving all those interested (individuals, organizations, institutions) in the decision-making and construction of the project (Ibid)

In this project, one of the important aims were community relationships where the community comes together to create a sustainable environmental oasis in the midst of a dense urban setting (Feireiss, 2011:102).

The project was initiated by the city council with the objective of revitalising this space. The architects became involved in the project from an early stage and they suggested a participatory process involving the residents in an inexpensive transformation using cheap and ecological materials in order to promote sustainable development (Feireiss, 2011:104).

There were many forms of community participation such as surveys that asked the residents to answer some questions in order to find out what they wanted this place to be like in the future (Feireiss, 2011:104). The young people from the neighbourhood were very involved in the construction of the project and they worked there during the time (Feireiss, 2011:105). The structure allows for a multiplicity of communal activities to coexist in both an indoor and outdoor realm (Pyburn-Wilk, 2011).

### *Public Realm (defining the needs of community)*

The particular project 'Le 56/Eco-interstice' explores the possibilities for an urban interstice to be transformed into a collectively self-managed space (Feireiss, 2011:101).

The garden is situated in an old alleyway that led to a factory and it was closed on both sides by gates, at first creating a dead unused space. Due to the narrowness of the space, it was not possible to build anything there and thus the space was used as a dump for a long time (Feireiss, 2011:104). People threw their leftover food, clothes, glass and handkerchiefs out of their window creating a trash heap in this space. But parallel to the design and construction of this abandoned space, different social and cultural relationships between the actors involved and the users emerged (Pyburn-Wilk, 2011). Therefore, an ownership of the space was achieved through involving the community in all stages of the intervention decision-making.

The narrow space in between the two buildings is transformed into a social space where it is maintained by the community and it is built for the community. The ownership of the project was achieved by a design process which was very participative with workshops of local people. Therefore the final product became something which is wanted and useful for the local community (Aditi, 2012).

### *Intervention*

In Paris's Saint-Blaise neighbourhood, an urban garden is created to bring the community together in cooperation with professionals and the local government (Feireiss, 2011:101). The unused spaces within the city in dense urban areas are changed to become an opportunity for growth and new environmental awareness. The project's intention was to explore the possibilities of an urban interstice and transform into a self-managed space which is maintained by its users (Urbantactics, 2008).

The plot was designed as an ecological interstice, housing a greenhouse with green roof, powered by solar panels. It included compost toilets, a rainwater collector, seed catcher and a wild bird corridor. The facade of the front building is designed to unfold and create a porous

area at the ground floor between the plot and public space in order to allow the collective garden to invade the street (Feireiss, 2011:101).

The most important intervention in this space is not the building or the compost toilet but rather the collective participation, training and responsibilities that were given to individuals that lived in the area once the professionals left the site. Community participation has played an important role in making a difference on how a space may be used (aditi, 2012).

### *Reasons for Failure/Success*

The project was accepted by the community and 30 individuals became part of the community garden committee and decided to get involved in various projects. The residents also accepted this place, threw fewer things out of their window and became more involved with the parties and social programmes that took place in this area (Feireiss, 2011:105).

This place is more respected by the neighbours as they turn down their music when there is a meeting taking place, which they didn't do at first (Ibid :105). That is due to the programme that is given to this previously dead space. The alleyway has been activated not only by tangible design (building structure and garden) but also with an intangible programme that involves the community and gives them ideas of what can be done in this area. The different social and cultural networks between the users and actors have had a positive impact on ownership of the space (Urbantactics, 2008).

The other reason for the success of this project was that the architects didn't leave the project once it was built (Feireiss, 2011:105). They stayed and held more meetings and seminars about sustainability and they trained the committee to start running the place independently. Additionally, they made their help available even when they were off site. In this way, they gave the residents the opportunity of taking control and realizing that they can accomplish and help their environment even without a supervisor, just as a group of residents (Ibid:105). "The management of the project gives space and time to construction, the construction site becoming a social and cultural act itself" and creating a long term project that is maintained by its users rather than the initial professional actors involved (Urbantactics, 2008). There are a number of people (approx 40) who have keys to the space and they use it regularly for exhibitions, gardening, debates, parties and seminars. This responsibility has given ownership to the community and made it a place that is taken care of (Sternal-Johnson and Eastaugh, 2012).

## Conclusion

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From the above case studies, one can conclude the following issues that can be found in informal settlement contexts:

- Lack of Basic Services such as Waterborne sewage;
- Lack of ownership on the new interventions and the informal settlement;
- Lack of attention to priority needs, when decision-makers plan to upgrade informal settlements;
- Lack of community involvement in the process of decision-making or constructing the intervention;
- Creation of short-term solutions rather than long-term interventions or catalyst interventions with possibility of future self-development;
- Lack of social unity and ownership being taken of a space or structure;
- Life threatening environment due to natural conditions issues as well as lack of basic services;
- Crime prevention and safety in a living environment;
- Lack of an inclusive informal settlement that is linked to the rest of the city, creating job opportunities, bringing tourist to the area, increase local economy and safety through passive surveillance; and
- Low or no budget for an upgrading intervention in the informal settlement.

These common issues that may occur in all informal settlements can be condensed to the following six categories which will be discussed in further detail in chapter 7:

- Life threatening environment due to natural conditions;
- Crime and illegal activities;
- Lack of basic services in the settlement;
- Lack of social unity and ownership;
- Lack of inclusive settlement; and
- Low budget available for immediate upgrade of the informal settlement.

# Chapter 7\_The Revised Toolkit

## Interventions or ‘Tools’:

Adriana Navarro-Sertich's system of analysis suggests seven types of interventions that can be applied when upgrading informal settlements. The following diagram is her system of analysis which she calls "Favela Chic Tools" (Navarro-Sertich, 2011):



Figure 1\_Navarro-Sertich Favela Chic Tools (system of analysis) (Navarro-Sertich, 2011)

As described previously, this system of analysis is most useful in a scenario where the designer wants to know their available options to upgrade an informal settlement. It can act as a guideline and help the decision-makers put their ideas together as a collage. However, it does not guide the architect in terms of how to use it and get a finite answer. This system of analysis will be the first and main basis of the toolkit that will be proposed in this chapter. Each of Navarro-Sertich 'tools' will be explained in detail to give an understanding to the reader of what it is about and in what type of context it can be implemented. Later the common types of issues that one may deal with in an informal settlement will be gathered together and with the aid of

Navarro-Sertich system of analysis, a toolkit which will result in prioritising possible interventions will be designed.

The seven different 'tools' of Navarro-Sertich are discussed below, in addition to three new interventions that is concluded to be important according to the theoretical research in chapter 3 of this paper:

## 'Tool' 1: Skins and Signs

It is the aesthetics and imagery which drives this tool and it focuses on the application of paint, ornament and imagery to the exterior of buildings and structures. Its main attempt is to beautify the existing area and possibly make a difference in the general public's perception of the place (Architect, 2011).

This tool has been used in Rio de Janeiro for the Favela-Painting project and it made international news and changed the perception of the crime and danger in the place (Feireiss, 2011:109). It contributed greatly from a social point of view since the imagery change created a new notion of life and a restart for working towards a better future with no crime in their living area.

Dr Imas and Dr Kosmala commented on the effect of 'skins and signs' as an intervention which was created in Favela painting in Rio de Janeiro, Brazil:

"'Favela painting' affects the aesthetic order of how favelas are perceived from within and outside its natural embryonic growth. Colour brings hope. It brings a different understanding of space and its people, inviting others to co-create and co-represent much more constructively and positively life here. It appeals to our senses in a way that we do not reject but embrace these places and the potential for better life. It articulates a different discourse of social change; of engagement, contributing to improve life for favela dwellers"

(Ernst, 2010)

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### *Conditions of the context applicable to this 'tool':*

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This tool is applicable to informal settlement upgrade, in a context where the social aspect of living is the most important in order to save the residents and shows them there is hope in the



near future. As Haas and Hahn, the artists who did the favela painting intervention, aimed to approach the upgrade of the favela by a 'skins and signs' project in order to "give pride to the Brazilian poor by giving these neighbourhoods an entirely new and artful appearance" (The Coolist, 2011). This was due to the general public perception of danger and security issues that exist on the site, no investor or tourist would want to visit that area. Thus this matter affects the economy of the Favela. Changing the face of this informal settlement was the first step that could act as a catalyst for a change in the public perception of the area.

The idea of lack of security and existence of distrust can also lead to no sense of community or belonging amongst the residents. Everyone starts living on their own and not trusting anyone around them since they may be thieves or drug-dealers, which may get their neighbours into trouble one day too. Changing the imagery with the help of community participation is one way of bringing the people together and creating a sense of ownership and unity amongst them. Thus one must understand what happens when the artists and other enablers go home and the project starts to fade (Schwietert, 2010). The 'skins and signs' projects may be transformative temporarily but the goal is to have them go on for a long time in order to lead to a more realistic social change. This issue proposes that the 'skins and signs' interventions should be designed strategically and must be part of a long-term process in order to become valuable. As Julie Schwietert mentions in her article 'Favela Painting Project: Can a little paint change entrenched poverty?':

"One has to consider whether these projects are anything more than the do-gooder's equivalent of crack: a quick hit of a feel-good sensation that eventually wears off."

(Schwietert, 2010)

In South Africa, cities are growing to become cosmopolitan centres, not only racially but also in terms of ethnicity and culture. However substantial disputes in terms of poverty, inequality, social exclusion and underdevelopment remain (RSA IDP, 2012:12). According to the Integrated Development Plan (IDP) 2012-2016, large investments have been made in areas such as Johannesburg in infrastructure and housing development, however poverty and inequality has been increasing steadily. Issues such as high unemployment contributed to high inequality levels. Segregation of communities due to urban sprawl also contributes in the inequality as "a study of deprivation in the city reveals stark spatial differences in poverty levels" (Ibid:13). The reason for the pattern of residential segregation goes back to the apartheid period and yet the patterns remain very much the same to this day (Ibid).

Since inequality and poverty remain a challenge in the South African context, substantial intervention should be created in order to address this issue through social mobility and human development programmes such as described in the IDP 2012/2016 (RSA IDP, 2012:15). Thus sometimes changing the image of an area could be a small scale catalyst for a bigger project,

starting the social change in the space and opening new doors for better future living conditions. One can argue that community empowerment and pride is one of the necessary things to start social change and this can be done by a small intervention such as altering the 'skins and signs' of the existing environment.

## 'Tool' 2: Housing

The constitution of 1996 contains socio-economic rights and protects everyone's right to have access to adequate housing where the Bill of Rights in Chapter 2 of the Constitution, section 26 outlines the following (Tissington, 2011:12):

"26 (1) Everyone has the right to have access to adequate housing.

(2) The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of this right.

(3) No one may be evicted from their home, or have their home demolished, without an order of court made after considering all the relevant circumstances. No legislation may permit arbitrary evictions."

(Tissington, 2011:12)

Therefore, housing has central importance to everyone's quality of life and health in such a way that design of neighbourhoods protects important elements of value and culture and it can also generate employment especially for unskilled labour (Erguden, 2001:1). Housing is not just about building houses but also entails transformation of the residential areas and building of communities with closer access to work and social amenities (Tissington, 2011:27). In upgrading informal settlements, one of the most important key issues is providing housing. There are various pieces of legislation and policies on this topic such as "The Housing Act 1997", "The PIE Act 1998", "The Rental Housing Act 1999" and "Breaking New Ground 2004" just to name a few (Tissington, 2011:i).

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### *Conditions of the context applicable to this 'tool':*

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In the context of this thesis, the definition of a 'tool' is "something that one uses in order to perform a job or achieve an aim" (Macmillan Dictionary, 2009-2012). This section describes the

'housing' tool which should almost never be the first priority intervention of an informal settlement upgrading program. However, 'Relocation' of the informal settlement can be necessary due to environmental conditions which will require housing in the new relocated area but alongside of other interventions such as services and transportation. Governmental documents usually propose 'Housing' interventions to upgrade informal settlements when informal settlements housing units are a threat to the value of individual properties around the area and also to cities' ability as a whole to attract international investment (Huchzermeyer, 2006:1). But the later reasoning should not be the only reasoning to provide the informal settlements with 'Housing' and as Huchzermeyer puts it best: "It is important to reassess government's obligation in relation to the poor and their position in the South African cities" (Ibid). This is due to the fact that informal settlement upgrade must be about the community's needs rather than the city's image. Sometimes in order to upgrade a low-income residential community in a developing country, initial focus should be placed on catalyst interventions such as 'service upgrade' which impact resident's livelihood and requires special skills to be achievable. Therefore 'Housing' is hardly ever a priority intervention for upgrading informal settlements since it has been proven that people can provide shelter for themselves but yet other interventions such as ones that require extreme engineering is unachievable by them (Williams, 2007). "In situ upgrading of informal settlements, as promoted under the South African housing policy, requires the state to exhaust all possibilities for permanently securing and improving an existing informal settlement before resorting to alternatives that involve relocation" (Huchzermeyer, 2011:244). In an In situ upgrading, provision of 'Housing' doesn't always help the community's priority needs.

As Turner, British architect describes it best in his book 'Housing by People', "housing is best provided and managed by those who are to dwell in it rather than being centrally administered by the state" (Spatial Agency website, 2011). Therefore, when 'Housing' takes place, it is best to take into consideration the community who will be its end-users and professionals should involve the community in the full process of design to construction.

### **'Tool' 3: Urban Connectors**

'Urban Connectors' focus on access and mobility, and they include infrastructure of transportation systems such as monorails, elevators and cable cars as well as circulation networks such as transit stations, paths, stairs and promenades (Architect, 2011).

Transport in the city has a great influence on economic growth and development since it increases accessibility from one area to the other. The city's transport system is characterised by two important features: the majority of residents do not own cars, while middle income residents are very much car-orientated (RSA IDP, 2012:22). Therefore, in order to increase the connectivity

of informal settlements to the rest of the city and promote economic growth through accessibility to cities, it is important to consider the 'Urban connectors' strategy when upgrading informal settlements. 'Urban Connectors' such as transport systems, pathways, staircases or any other modes of connectors could allow the accessibility to different parts of the city. This will upgrade the informal settlement in terms of economy and will allow the informal settlement community to live in their settlement while working in other parts of their city.

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*Conditions of the context applicable to this 'tool':*

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Such intervention is needed in a case where the transportation and circulation networks within the informal settlement are limited or un-functional or even non-existent. In such a case, the movement of the community should be studied and appropriate 'urban connectors' should be installed in place. Having adequate urban connectors increases the accessibility of the community to other parts of the city or even their living environment and thus results in new opportunities and equality amongst them in terms of services. Having access to the rest of the urban region opens many doors for improvement, job opportunities, access to adequate education and other social upliftment through mobility.

In other words, the 'Urban connectors' intervention increases the standard of living of citizens by creating a network of paved pedestrian walkways where there is high foot traffic but no appropriate pathways, cycling pathways between destinations, upgrading public transportation systems and ultimately reducing the need for individual transport across the city (RSA IDP, 2012:55).

#### **'Tool' 4: Plug-in Services**

This approach focuses on improving the basic services, utilities and sanitation such as electricity, water, black water treatment, waste collection and recycling (Architect, 2011). It is of great importance to provide each informal settlement the basic services in order to upgrade their living space as well as creating a healthy place to raise families.

The Johannesburg IDP 2012/2016 describes the following: "Infrastructure is the foundation that enables economic growth and development. Local government is mandated to construct and maintain a range of infrastructure that facilitates local economic activity and creates an enabling environment for economic growth" (RSA IDP, 2012:19). In an informal settlement

however, it is important to provide infrastructure such as water, electricity and waste management in order to initially create a liveable environment for the community and later lead to a sustainable economic environment where the local economic activity will grow naturally due to the available infrastructure.

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*Conditions of the context applicable to this 'tool':*

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Turner argues that the solution to slum development is not to destroy the housing but to improve the environment (Werlin, 1999:1523). In other words, if governments can upgrade the existing slums of unsanitary human waste, inadequate or polluted water and litter from muddy unlit lanes, then the need for upgrading 'Housing' can be partly taken responsibility of by the community through self-help housing. Jane Jacobs also explains in 'The Life and Death of the Great American Cities', that "unslumming" the decayed urban fabric (Slums) is sometimes the more sustainable approach to upgrade especially when enough people have a reason to stay in the settlement and it is practical for them to only upgrade the problem areas such as the services rather than the housing (Jacobs, 1961:375).

In other words, in an informal settlement where the residents do not have access to basic services but they seem to be comfortable with the area where they live, then upgrading the services is of greater priority rather than the housing problems. Safe drinking water and adequate services are vital to human health. They increase well being, personal dignity, privacy and safety in terms of the convenience they bring with them (UN-Habitat, 2009:1).

According to the Johannesburg IDP 2012/2016, the following infrastructure categories are the most important (RSA IDP, 2012:19-24):

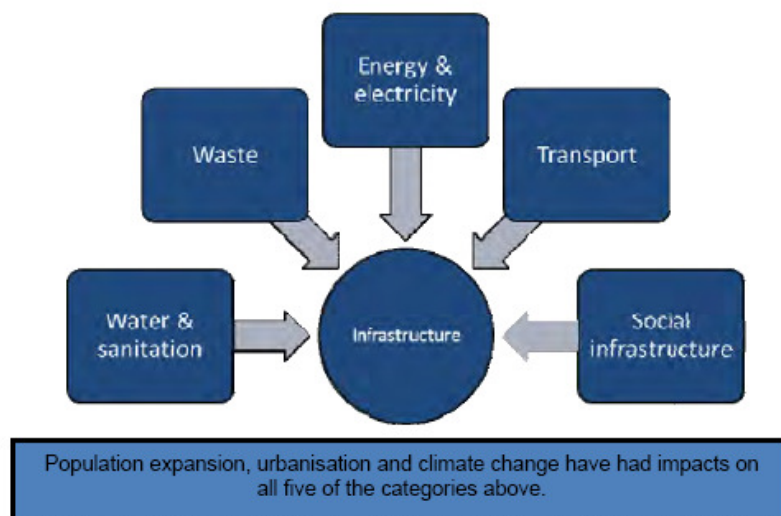


Figure 2\_Different services that qualify as 'Infrastructure' (RSA IDP, 2012:19-24)

## 'Tool' 5: Icon

'Icons' are formal markers and nodes within the city and it creates or reinforces the collective identity of the area. Icons include museums, libraries, gymnasiums, schools, kindergartens and community centres (Architect, 2011). These icons make it easy for community members to use the facilities around them rather than travelling long distances to access one thus maximises the use of limited resources (Gielink, 1999).

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### *Conditions of the context applicable to this 'tool':*

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In an informal settlement where the community functions well in terms of housing and access to basic services such as water and electricity, sometimes the next priority for upgrade is the creation of an iconic structure that will help the community get together and share in order to become unified. This means an intervention such as a museum, library, community hall, sports field or schools in an informal settlement will allow accessibility to facilities that were far away from their living spaces previously. For example, a new community centre can become a major landmark and a visible focus for community communications. This will ultimately contribute to

the development of high growth of the community and revitalisation of the area through having a building that everyone comes together and shares (Hervey Bay Community Centre, 2011).

In a situation where the community is suffering from low economy in their settlement, creating a node of activity as such will bring in job opportunities, access to information, a source of attraction to bring in more people into the area and sharing resources. Thus economy is achieved through the sharing of resources (Hervey Bay Community Centre, 2011). In other words, a community centre or any community icon will make the residents of the settlement more united since it is a resource they all share together.

## **‘Tool’ 6 &7: Dirty Works & Extreme Engineering**

Dirty Works includes specific landscape designs dealing with the sustainability of the ecosystem, including reforestation, river restorations, land slide prevention and recreation areas (Architect, 2011). Sometimes in order to upgrade a low-income residential community in a developing country, initial focus should be placed on landscape infrastructure rather than housing units since it has been proven that people can provide shelter for themselves but infrastructure is more difficult and needs experts to take part in (Williams, 2007). However, this type of intervention is not done by the landscape architects alone since sometimes in order to create a sustainable ecosystem where human settlement can be built upon, one will need extreme engineering and restructuring the land (Hamdi & Goerthert, 1997:179). Therefore in order to manage an environmental challenge, one needs to combine the ‘Dirty works’ with ‘extreme engineering’ in order to make a safe living environment and sustain the ecosystem.

This intervention promotes the creation of a safer living environment for the residents of the informal settlements who are prone to natural disasters such as landslides, flooding, riverside erosion and other landscaping issues. It is an environmentally sustainable design approach in terms of saving the ecosystem from pollution creation by reducing the impact of construction on the disturbed environment, in addition to improving the comfort of its inhabitants (Maroondah City Council, 2012).

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### *Conditions of the context applicable to this ‘tool’:*

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The geographical situation of the informal settlement area and its surrounding should always be analysed in order to understand the reason for natural tragedies that take place in the space.

Matters such as gradient and level of the ground in a specific area are what lead to issues of frequent flooding and soil type is important in order to recognize landslides (Bouchard, 2007:i). In addition to geography, the regional climate is also another factor that contributes to the problems of landscapes. For example, rainy seasons as opposed to warm and dry summers create different atmosphere in the area and can cause different outcomes (Bouchard, 2007:8-9). Riverside erosion can also be problematic if there are housing units in the region. This will lead to houses to collapse and disappear into the river or get seriously damaged. Such a problem can be resolved by extreme engineering and putting in a combination of retaining walls and terracing designed by structural engineers (Hamdi & Goerthert, 1997:179)

The context and site analysis is the most important aspect of regenerating an informal settlement that is prone to natural disasters and thus it becomes the number one priority. If the architect decides to build housing or any other type of intervention in such context, it will be a large economic and resource failure since the natural flooding and other landscaping problems will destroy anything that is on the site due to its geography.

As it has been expressed in the IDP 2012/2016, the concept of sustainable development is an important matter which includes the city's natural resources including wetlands, rivers and parks (RSA IDP, 2012:22). Informal settlements occupy these natural resources in order to create a living space for themselves, without acknowledging the importance of the environment surrounding them. Therefore, designing interventions for 'Dirty works' which is relative to the landscape and natural environment, will create a more sustainable and efficient settlement for now and will be able to reduce the climate change impacts in the future of that area.

## **'Tool' 8: Tectonic Uplift**

This strategy involves technical assistance, structural enhancement or adoption applied to existing or new constructions. 'Tectonic uplift' is not as prevalent on a larger scale and it is not an integral part of the upgrading of informal settlement interventions, however there are still some precedents where support and infill strategies are included (Architect, 2011).

Therefore, the main purpose of 'Tectonic Uplift' intervention in informal settlement upgrade is to promote modular architectural structures where it will give organisational value to further development in an informal settlement. These modular components can also be referred to as pre-fabricated units which are manufactured elsewhere and brought to the site in its final format. However, in this scenario, the intervention is not as restricting and final.



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*Conditions of the context applicable to this 'tool':*

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Building of a modular intervention is beneficial since it reduces the chances of weather related delays or problems and it creates a systematic pattern for further growth (Myers, 2002).

An intervention in the informal settlement is best if it has impact at local scale first and then it can grow to a more global scale later. Architect Teddy Cruz does encourage community participation and involvement by creating Prefabricated aluminium frames that can be used as a hinge mechanism for housing to begin to grow and thus promoting a long term approach to housing solution rather than an immediate one (Wagner, 2012). This type of intervention however, should be specific to site and one must never assume that one method will work for another area. In other words, considering the local conditions and constraints and being able to adjust each project to that allows for architecture to have a greater impact (Wagner, 2012).

In addition to the above interventions which are part of the Navarro-Sertich tool, there are two new interventions that are necessary to take into consideration when upgrading informal settlement. These two interventions are derivative of the theoretical analysis in chapter 3 of this paper and are needed in the context of informal settlement upgrade in specific context.

In a context where there is a community who have taken initiative to build their informal settlement and have always been involved in upgrading it, 'tectonic uplift' is an appropriate approach for intervention since it can give direction in which they can take and upgrade their settlement further according to their specific needs and priorities. 'Tectonic Uplift' interventions can be seen as "architecture that responds to temporary and informal conditions, an architecture that is not temporary or a one-time answer, but architecture that has a real footing, to be adapted and processed over and over again" (Wagner, 2012).

## **'Tool' 9: Security of Land Tenure**

Security of Tenure is critical to sustainable approaches to upgrading informal settlements. Most residents of informal settlements live without any form of secure tenure which gives them the constant threat of eviction. This averts their ability to access credit and constraints their motivation to improve their homes and neighbourhoods (UN Habitat, 2003). In other words, Land tenure security refers to "people's recognised ability to control and manage land using it and disposing its products as well as engaging in such transactions as the transferring or leasing of land" (IFAD, 2008:4).

Therefore having access to tenure security gives the resident a peace of mind that the eviction cannot happen since their land is legally theirs. This may lead to improvement in ownership of the place and motivation of taking care of the settlement on their own without waiting for government entities to do it for them. The temporary status of informal settlements can be seen as a discouragement to future development and thus the community will never invest in such area. Economic growth tends to be higher and more visible when people have equal and secure access to land (IFAD, 2008:5). This is due to the fact that land is an economic resource and an important factor in formation of collective or individual identity which shows how important it is to provide settlements with security of tenure in order to encourage growth and development since "investments and practices, as a minimum, require security of tenure" (Ibid:7).

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*Conditions of the context applicable to this 'tool':*

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In a condition in which the community lives in unity or individually and either way they refuse to invest in the future of their settlement since there is no permanency, it is important to secure their land tenure as a catalyst intervention. There are various definitions for 'Tenure security' but according to the definition which was agreed during the Expert Group Meeting on Urban Indicators in October 2002, is: "the right of all individuals and groups to effective protection by the state against forced evictions" (Augustinus et al., 2003:2). Therefore when security of tenure is provided to the community of an informal settlement, they will no longer be subject to permanent or temporary removal against their will from the land they occupy (Ibid). They can invest in their settlement since it belongs to them in legal terms. In many informal settlements, without 'tenure security', people tend to wait for things to be done for them by government rather than trying to achieve their goals themselves.

In other words, in a context where there is no potential for the informal settlement community to maintain a project or take ownership of an intervention it is important to take into consideration the power of 'tenure security'. There are some common factors that cause constrain to their ability to enhance livelihoods, increase their income and improve their settlement conditions and one of these critical factors is "lack of access to land and the other is land tenure insecurity" and as IFAD recognises, Land access and tenure security is critical determinants of the capacity of the poor overcoming their poverty (IFAD, 2008:15). However, in order to create an informal settlement that can overcome their poverty, 'tenure security' must be complemented by service upgrade and other investments (Ibid:6).

## ‘Tool’ 10: Relocation

The web definition of ‘Relocation’ is “the transportation of people (as family or colony) to a new settlement (as after an upheaval of some kind) (wordnetweb, 2012). This intervention should always be the last resort to upgrading informal settlements due to the theory that was discussed in chapter 3 of this paper: In an informal settlement, there are social linkages that are formed over the years and relocation to a new place usually means that the community’s lives has to be disrupted (Huchzermeyer, 2006:1).

Therefore, ‘Relocation’ of the informal settlement’s residents to the outskirts of the city will not solve the problem if it is not the last resort. This is due to the fact that resettling of informal settlements somewhere far from their original homes and job opportunities disrupts economic and social structure that was developed previously (Cities Alliance, 2012).

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### *Conditions of the context applicable to this ‘tool’:*

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It is important to understand that in-situ interventions are not always the solution when upgrading informal settlements. In a situation when there are life threatening matters such as environmental impact, which cannot be resolved by ‘extreme engineering’ or ‘Dirty works’, ‘Relocation’ of the community is necessary. However, ‘Relocation’ of the community should be a last resort and only be implemented when all the other 9 ‘tools’ have been analysed for the context (RSA DHS, 2009:25).

Sometimes it is necessary to ‘Relocate’ an informal settlement to a new site due to the settlement being built on land that is unsafe or fundamentally unstable (Cities Alliance, 2012). For example, an informal settlement may have developed on an infill site where there is methane gas and that can cause serious health issues. In such cases when ‘Extreme Engineering’ and ‘Dirty Works’ fail, ‘Relocation may be the best option (Ibid).

As a summary, the figure 3 shows all the possible interventions that can take place when upgrading informal settlements. Here each category is called ‘intervention’ instead of ‘tool’ in order to prevent confusion:

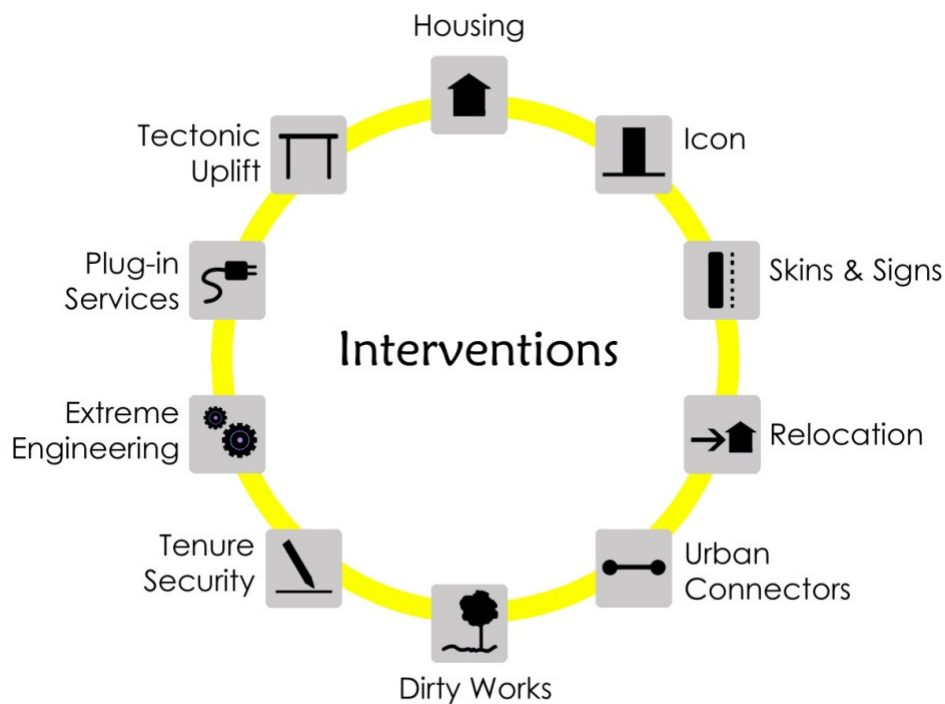


Figure 3\_Interventions for Informal Settlement Upgrade

## Six most important issues that arise from context analysis of informal settlements:

From all the above description of each Navarro-Sertich 'tools' and the context they apply to, as well as the conclusion drawn from the case studies in the previous chapters and the theories discussed in chapter 6 of this paper, six different yet common issues were identified that most informal settlements struggle with. These six issues are the following:

### Life threatening environment due to natural conditions

This is an issue that exists in a context where problems such as flooding, methane gas or problematic soil type are present (Cities Alliance, 2012). In an environment as such, solving the

environmental issue takes priority. This is due to the fact that if the problem is abandoned and new interventions such as 'Housing' and 'Icon' are put in place, it would all become a waste of resources since they will not last there forever and they will be destroyed by the situation. Therefore it is important to create a resilient settlement which is not prone to future risks such as flooding.

It is important to make sure if the threat to the environment and human health can be managed i.e. flood management. If that solution is impossible then relocation is required. For example, in Curitiba (Brazil) flooding due to urbanization occurred in the metropolitan areas and caused social and economic problems in the areas (Tucci, 2004:1). In this context, Flood Management took place via 'Extreme Engineering' and 'Dirty works'. This resulted in success through incorporation of the flood area into a park instead of canals to reduce the flooding and make the cities more livable, Thus no relocation was required (Ibid:3). However, extreme situations are not always repairable thus resulting in 'Relocation' as the only other solution.

Sustaining natural resources by preserving it and making less impact on land is one of the key aspects of creating a resilient city. Protecting ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which the city may be vulnerable is an essential part of creating a resilient environment (Molin Valdes, 2012:48). This can be done through promoting mixed-use buildings for 'housing' and providing 'Urban Connectors' to reduce greenhouse gas emission (Ibid:49). Preservation of the environment can be achieved by 'Dirty Works' intervention and 'Extreme Engineering' when dealing with extreme situation in nature such as flooding.

## Crime Prevention

In a settlement where crime and illegal activities such as drug dealing takes place, an uncomfortable, unsafe and hostile environment is created. In such a context the communities cannot trust one another and everyone will live in isolation from the other. In the public mind, the favelas become a no-go area since they breed grounds for violence and criminal activity (Deffner, 2011). Due to this reputation, the community of the favelas don't take the initiative to increase the quality of their living environment since they don't see a future in it.

Dependent on the type of illegal activities present in context, one useful approach to eliminate such activities is through the creation of passive surveillance by designing of safe walkways for the community, providing lighting and increase of mobility options ('Urban connectors' intervention) (Newman, 1996:115-117). Taking initiatives to improve living conditions in informal settlements that face criminal activities can give rise to hope, an opportunity to present themselves to the outside world in a more favourable light (Deffner, 2011). Thus a smaller scale

project such as 'Skins and Signs' can act as a catalyst and start creating an environment that attracts tourists into the settlement by increasing the aesthetics of the place, increasing passive surveillance due to the new visitors (Newman, 1996:99) and eventually increasing the local economy by increasing tourist in the area.

## Lack of basic services in the settlement

Basic services are essential to our everyday livelihood and health. These services consist of water, electricity, sewage system, sanitation and security which can reduce vulnerability of a community by increasing their accessibility to them (Marcus et al., 2004:3). Lack of services can impact lifestyle, health issues and livelihood of a settlement since without basic services everyday life gets complicated and aspect of wellbeing as well as income gets affected (Ibid:4).

For example, water services impact beyond health and therefore it needs to be viewed as a productive asset which can combine other assets. Water not only sustains life directly but also brings in food and non-food income that is required to sustain livelihoods (Marcus et al, 2004:5). Therefore in order to increase the occupant's comfort, create a socially sustainable environment and eventually increase livelihood and economy of the place, it is important to upgrade services by 'Plug-in Services' intervention approach. One of the five strategic objectives of Economic Development Department of the City of Tshwane is: "Provide quality basic services and infrastructure" (RSA City of Tshwane, 2010). Upgrading a settlement by providing basic services will not only accommodate a socially sustainable environment but will also create an economically sustainable place and will create a long-term intervention.

## Lack of social unity and ownership

If the community who lives in the informal settlement experience lack of equality with the rest of the city, they start dividing into groups and isolate from one another. This issue can lead to a community with no interest in development and investment in their settlement due to lack of purpose (Ramakrishna, 2012). If there is no collective ownership taken of their settlement then everyone will live for themselves and not take care of their settlement or even invest in its future.

In such a scenario, a simple catalyst intervention such as 'Skins and Signs' can help trigger the community's interest in future self-development since now they can see the potential. Community empowerment and pride is one of the first things that are necessary to foster social change, and through 'skins and signs' intervention an informal settlement can get some

international attention which is something positive rather than its crime rates reputation (Schwietert, 2010). However, sometimes no ownership is taken of the settlement due to lack of tenure security. This leads to a priority of 'Tenure security' or 'Icon' intervention where the community believes that their stay in the settlement is permanent. The permanent status of living and security of land tenure will open new doors to opportunity and hope (Kajumulo Tibaijuka, 2003:6).

## Lack of an Inclusive Settlement

An informal settlement which is far from the city centre and rather located in the outskirts is known as a settlement which is not inclusive or included with the rest of the city. Analysing countries such as Brazil, Mexico and Kenya, show that informal settlements and slums have been marginalised and excluded from the city as a whole, largely "because they have not been seen to be adding value" (UN Habitat (2), 2003:8). In a context as such, the community living in the settlement have limited access to health, education, entertainment and jobs. Therefore in such settlement a priority intervention is to introduce an 'Urban Connector' intervention which will increase their accessibility to the rest of the city area.

Increasing accessibility may lead to increase in local economy since now the community has the option of living in their settlement yet working in the city. Therefore "inclusive approaches should be adopted where informal settlement residents are seen to have a right to the city" (UN Habitat (2), 2003:8). 'Tenure security' intervention can also accommodate for achieving right to the city in informal settlements and eventually increase the settlement's livelihood through giving them protection against eviction, the possibility of selling, transferring rights through inheritance and access to mortgages (Ibid:7). 'Urban connectors' intervention can also contribute in increasing the informal settlement's access to the city through increasing their options of transportation.

## Low budget available for immediate upgrade of settlement

In an informal settlement where change is required due to problems on site, but there is low budget available to make the changes, one must think strategically to prioritise their options. Depending on how low the budget is, the decision-maker's choice may be influenced. For example, one of the reasons for proposing a community hall in Slovo Park informal settlement was to create an intervention with the aid of the residents that would be used as primary

catalyst which had a larger future in mind. That is why the project was phased into 5 early construction phases and 5 later future development phases (Bennett, 2010).

If a re-branding in the area is required, 'Skins and signs' intervention can be implemented and it does not require a high budget or technical staff to make such intervention happen. A 'Skins and Signs' intervention can eventually change the public perception of a place, attract tourism and lead to a larger future change in the settlement as it did in case study "favela Painting" in Rio de Janeiro (Firmeza Foundation, 2012). The main goal of "favela painting" ('skins and signs') intervention in Rio was to attract enough funds to return to this area later and continue on working on other projects (Ibid). This means that the local economy of the area could increase due to tourism and the community's interest in their settlement and thus increase their livelihood.

In a context where there is low budget available, it is important to prioritise urgent problems. If there is a need for service upgrade or if there are life threatening issues, it needs to be taken into priority consideration. Having low budget for upgrade is a limitation to the choice of intervention one can achieve, however, there is always the option of a Catalyst intervention that can contribute greatly in the future of the settlement.

As summary of the above six issues, a colour has been appointed to each problem in order to make it easier for the reader to identify them on the final toolkit. The colours are shown in figure 4:



Figure 4\_Six issues that exist on the sites of Informal Settlements



## Toolkit Design process:

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The revised toolkit is designed by understanding the above mentioned issues that commonly exist within informal settlements and allocating priority response (interventions) to upgrade these settlements. Therefore it is important to understand different scenarios where certain matters on site appear to be more important than others.

The toolkit can be used by architects or anyone who has an understanding of informal settlement upgrading procedure. It is required to use Nabeel Hamdi's tools for collecting data from the community such as interviews and games. For a more structured process of collecting data, the 'Community Action Planning Toolkit' could be used to direct the decision-makers and create an understanding of what the crucial issues are on a specific site. The next step in the process of decision-making is to summarise the findings and prioritise them in accordance to the six issues described above. These six options are:

- Life threatening environment due to natural conditions
- Crime and illegal activities
- Lack of basic services in the settlement
- Lack of social unity and ownership
- Lack of inclusive settlement
- Low budget available for immediate upgrade of settlement

When the first three priority issues in the context have been decided on, it is time to put the colours into the revised toolkit. The following is the toolkit:



Figure 5\_Revised Toolkit for Informal Settlement Upgrading Prioritisation

The revised toolkit for prioritising intervention for upgrading informal settlement has two options that can be applied to context. Depending on what the Architect of the project believes to be the biggest concern, they can choose between OPTION A or OPTION B. For Example, in the first row, the context is suffering from life threatening natural environment such as flooding or landslides or riverside erosion. This problem could be addressed by 'Extreme Engineering', 'Dirty works' with landscape redesigning and then the services can be upgraded by 'plug-in services'. However, it is important to realise that 'Extreme engineering' is not always 100% effective and possible, thus here is where the OPTION B is an appropriate intervention for the informal settlement upgrade which is 'Relocation' since all other intervention choice will fail.

In summary, the designed toolkit helps to prioritise intervention in order to get the most successful result when upgrading informal settlements. The Architect may already have a clear idea of what intervention is most appropriate for their site. In such case they can simply use this toolkit to double-check their decisions.

## Application of the Revised Toolkit to existing resolved Informal settlement Upgrades:

### Example 1:

Project Name and Location	Methods of community participation/data collection	First 3 priority issues in the informal settlement
-Rebuilding Communities: Sustaining the Centre -Caqueta, Lima. Peru -1995	-Workshops were carried out in small multidisciplinary teams. -Information was gathered from the groups at two levels: at the site (macro) and at the dwelling (micro). -Opportunities and Problems were understood from the information which was gathered. -Each group decided on a project that was most needed to solve problems in their settlement (Hamdi & Goethert, 1997:175).	-Breakage of Sewage pipes -The erosion caused by the river appeared to be most urgent issue as a few houses had disappeared into the river. -Drug dealing mostly done by non-residents (Hamdi & Goethert, 1997:179).

If the three priorities that were identified by the Caqueta project decision-makers are put into the designed toolkit, the outcomes are of similar nature. The three priority issues which need to be attended can be summarized as the following:

- Life threatening environment due to natural conditions
- Lack of basic services and amenities
- Crime Prevention

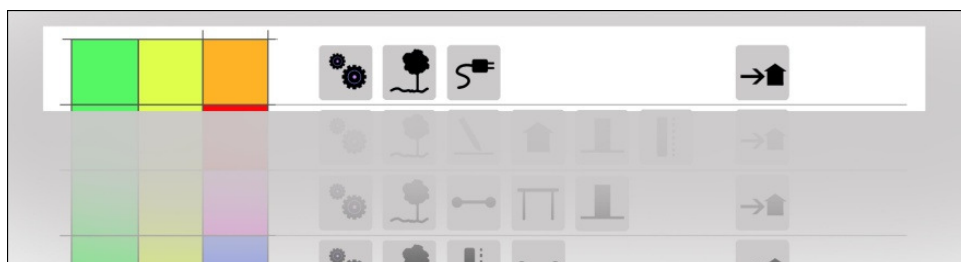


Figure 6\_Application of Revised Toolkit to Priority Problems (example 1)

The toolkit designed for prioritising interventions, suggests the following three interventions as priority solution:

- Extreme Engineering
- Dirty Works
- Plug-in Services

However, there is also a second approach which is 'Relocation'. In a context where the environmental issues are life threatening, in this case the river side erosion where the buildings have started disappearing, the first intervention should be 'Extreme Engineering' and 'Dirty works' in order to see if the environment and settlement can be preserved or fixed. If it is possible, then service upgrade or also known as 'Plug-in services' should be the next priority since the livelihood of the community depends on that. With an increase in livelihood, economy of the area will increase, people from other parts of the city will be interested in living in the area or working there, increase in visitors in the area will encourage increase surveillance and thus resulting to less criminal activities (Newman, 1996:99).

However, if 'Extreme Engineering' and 'Dirty works' interventions fail, there is no use for 'plug-in Services' since the settlement is not a healthy environment to live in. In a situation as such, 'Relocation' is necessary. 'Relocation' should always be the last resort and applied to a settlement when all else has failed.

In order to check the results of the proposed toolkit, Hamdi and Geothert strategy for the upgrade of the Caquesta project is tested, which is the following:

-Temporarily relocate the families in the units in danger and fix the river erosion area by a combination of retaining walls and terracing;

-Build a second floor on top of the existing second row of houses to relocate the formerly evacuated families; and

-Leave a 2-3m passageway between the drop of the river and the new first row of the houses to create a more safe area and allow for commercial activities on the riverfront (Hamdi & Goethert, 1997:179). Commercial activity is however possible through 'plug-in services' since it was previously mentioned that "there is poor water accessibility and electricity installation is incomplete" (Ibid:176).

## Example 2:

Project Name and Location	Methods of community participation/data collection	First 3 priority issues in the informal settlement
-Urban Upgrading -Schweizer-Reneke, South Africa -1995	-Questions were asked from members of the community and first basic data was gathered. -A community action planning workshop was held with 20 participants representing the community's interest, organisations and needs. -The four project co-ordinators selected from the community for each of the topics discussed: Housing, Health, Income Generation and water/sanitation (Hamdi & Goethert, 1997:226).	-Inadequate health care due to issues with water supply (low pressure, limitations, leaking pipes and floating pieces in drinking water). -Depressed living environment: lack of job opportunities and accessibility to schools. -No street lighting or paved roads: lack of surveillance and safe walkways/roads -No security for women (Hamdi & Goethert, 1997:237-238)

If the three priorities that were identified in the Schweizer-Reneke project are put into the designed toolkit, the outcomes are of similar to what the decision-makers of the project decided on. However, there is a slight difference in approach. The three priority issues identified in this project can be summarized as the following:

- Crime Prevention
- Lack of basic services and amenities
- Lack of an Inclusive Settlement (part of the whole city)

Putting these problems into the designed toolkit, the outcome is the following:

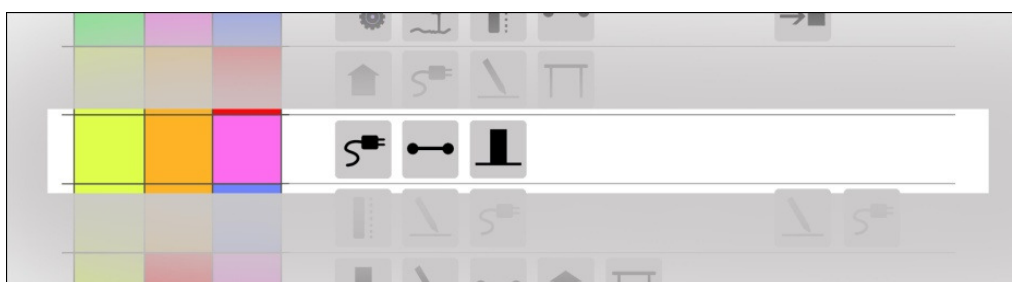


Figure 7\_Application of Revised Toolkit to Priority Problems (example 2)

Intervention strategies by Hamdi and Goethert for the Schweizer-Reneke project were the following:

- First and most focused strategy in this context is repairing the water pipes and low pressure since the livelihood and well-being of the community is dependent on it; and
- Design 'icons' in the settlement such as a temporary clinic and school (Hamdi & Goethert, 1997:241-244).

The interventions suggested by the proposed toolkit and the interventions that have been decided by the Hamdi and Goethert are very similar. They both suggest a "plug-in services" intervention as first priority issue which needs to be attended to. Secondly, the decision-makers of the Schweizer-Reneke project suggest a mobile or permanent clinic which is an "icon" (Hamdi & Goethert, 1997:241-244). But the proposed toolkit for prioritisation suggests "urban connectors" as the second priority intervention. The reasoning for an "urban connector" intervention is that it not only increases the community's accessibility to the rest of the city (access to schools, clinics and shops) but also it creates a greater opportunity for jobs. Therefore, fixing the road (which is another issue in the context) and providing them with other forms of transportation leads to increase accessibility and increase in the community's livelihood and well-being. In other words, the "urban connectors" intervention will resolve more than just one problem since it can act as a catalyst for future development plans.

## Precedent Studies (post-analysis)

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In order to enrich the testing of the proposed toolkit, we applied it to two successful projects of Nabeel Hamdi, portraying the outcomes being of similar nature. To test the toolkit further, a summary was created of the previous five precedent studies which were analysed in Chapter 6. In this section, a summary of the case studies was analysed by applying the toolkit as a test and compared the outcomes of the toolkit to that of which was done in the context of informal settlement upgrades.

## Precedent 1: Slovo Park Community Centre

Problems which were identified in the context of Slovo Park informal settlement (Tshwane, South Africa) were summarised to the following:

- Lack of Basic Services and Amenities
- Lack of Social Unity and Ownership
- Lack of an Inclusive Environment (Part of the whole City)

The toolkit's outcomes for the following issues are:

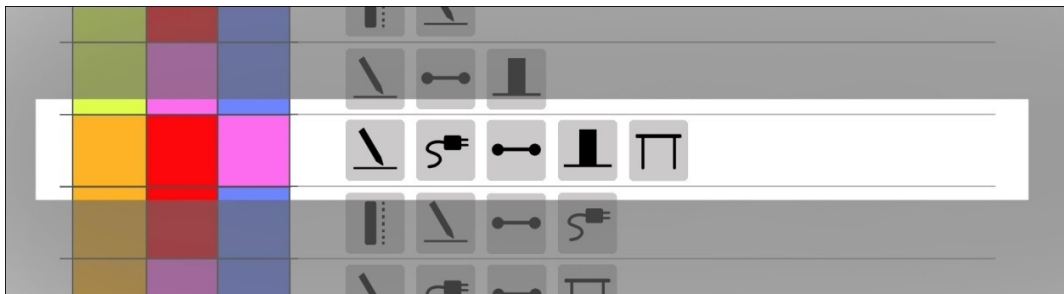


Figure 8\_Application of Proposed Toolkit to Precedent 1

The toolkit's priority interventions are as follows:

- Tenure Security
- Plug-in Services
- Urban Connectors
- Icon
- Tectonic Uplift

In Slovo Park however, the intervention which was designed to upgrade the informal settlement was a community centre which is qualified as an "icon". An "icon" in this context is important in order to create an inclusive environment, but was not the priority intervention which was needed. The priority intervention was to address the need for basic services (Waterborne sewage) and the lack of ownership which became more evident after the community centre was built, since no one maintained the structure from the community. "Tenure Security" and "Plug-in Services" and "urban Connectors" are interventions which are not manageable by architectural students. An "icon" was designed to make a different type of intervention within the context of Slovo Park. The building process of that intervention involved the community and made them understand that their settlement can be upgraded and which gave them the confidence to get involved in future developments through the understanding of the procedure for asking governmental departments for help (Author's observation on site visit and unstructured interviews, 2012).

## Precedent 2: Metrocable system in Bogota

Problems which were identified in the context Bogota informal settlement (Medellin, Columbia) were summarised to the following:

- Crime Prevention
- Lack of Social Unity and Ownership
- Lack of an Inclusive Settlement (Part of the whole city)

The toolkit's outcomes for the following issues are:

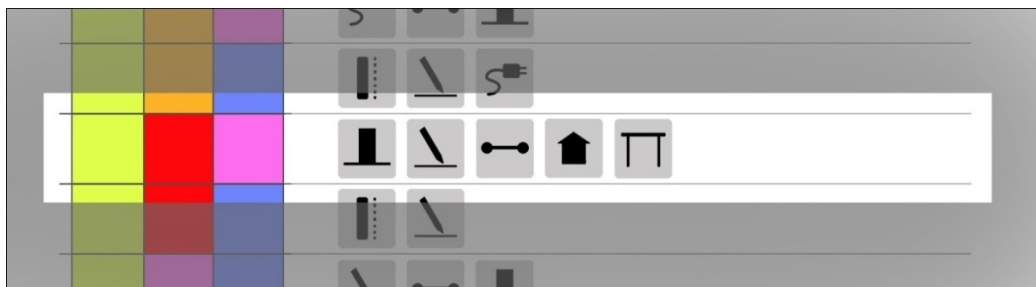


Figure 9\_Application of Proposed Toolkit to Precedent 2

The toolkit's priority interventions are as follows:

- Icon
- Tenure Security
- Urban Connectors
- Housing
- Tectonic Uplift

According to the proposed toolkit, the priority intervention for this context would be an "icon" which will increase the sense of unity and ownership in the community, dependant on the nature of its programme as it may increase safety in the area and it can also create an inclusive environment by bringing in facilities such as schools. Considering this, the solution that the former Mayor Luis Perez decided on was the Metrocable, linking the favela at Medellin to the rest of the city (Urban connectors). At first this intervention seems naive and too formal for such an informal context, however, it has eventually helped upgrade the informal settlement and address their issues including crime prevention and creating an inclusive settlement. Due to lack of initial community participation, the community's priority problems were not identified and catered for through an intervention (Navarro-Sertich, 2011). The Metrocable was initiated to contribute to the tourism aspect yet it did help decrease the criminal activities in the area by increasing passive surveillance through bringing in more tourists into the area and advertising the place as an attraction (Ibid). The needs of the community were addressed later when schools and libraries were built in the area (France24News, 2010), thus, the Metrocable resolved the needs of the community unintentionally by making the favela a landmark.



### Precedent 3: S.L.U.M Urban Flashes

Problems which were identified in the context of Oshiwara River bed Slum (Mumbai, India) were summarised to the following:

- Life Threatening Environment due to Natural Conditions
- Lack of Social Unity and Ownership
- Low Budget Available for Immediate Upgrade on Site

The toolkit's outcomes for the following issues are:

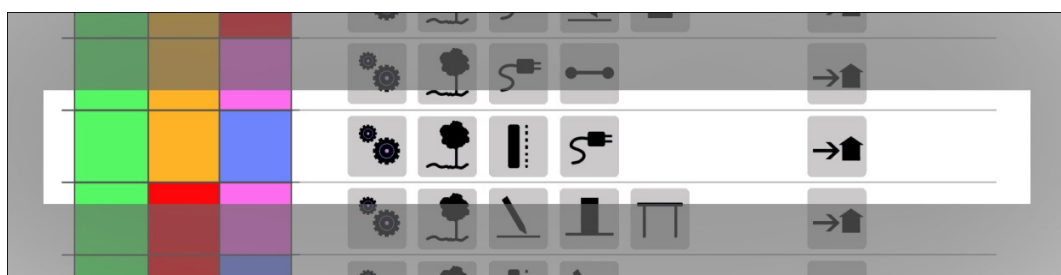


Figure 10\_Application of Proposed Toolkit to Precedent 3

The toolkit's priority interventions are as follows:

- Extreme Engineering
- Dirty Works
- Skins and Signs
- Plug-in Services
- [or] Relocation (if the first set of options fail)

The Oshiwara river, which is the natural resource existing in the neighbourhood of the informal settlement had become a threat to the health of the community since as it was infested with industrial waste (Casagrande, 2007). Therefore, cleaning out the natural resource and promoting a healthy environment was the priority issue which was to be attended to. Similar to the outcomes of the toolkit, the first intervention was "Dirty Works" in this context where the community cleaned out the river by recycling methods and created an agricultural landscape around the river (Ibid). This way, jobs were created (farming), new income generators were brought to place (recycling the waste) and the natural resources was cleaned adding aesthetics and environmental sustainability to the area. Cleaning out the waste from the river added beauty to the area as well as the agricultural activities, making the surroundings of the Oshiwara River, an aesthetically pleasing place through "skins and signs" approach. The agricultural landscape and clean living area intervention gave them pride and status and created an opportunity for the community to become part of the larger city through aesthetic upgrade. The income generation techniques in the area can further develop the slum by increasing the area's economy resulting in the community being able to initiate "Plug-in Services".

## Precedent 4: Favela Painting

Problems which were identified in the context of Vila Cruzeiro favelas (Rio de Janeiro, Brazil) were summarised to the following:

- Crime Prevention
- Lack of Social Unity and Ownership
- Low Budget Available for Immediate Upgrade on Site

The toolkit's outcomes for the following issues are:

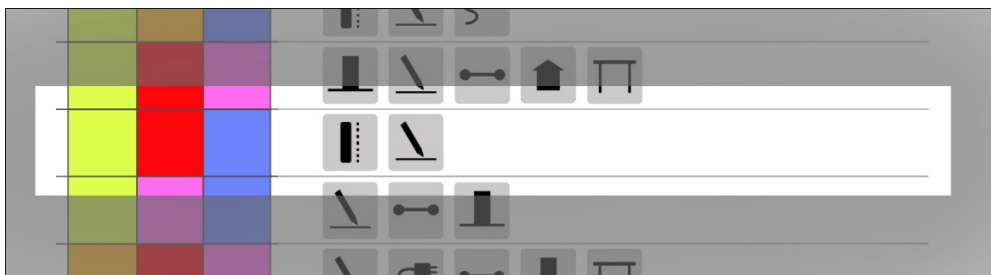


Figure 11\_Application of Proposed Toolkit to Precedent 4

The toolkit's priority interventions are as follows:

- Skins and Signs
- Tenure Security

Due to lack of sufficient funding, the options of interventions for upgrading this favela were very limited. Considering this constraint, the toolkit as well as the artists who initiated the upgrade in the area, both suggest "Skins and Signs" as a primary intervention. The decision-makers of the Favela painting were two artists (Haas and Hahn) who painted the surface of the concrete structures and residential facades in order to create jobs, promote unity amongst the residents through community participation and encourage pride through changing the imagery and creating a positive representation of the favela to the rest of the city (Feireiss, 2011:109).

The painting of favelas was successful in achieving its specific goal since it created a sense of pride within the community, changing the negative reputation, decreased criminal activity by attracting tourists to the area and increased passive surveillance (Ibid:115). The second intervention that would help this community is "tenure security" as to enable the residents to start investing their local income into their settlement, improving the situation and having ownership of the place. Considering this "tenure security" intervention, it requires government's involvement and more administration. "Skins and Signs" may not directly eliminate criminal activity and poverty in these favelas, but the by-products of this intervention can be a starting point to overcoming these challenges through creating an attraction and bringing tourists into the area to increase local economy.

## Precedent 5: Le 56/Eco-Interstice

Problems which were identified in the context of the abandoned passageway between residential buildings (Paris, France) were summarised to the following:

- Lack of Basic Services and Amenities
- Lack of Social Unity and Ownership
- Lack of an Inclusive Settlement (be part of the whole city)

The toolkit's outcomes for the following issues are:

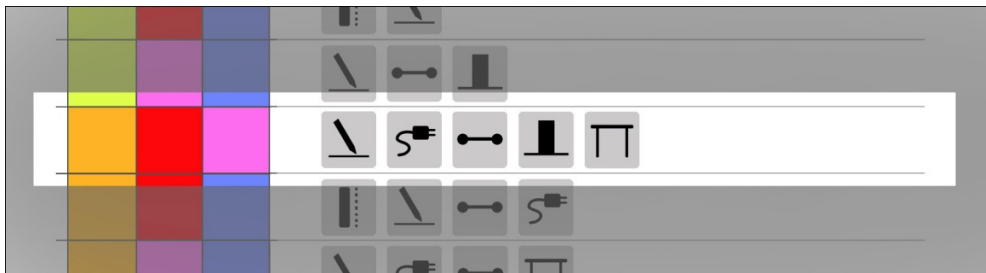


Figure 12\_Application of Proposed Toolkit to Precedent 5

The toolkit's priority interventions are as follows:

- Tenure Security
- Plug-in Services
- Urban Connectors
- Icon
- Tectonic Uplift

This area was an abandoned corridor between residential buildings, thus it had no specific community or owners. Therefore, "tenure security" does not make sense in this specific context since it does not belong to a particular community like the previous case studies. The next suggested intervention by the toolkit is "plug-in Services" which is the same approach Atelier D'Architecture Autogeree (AAA) took (Bustler, 2011). The aim of the project was to revitalise this abandoned area and involve the residents through a participatory process and achieve an inexpensive transformation with ecological materials (Feiress, 2011:104). The intervention in the area was a service upgrade, providing compost toilets and also an area for community meetings, concerts and other group activities. Although "urban connectors" was not designed for this context (due to the different professionals and funding needed for such intervention), the area was yet revitalised through creation of a community centre which was maintained by a group of people and thus attracted many citizens from all over Paris, into this place (Urbantactics, 2008).

## Conclusion:

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The purpose of the toolkit for prioritising intervention when upgrading informal settlement is to enable less experienced architects the ability to apply this toolkit to their projects and yet achieve a similar result as that of the professional and well-experienced architects (Such as Nabeel Hamdi's interventions). The toolkit was tested on two examples from Hamdi and Goethert's 'Community Action Planning' in order to portray the similar conclusions to that of other expert's results. The five previously analysed case studies were re-analysed by applying the proposed toolkit and comparing the outcomes with each other. This way the toolkit was tested and its role in improving informal settlement upgrade in the five case studies were presented.

As portrayed above, other tools and systems of analysis are yet required to gather information on what the priority needs of the community in informal settlements are. The proposed toolkit will assist in the process of upgrading informal settlements, therefore it will be useful when information is already collected, systemised into priority problems and needs to be translated into priority interventions for the site. Its purpose is to fill in the gap where decisions for final intervention of upgrading takes place.

A consideration to note is to understand that the different interventions options that are available to upgrading informal settlements are not all Architectural interventions. Some of the interventions such as "Extreme Engineering" and "plug-in Services" do not require any architectural knowledge but yet are essential when upgrading informal settlements.

# Chapter 8\_Conclusion

## Conclusion

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In South Africa, with all the allocated funding to Informal settlement upgrading projects, the housing crisis continues to exist in the country and millions of poor households face lack of access to basic services, transportation and security of tenure on well-located land (Tissington, 2011:11). The Problem that arises from this concern is that there are different types of interventions that can be applied in a well located informal settlement rather than just 'Housing' intervention. As previously discussed, it is important to prioritise the options of available interventions that can be applied onto an informal settlement in order to upgrade it. For example, sometimes in order to upgrade an informal settlement, it is important to focus on infrastructure problems rather than 'Housing' since it has been proven that the community can provide shelter for themselves but infrastructure is a matter that requires professionals and experts to implement (Williams, 2007). Thus the issue of prioritising interventions when upgrading informal settlements called for a need of a toolkit that provides sufficient guidance to less-experienced architects in the field to achieve a similar conclusion as architects who have had many years of experience.

The role of the Architect is to design interventions that identify future proposals for the development by understanding the community's needs through the eyes of the "observer, the visitor and for a moment in time being part of the community" (Bennett et al., 2010:14-21). However, this is a complex issue since each architect is different and due to the limited time interventions have, it is difficult to fully comprehend the community and fully understand their requirements. Therefore, decisions that are made by architects in terms of the most appropriate intervention for an informal settlement upgrade is usually subjective to their individual views, knowledge and creativity (Michalek et al., 2002:500). Therefore, in this context, the role of the 'Architectural Facilitator' is to systemise the common issues that informal settlements face and propose a toolkit that assists the less-experienced designer with the evaluation of their findings into an effective intervention yet allow them to maintain control where appropriate and pursue creative exploration.

A “Super Tool” that combines the strength of all the existing tools would not achieve this solution to the above mentioned issue (Hamdi et al., 1997:106). This is due to the fact that the tools, systems of analysis and toolkits that currently exist, each are intended for different purposes. Some are more universal and some are detailed and specific to a certain part of the process of informal settlement upgrading. By studying five different tools and comparing them to Hamdi and Geortherts ‘Community Action Planning’, a gap was identified which the proposed toolkit addressed. The proposed toolkit was to facilitate for the translation of findings on site to prioritising interventions according to the needs in a specific informal settlements. The aim was for the proposed toolkit to work in conjunction with the existing tools aid in the process in terms of assisting the less-experience architects in their final decision-making.

Prioritisation is “a crucial step towards making good decisions” regarding planning or proposing intervention for upgrading informal settlements (Aurum et al., 2002). Therefore, the proposed toolkit considers the importance of community’s urgent needs and combines them in order to prioritise the intervention choices for the site in order to make the most successful change as possible. This toolkit was designed by analysing five case studies and theoretical issues that may exist in informal settlements. The common issues were condensed into six main problems. Different scenarios were compiled with priority options of interventions that would help resolve the needs of a community when upgrading their informal settlement.

As the world is rapidly urbanising with majority of the population living in the urban areas (Harvard Humanitarian Initiative, 2010). With this rapid urbanisation and having more than half of the current urban populace is made up of informal settlements and slums. Therefore developing tools for city planners, architects and policy-makers to consolidate the knowledgebase on urbanisation and respond to urban humanitarian emergencies is important in order to achieve a sustainable healthy urbanisation (Ibid). This proposed toolkit assists the less-experienced architects in the field of informal settlement upgrade, in terms of their decision-making and prioritisation. By analysing the context of informal settlements with the aid of Hamdi’s tools and prioritising the three needs in the site, the proposed toolkit gives assistance in how those priority needs can be translated into priority interventions to help upgrade the informal settlement. The proposed toolkit’s aims to provide the same result in similar conclusions and decisions as those with many years of experience in the field of upgrading. Choosing the correct intervention that would cater for priority needs of a community in an informal settlement will contribute in making a futuristic change for the larger context of the city. An informal settlement that is upgrading with prioritised needs and appropriate interventions can eventually relate to “healthy urbanisation” (W.H.O., 2012). A healthy urbanisation includes: stimulation of job creation, land tenure, transportation, sustainable urban development, social protection, community empowerment, vulnerability reduction and better security among others (Ibid). The proposed toolkit achieves the intention of systemising decisions in the context of informal settlement upgrade and it can further be tested by both architectural students and practicing architects alike in order to validate the accuracy of its outcomes.

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# Appendix A: Table 1

## The NUSP Resource Kit Application to Case Studies

The NUSP Resource Kit			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 1: The Slovo Park Project	<p>-The Slovo Park project has theoretically implemented the NUSP toolkit in majority of its process and they are valuable guidelines in order for upgrading an informal settlement in South African context (there are correlations but the NUSP resource kit was never directly applied).</p> <p>-The funding for the Slovo Park project was from private sectors and the project used many of the existing skills in the Slovo community.</p> <p>-Many methods of community participation and skills development were used in the process of this project which the Slovo Park community benefit from.</p>	<p>-Even though the NUSP toolkit is based on the South African context, the sixth section which is about 'funding' (NUSP 2010) is not informative enough as to how one can apply for such funding.</p> <p>-Community participation is encouraged in the NUSP toolkit for upgrade (NUSP 2010), however, it does not give any guidelines on how to promote it.</p> <p>-Although many of the NUSP toolkit (NUSP 2010) guidelines have been theoretically applied in the Slovo Project, the outcome and final result of the intervention did not end up to be fully successful since no guideline on how to interpret the collected data has been provided in this document.</p>	<p>In conclusion the NUSP toolkit is a very good stepping stone to upgrading informal settlement, however it is not yet complete in terms of giving more information on how one can achieve the given guidelines. For example, it doesn't give guidelines on how an enabler of an informal settlement upgrade can get funding for the project and how they can tackle such issues.</p> <p>The NUSP toolkit is a useful document in the case of Slovo Park project since it gives an indication of where one can start a project of informal settlement upgrade. It gives direction to role players such as architects, engineers, policy makers and community who live in the settlement. However, it is not a complete document in isolation and other documents will be required to address the Slovo Park Project such as background knowledge of governmental policies and options in terms of funding such upgrade program.</p>

The NUSP Resource Kit			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 2: Metrocable system	<p>-The needs of the community became the individual interpretation of the architect and mayor, however, they did analyse the travelling patterns of the residents and used this information for making a Metrocable to make travelling easier for the community.</p> <p>-The financing of the project was easier to manage this time since the project was done by the government and thus the budget allocated to the project was higher than a private entity project.</p>	<p>-In this project, there was less community participation involved as the final decision of putting a Metrocable in the place was made by the architect Giancarlo Mazzanti and the former Mayor of Medellin Luis Perez.</p> <p>-The needs of the community were not understood through different ways of community participation and that could be the reason for rejection of the project by the residents.</p> <p>-Due to lack of ownership, it is not the residents who are sustaining the improvements but the government itself.</p> <p>-In situ upgrading does not always lead to a sustainable intervention.</p>	<p>Even though the NUSP toolkit is mostly based on the South African context, it can be altered and become applicable in the global context too. That is due to its open ended guidelines and the use of international precedents that help explain their guidelines.</p> <p>Due to the NUSP toolkit's step-by-step nature, it is a good starting point for any upgrade project. However, NUSP toolkit focuses mostly on projects that are components of Output 1 of Outcome 8 of National Delivery agreement (NUSP, 2010). Outcome 8 is focused more towards improvement of household life quality and its output 1 is to improve the standard of services and security of tenure to households (NUSP, 2010). This makes the NUSP toolkit more specific in terms of the type of project it can help with but nevertheless, the flexibility of this document gives the ability of adaptability to other types of project use.</p>

The NUSP Resource Kit			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 3: S.L.U.M Urban Flashes	<p>-one can say that majority of the NUSP resource kit steps (2010) were put in practice theoretically in the S.L.U.M Urban flash project and the entire project was built on and with community partnership (Casagrande, 2007).</p> <p>-Although a support structure for taking over the project after the enablers were off the site was not elected, however, certain some families took over the ownership of the project and took care of the Buffaloes and the farming (Casagrande, 2009).</p>	<p>-The partnership between the Architects and the community was only for the time of the project since they were all from different countries they had to go back (Casagrande, 2009). Thus the community of the Slum had no further monitoring and evaluation after the project. This means that the intervention could have failed due to the very short amount of time spent on site and with community. The project was not well thought out in terms of part 9 of the NUSP toolkit (2010) regarding 'sustaining improvement' and future development.</p> <p>-The NUSP resource kit section 6 is about how to get some of the funding from UISP. If the "urban flash" project had a document that explained where to get possible funding from, the nature of the interventions might have been different and of a larger scale and impact (NUSP, 2010).</p>	<p>The NUSP toolkit focuses more on the building structure interventions and it is not necessarily applicable to all different types of intervention. However one can adjust some of the sections to fit to other types of interventions such as farming and recycling in this project.</p> <p>A NUSP resource document should be available for other context as NUSP is very South African context specific. However, the process and the general steps used by NUSP are very useful in any context.</p>

The NUSP Resource Kit			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 4: Favela Painting	<p>-Changing the image of the current community was the main aim of this project and therefore a small intervention was done by two artists.</p> <p>-Most of the community involvement took place in the process of making the intervention happen as in the actual painting process of the favela and not throughout the planning.</p> <p>-The painting and changing the appearance of the Favela did change the public perception of the previous identity of the place to a small extent. Therefore, small changes must not always be on invisible needs of the community and sometimes being bold and obvious can also help the needs of the community.</p>	<p>-Nothing was planned in sustaining the future improvements and the paint is starting to fade which is still adding to the character but it is a sign of the project not being thought out fully. However, how can one create a team to sustain the painting through time if the community is suffering from poverty? Where can they get funding from? The NUSP toolkit has a gap in terms of giving solutions or guidelines to address such issues.</p> <p>-The project was an in situ upgrade but did it address the real needs and priorities of the community? Is in situ always the answer to upgrading?</p>	<p>The broad description of the process of informal upgrade which is described in the NUSP toolkit allows it to become adjustable to any type of intervention. However, this can become a problem since this guideline does not give suggestions of what type of intervention is going to be needed in a specific informal settlement.</p> <p>However, the NUSP toolkit does strongly recommend on in-situ upgrade for the intervention of upgrade in an informal settlement as it is clearly stated and expanded in its Part 2 of the recourse kit. Part 2 of the NUSP toolkit is titled "in situ upgrading principles and policies" and it merely focuses on 'promoting and providing finance for the upgrading of informal settlement in their existing locations' (NUSP, 2010).</p>

The NUSP Resource Kit			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 5: Le 56/Eco-Interstice	<p>-The project engaged a partnership between local government structures in Paris, local organization, inhabitants of the area and a professional association which ran the training programmes (Feireiss, 2011:101)</p> <p>-Participation with the community was in the decision making and also during construction. Therefore people were very involved through the process of upgrade.</p> <p>-Building community relations was one of the important focuses of the project and thus participation was essential aspect.</p> <p>-Later a support structure was put in place to take over the project when the architects and other professionals are out of the project. This was an aspect of success for the project's sustaining future improvements</p>	<p>-The project was initiated by the city council to revitalise this space and then architects got involved and participatory actions with the community took place. However, such a chain of action is not mentioned in the NUSP toolkit.</p> <p>-The most important intervention in this space was not the physical intervention of the building but rather the collective participation training and responsibilities that were given to individuals who live in the area, creating a support team to take over the project when the professionals leave the project. In section 9 of the NUSP toolkit, it has mentioned the importance of "a support system" for sustaining the improvements; however, it does not give any guidelines on how to achieve such a goal.</p>	<p>The NUSP toolkit should become more detailed so that it guides the enabler of a development project in terms of decision-making for the appropriate intervention for specific site. The Le 56/Eco-Interstice project, the enablers could have used a similar process as the NUSP toolkit for a starting point and as a means of guidelines, although the project is not directly related to upgrading of an informal settlement. Part 2 of the NUSP describes the importance of in-situ upgrading in an area (NUSP, 2010). NUSP toolkit provides the enabler with appropriate resources such as existing policy documents or previous examples in order to create an understanding of how in-situ project will help the revitalisation of a space such as the one in Le 56/Eco-Interstice (see part 2, NUSP, 2010).</p>

## Nabeel Hamdi's 'Tools' Application to Case Studies

Nabeel Hamdi's Tools for Community Need Analysis			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 1: The Slovo Park Project	<p>-Nabeel Hamdi's guidelines introduce the reader to methods of collecting useful data from the community of the informal settlement through a variety of toolkit suggestions. Many of his toolkits have been used in the Slovo Project and have given very useful outcomes which have helped the final decision-making for the appropriate intervention.</p> <p>-The different types of toolkits give the option of a variety of approaches in order to collect as much information as possible and his examples give real life understanding, such as his use of problem tree toolkit which has been used exactly as is in Slovo Project.</p>	<p>-Even though Nabeel Hamdi's toolkits (Hamdi, 2010:69) have been used in the Slovo project, the final intervention was not taken ownership of and it resulted in an unused community centre, vandalised by children.</p> <p>-The Nabeel Hamdi toolkit for sustainable development (2010:69) promotes community participation and shows many different ways of collecting data. However, there are no descriptions on how to interpret the collected data and turn it into a sustainable 'intervention'. The interpretation part is left to the designer to make the decisions and only a number of examples are given to learn lessons from.</p>	<p>There are many examples in this approach but it does not guide the enabler as in which one is appropriate and applicable to what type of context.</p> <p>Nabeel Hamdi's approach is focused mainly on the available research tools that help gather information in order to understand the priority needs of a community (Hamdi, 2010:69). Although the fourth chapter of 'The placemaker's Guide' is called 'toolkit', it is not necessarily a toolkit which could help the upgrade of Slovo park by itself. There are other documents and information that one must use in order to approach an upgrade project such as Slovo park for example the policies and funding issues.</p>



Nabeel Hamdi's Tools for Community Need Analysis			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 2: Metrocable system	<p>-Community needs were identified through self-interpretation of the architect and the mayor, through studying of the patterns of movement on the site.</p> <p>-The intervention was not a small change to the context; however, it did address the issue of travelling for two hours and reduced it to seven minutes (Navarro-Sertich, 2011).</p> <p>-</p>	<p>-The community was not involved in the initial decision-making and their needs were not identified through interviews and application of any toolkit but through self-interpretation of experts only.</p> <p>-The toolkit of Nabeel Hamdi (2010:69) does not give a guideline on how to interpret the data driven from a site, therefore if an architect or mayor interprets it in their own individual way, such interventions can take place all the time.</p>	<p>There are no examples of such nature in the Nabeel Hamdi toolkit. The interventions are smaller and simpler. The final result is aimed to make the bigger difference but only by starting with a small change. No need for large expensive interventions in order to upgrade a place or community is the main objective of this toolkit.</p> <p>One can argue that Nabeel Hamdi's approach in his 'toolkit' chapter is more about the research methodology that can be used to gather important data in an informal settlement since he does not give any guidelines on how one can interpret the findings of each methodology (Hamdi, 2010:69-76). Therefore, the designer can interpret the data in any way they want and design an intervention they find most suitable without any guidelines on the possible types of interventions.</p>

Nabeel Hamdi's Tools for Community Need Analysis			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 3: S.L.U.M Urban Flashes	<p>-By involving the community and teaching them about the benefits of the buffalo and the agriculture that could exist around their resources (the buffalos), a business plan for the community was achieved, creating income from what they have. Sharing the resource potentially creates a sense of community and unity amongst the residents.</p> <p>-the analysis of the community need was for the time being when there was a need for more space for the Buffalo and its products as well as the need for a clean living environment. However, there was a sustainable aspect to it and that was creating jobs for the members of the community in the process of upgrade.</p> <p>-also, the need for a clean living environment is crucial to a sustainable future for the inhabitants of the area.</p>	<p>-The community participation and the methods of collecting data for this project are not clear however, it is mentioned that the intervention was decided on by using different types of community participation, interviews and observation of what was happening on site (Casagrande, 2009).</p> <p>-Nabeel Hamdi's tool is useful in the beginning stages the upgrade programme. Yet, as the intervention is decided upon, there will be no need to go back to Hamdi's method of analysis.</p>	<p>Nabeel Hamdi's analysis of community needs and ways to collect the data is useful in this project. His tools such as interviews and observation have been used in order to understand the community's priority needs. However, the analysis tool stops being applicable as soon as the designer (Casagrande) decided on an intervention. The next step of constructing the project is not included in the analysis guideline and thus makes this document a 'system of analysis' rather than a 'toolkit for planning' (Hamdi, 2010:69-76). Therefore this document (chapter 4 of Hamdi's 'a placemakers guide') is not enough to cover an upgrade project from start to finish and other documents of information are needed along the process.</p>

Nabeel Hamdi's Tools for Community Need Analysis			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 4: Favela Painting	<p>-The Painting of the favelas was decision made by the artists, however it was discussed and asked for the community's opinion and they agreed to take part. Even though participation did not take place during planning of the project, it did happen in the process of making.</p> <p>-New skills were taught to the residents of the area and their skills were used during the project.</p>	<p>-Public participation was not focused much in decision making of this project, however, skills development during the project was done and that created a sense of ownership of project for people who were involved.</p> <p>-The aim of the project was not necessarily resolving the community's bigger needs but it had a smaller intention and it did serve the purpose.</p> <p>-The painting project and changing the visual aspect of the favela acted as a catalyst for upgrade since it gradually became a tourist destination and the drug-dealers had to leave due to many police patrols in the area. Therefore, being obvious and bold in the intervention can sometimes work well!</p>	<p>There are many toolkits of how to gather data from the community to realise what type of intervention is best suited for a context. The favela painting hasn't focused on all the different types of data gathering as indicated in Hamdi's toolkit. The intervention is small but the final product and outcome from the intervention also remains small in this scenario.</p> <p>Nabeel Hamdi's 'toolkit' chapter talks about the methods of understanding the community's needs by different methods of observation, transect walks, interviews etc (Hamdi, 2010:69-70). Hamdi also suggests the Harvesting of resources within the community to get a sense of the human capital resource we might have (Hamdi, 2010:71). In the Favela Painting project, the painting intervention was decided upon and later the skills were taught to the community and non-the-less it was effective in its context. Therefore, Hamdi's approach is not set in stone and it can be used as a more flexible method sometimes.</p>

Nabeel Hamdi's Tools for Community Need Analysis			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 5: Le 56/Eco-Interstice	<p>-Many different forms of participation took place in the making of this project as the community especially the youth were involved in all the process from planning to construction.</p> <p>-The surveys and questionnaires were also done by the community but designed by the professionals. This created a sense of belonging to the project as the community was the one collecting the data and working with professionals.</p> <p>-Skills development done by professional associations gave the participants the confidence of carrying the project further and becoming part of the support team for sustaining or designing any future improvements.</p>	<p>-The architects gave the option of assistance to the community, after they leave the project. Therefore, taking over the project's future improvements was not an intimidating act since they could ask the professionals if anything went wrong or if they needed assistance in terms of design. However, this is not mentioned in Nabeel Hamdi's toolkit. Nabeel Hamdi promotes training the community in such a way that they do not need any further assistance once the professionals leave the site.</p> <p>-Creating a method of community participation with the residents of the place who are more eager to help upgrade of the place, could be helpful since they might ask questions and raise matters that us as an outsider would have never thought of being of importance.</p> <p>-Nabeel Hamdi's toolkit wants EVERYONE to take part in the future development of the place (Hamdi, 2010:135), however, sometimes it seems more realistic to put a small group in charge to be the leaders to the rest of the community.</p>	<p>This intervention is well suited to become an example in the Nabeel Hamdi's book since all the toolkits and the notion of public participation is the main derivative of the eco interstice.</p> <p>Hamdi's data gathering methods with community participation have been used in this project such as interviews and observations (Feireiss, 2011:104). However, these tools alone are not helpful in terms of decision-making on what type of intervention is more suitable in such a space and who the possible project enablers are. Hamdi's approach should be used as a starting point to understanding a community through different methods. It cannot be used in isolation and should be combined with other documents such as funding of such projects, different types of interventions and policies that are involved.</p>

## The Sustainable Building Assessment Tool Application to Case Studies

The Sustainable Building <b>Assessment Tool</b> (CSIR)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 1: The Slovo Park Project	-The SBAT toolkit can only be applied to a finished building design and it analyses the Social, Environmental and economical sustainability of the intervention (Gibberd, 2008:3). In the Slovo Project, all the three fields of sustainability have been applied, however the community centre is not fully sustainable and functional (own observation, 2012).	-Even though the Slovo Park project complies with most of the SBAT tools, yet it is not functional enough and it is abandoned and not used. Thus the sustainability of a building does not necessarily mean that the design will be fully useful for its community.	This assessment tool does not guide as in what type of intervention can be designed for a site. It only describes how to make an intervention sustainable. SBAT is a toolkit which is only based on the sustainability of the final intervention and it can either be used throughout the project, applying its principles to the designing process of the intervention, or it can be applied to an existing intervention structure to determine its sustainability level (Gibberd, 2008). Thus SBAT alone is not a complete toolkit to use in an upgrading an informal settlement project since it only covers a certain part of the upgrade issues in an informal settlement.

The Sustainable Building <b>Assessment Tool</b> (CSIR)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 2: Metrocable system	- This assessment toolkit is not applicable to the Metrocable precedent since the final intervention here is not a building and cannot be analysed in terms of the SBAT requirements (which is specific to buildings). However, the Metrocable can be analysed in broad terms of its contribution to Economic, Environmental and Social sustainability.	- This assessment toolkit is not applicable to the Metrocable precedent since the final intervention here is not a building and cannot be analysed in terms of the SBAT requirements (which is specific to buildings). However, the Metrocable can be analysed in broad terms of its contribution to Economic, Environmental and Social sustainability.	SBAT is not applicable to all types of interventions but only ones that are building structures. Therefore the SBAT approach is limited to specific type of interventions that could be used in upgrading an informal settlement and this issue makes it not the most applicable tool for the designer. However, it is very important to calculate the sustainability of any physical project since the subject of sustainability is an important matter due to its impact on a good environment, reduction of future risks, lowers the cost and improvement of productivity (NSW Government, 2012).

The Sustainable Building <b>Assessment Tool</b> (CSIR)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 3: S.L.U.M Urban Flashes	<p>-The S.L.U.M urban flash project does comply with the social, environmental and economical aspect of sustainability since it takes the community participation, access to facility, local economy, recycling waste and clean environment into account when reactivating the area around the slum settlement.</p>	<p>-Each section of the SBAT tool is covered during this project namely: Social, economic and environmental sustainability. However, this toolkit only covers part of the project and should be used more in terms of an analysis system since it does not suggest the type of intervention that could be applied to a specific context.</p>	<p>The SBAT can be applied to variety of interventions in order to evaluate their sustainability, during or after the intervention is designed and completed (Gibberd, 2008:1). Even though it is named 'Sustainable building assessment tool', it is not a toolkit but an analysis system. It is useful in terms of understanding how sustainable a structure is in terms of economy, socially and environmental but it does not give guidelines on the type of intervention that is needed in an informal settlement context. Therefore SBAT is a valuable analysis tool but it is not a toolkit for upgrading informal settlement. It works with certain intervention typologies, mostly buildings, but it can be altered to fit other types of interventions if needed.</p>

The Sustainable Building <b>Assessment Tool</b> (CSIR)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 4: Favela Painting	- This assessment toolkit is not applicable to the favela painting precedent since the final intervention here is not a building and cannot be analysed in terms of the SBAT requirements (which is specific to buildings). However, the favela painting intervention can be analysed in broad terms of Economic, Environmental and Social sustainability, and not in specifications of the SBAT.	- This assessment toolkit is not applicable to the favela painting precedent since the final intervention here is not a building and cannot be analysed in terms of the SBAT requirements (which is specific to buildings). However, the favela painting intervention can be analysed in broad terms of Economic, Environmental and Social sustainability, and not in specifications of the SBAT.	The favela painting is not a building or structural intervention so again the SBAT is not applicable. SBAT could become broader and able to assess any type of intervention and not only the buildings. There are many different types of intervention that can be designed in order to upgrade a community (as seen in the five different case studies discussed in this paper), therefore the SBAT is limited in this matter and does not apply to all types of intervention (Gibberd, 2008:3-5). This means that this document may not always be valuable depending on the type of intervention that is being assessed.



The Sustainable Building <b>Assessment Tool</b> (CSIR)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 5: Le 56/Eco-Interstice	<p>-The SBAT can be applied to the intervention presented as precedent 5 in this study. This intervention can be assessed in terms of its social, economical and environmental sustainability since it was the three main issues the designer focused on when designed this structure.</p>	<p>-SBAT is however an assessment tool and cannot be treated the same as a toolkit and thus it is not much relevant to this thesis research. SBAT doesn't guide the professionals involved, how to approach an opportunity for development but rather explains how one can assess a design after it has been built, in order to test whether it has succeeded or not.</p>	<p>SBAT is also very useful when the intervention is designed and ready to be built. Then one can assess and understand the level of sustainability that the building has and try and alter to make it more sustainable if possible.</p> <p>The SBAT toolkit is most applicable to the Le 56/Eco-Interstice project where there is a building structure as a final product. The sustainability of this project can be evaluated from an environmental, economical and social point of view (Gibberd, 2008:3). The SBAT document could also be used throughout the design process in order to ensure sustainability however; this document does not suggest the type of interventions one can consider in a specific context. SBAT does not include resources as to where and how one can achieve financial aid for a sustainable project which means that the document cannot be used in isolation of other available government and academic documents.</p>

## The Adaptability Assessment Tool Application to Case Studies

	An Adaptability <b>Assessment Tool</b> for Sustainable Building Transformation (for Residential Architecture)		
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 1: The Slovo Park Project	<p>-This assessment tool is based on housing development and focuses on the adaptability of such building (Gibson, 2011:86), assessing it after it has been designed and built. Therefore it is not directly applicable to the Slovo Park intervention (community centre). However, one can argue that the Slovo Park intervention was designed in a manner to be adaptable and interchangeable if desired by its users.</p>	<p>-If this assessment tool was based on variety of building types rather than just housing it would have been more useful in terms of the Slovo Park project assessment. The adaptable and multi-use purpose of the community centre was however taken into consideration and future plans were made for its future development. But no one took ownership of the project and thus it resulted in abandonment of the structure.</p>	<p>It is a very detailed and specific assessment tool. This Assessment tool is mostly applicable on transformation of an existing structure to a new use and thus it is applicable to the Slovo Park project. The Slovo park upgrade project used an existing old structure and transformed it into a new community hall and thus it can be assessed by the AAT to help the designers in their decision-making for the adaptable interventions (Gibson, 2011:86).</p>

An Adaptability <b>Assessment Tool</b> for Sustainable Building Transformation (for Residential Architecture)			
	<b>Positive</b>	<b>Negative</b>	
		<b>conclusion</b>	
Precedent 2: Metrocable system	-This assessment toolkit is not applicable to the Metrocable precedent since the Metrocable is not a building and it cannot be adaptable	- This assessment toolkit is not applicable to the Metrocable precedent since the Metrocable is not a building and it cannot be adaptable	It can be interpreted as very limiting and precise in terms of details it includes. And it only applies to different types of housing building and some office structures too. No metrocables can be assessed with this tool. Thus the AAT is very specific and detailed and it has a focus on 'transformation of residential development' (Gibson, 2011:83). This limits the use of this tool on any development intervention as some interventions could be of different nature to buildings and structures such as the Metrocable system analysed in this paper.

An Adaptability <b>Assessment Tool</b> for Sustainable Building Transformation (for Residential Architecture)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 3: S.L.U.M Urban Flashes	<p>-In this project, the concept of adaptability has been used to convert an abandoned space around the river into an agricultural farm, housing the Buffaloes and their products.</p> <p>-The adaptability of the existing community hall was of the medium-term, where there was need to change the spatial attributes influencing functional performance (Gibson, 2011:86). However, since the project was not a physical structure or building per se, it cannot be evaluated by the AAT.</p>	<p>-The 'Urban Flashes' project is not a housing project and thus the adaptability of the structure cannot be assessed by this toolkit since it is only spatially adaptable and the other components such as the finishes of the wall and ceiling are not applicable here.</p>	<p>The AAT toolkit does not apply to all the different types of intervention. It is very specific to architectural buildings and thus does not cover all different interventions such as an agricultural or landscape intervention. AAT toolkit is very useful in its own specialised subject of study which is mostly the housing projects and open buildings. However, when it comes to informal settlement upgrade, there are many different types of intervention that could be put in place to achieve a certain upgrade goal. These interventions may not always be buildings or physical structures. They could be social interventions where the AAT does not apply.</p>

An Adaptability <b>Assessment Tool</b> for Sustainable Building Transformation (for Residential Architecture)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 4: Favela Painting	-This assessment toolkit is not applicable to the favela painting precedent since the final intervention here is not a solid structure and cannot be adaptable.	- This assessment toolkit is not directly applicable to the favela painting precedent since the final intervention here is not a solid structure that can change the function of the building.	<p>Only a small section of the toolkits assessment applies to the type of wall finish that has been used in the Favela Painting project. Therefore the favela painting cannot be assessed by such a detailed (residential building focused) toolkit since it will not lead to any good outcome due to the simplicity of the project.</p> <p>As Gibson illustrates in Figure 3 of page 86, under the easy adaptation column the wall finishes are identified (Gibson, 2011:86). Therefore the Favela Painting project can be assessed partially by the AAT as a way of making a building adapted to its new function by changing the finishes and making it work aesthetically.</p>

An Adaptability <b>Assessment Tool</b> for Sustainable Building Transformation (for Residential Architecture)			
	<b>Positive</b>	<b>Negative</b>	<b>conclusion</b>
Precedent 5: Le 56/Eco-Interstice	- This project is highly adaptable not in terms of the structure per se, but in terms of catering for the different activities that take place in there such as meetings or functions. It is a multi-use intervention.	-The concept of adaptability in this assessment tool is focused more on physical components whereas it could also include other types of adaptability such as catering for different activities without changing the intervention much.	Adaptability and flexibility of the interventions are stressed immensely in this toolkit which is of great importance to be included in the final design of my individual development toolkit for informal settlements. However, the AAT is a very specific document and it cannot be applied to any type of intervention for upgrading informal settlement. It is a valuable document in order to help the decision-making in transformation of an existing structure but sometimes other types of interventions are needed to be used such as relocation due to geography of a place in which case the AAT will not be applicable at all.

## The Navarro-Sertich System of Analysis Application to Case Studies

Navarro-Sertich System of Analysis for Informal Settlement Upgrade			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 1: The Slovo Park Project	<p>-The Slovo Park community hall intervention can fall under the 'icon' and the 'tectonic uplift' category of Navarro-Sertich tools for informal settlement upgrade, since it creates a node for the community's meetings and it reinforces a collective identity (Architect, 2011). It is an upgrade of what already existed on site but with new support and strategy in order to uplift the structure and its function.</p>	<p>-The Navarro-Sertich system of analysis is very informative but it does not provide details on how and where each category can be applied. It gives many options but it does not necessarily give a full understanding of where each tool can be useful and how one can use this toolkit in order to design the right intervention for the informal settlement upgrade.</p>	<p>The Navarro set of upgrading intervention categories is the most applicable for upgrading an informal settlement. It applies to any type of intervention whether it is a solid building or an intangible service upgrade.</p> <p>The Slovo Park project can fall under the "icon" section of Navarro-Sertich's system of analysis where an iconic structure is created in order to reinforce a collective identity of the area (Architect, 2011). Navarro-Sertich system of analysis could be used in the beginning stages of decision-making since it can be used as a guideline of what types of interventions are possible to upgrade an informal settlement. However, this toolkit is not context-specific (any country can use it) where the designer should always take into consideration the local conditions when deciding for an appropriate intervention. Therefore the Navarro-Sertich system of analysis remains a basic set of possible interventions useful for the starting of a project or analysing an existing intervention within an informal settlement.</p>

Navarro-Sertich System of Analysis for Informal Settlement Upgrade			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 2: Metrocable system	<p>-The Metrocable project can be an 'urban connector' which is one of the categories for Navarro's informal settlement upgrade (Architect, 2011). Urban connectors can be defined as stairs, transport systems (which the Metrocable is), pathways etc (Architect, 2011).</p>	<p>-The Metrocable is mentioned as one of the categories of Navarro's system of analysis however, this does not necessarily mean that this intervention is fully successful only because it pursues the Navarro system. This analysis system is not yet complete on its own and there are very little information given on how to make each proposed intervention a successful one. Navarro does not propose a toolkit. She rather introduces a system of analysis and organisation.</p>	<p>Navarro set of analysis defines the reason a certain intervention would work in a certain context. The Metrocable system is an "urban connector" which is a tool Navarro introduces which focuses on access and mobility (Architect, 2011). Navarro-Sertich system of analysis does not explain how to get the funding or the exact type of impact a metrocable system has in a settlement because results of interventions may vary. This toolkit has the basis of a general informal settlement upgrade interventions, however, it lack detailed information in regards to specific regulations that such interventions need to take into consideration.</p>



Navarro-Sertich System of Analysis for Informal Settlement Upgrade			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 3: S.L.U.M Urban Flashes	<p>-The S.L.U.M Urban Flash project can be considered a 'Dirty Works' category of Navarro's system, since it is specific landscape design dealing with the sustainability of the ecosystem, creating a healthy environment for the community and bringing new job opportunities and livelihood to the area.</p>	<p>-The Navarro-Sertich system of analysis suggests the type of intervention for such an upgrade project and it is helpful to the designer to know about such possibilities. However, this set of tools cannot be used throughout the entire project since the specifics of funding, legal policies and other governmental issues which are specific to site are lacking.</p> <p>-Navarro-Sertich suggests different interventions but in this case the designer is not given specifics on how to make such intervention sustainable and what else must be taken into consideration in such project.</p>	<p>A detailed version of Navarro-Sertich system of analysis will be of great use for designers. A set of guidelines that show every step of an upgrade project, people involved, funding that is available for such projects, etc. If the Navarro-Sertich system of analysis was rather a toolkit which had the above information, Casagrande's intervention might have taken a different direction. Due to lack of resources, time limitations and funding, this project of urban flashes had to remain to a minimal scale (ref?).</p>

Navarro-Sertich System of Analysis for Informal Settlement Upgrade			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 4: Favela Painting	<p>-Favela painting contributes to 'skins and signs' category where the imagery and aesthetic upgrade of an informal settlement can help its future development (Architect, 2011). Here the exterior of the favela buildings were painted in order to change the general mindset about the status of the place and create new opportunities for the community in terms of jobs and marketing of the favela.</p>	<p>-This approach to upgrading the favela is a basic solution which is only touching the surface problems of its informal settlement. However, upgrading and changing the surface can sometimes be part of a larger strategic plan of upgrade which shows that this tool is of great value if the designer makes it part of a big future development.</p>	<p>It includes any type of intervention even if it is not a building and has not a major outcome as the final result. The Favela Painting intervention is a "skins and signs" category of interventions (Architect, 2011). The "Skins and Signs" intervention is driven by aesthetics and imagery and it attempts to beautify the informal settlement area. However, this intervention has other outcomes such as changing the perception of others towards the status of the favela (Firmeza Foundation, 2012). Therefore, Navarro-Sertich system of analysis is most applicable as a guideline for designers due to the different categories of interventions it includes in the document. But as it has been mentioned previously, it would be a more complete document if it is more specific to context, giving the designer all the information the project will need to take into consideration such as policies, funding and other legal issues.</p>

Navarro-Sertich System of Analysis for Informal Settlement Upgrade			
	<b>Positive</b>	<b>Negative</b>	<b>Conclusion</b>
Precedent 5: Le 56/Eco-Interstice	<p>- This precedent uses two of the Navarro-Sertich intervention categories namely 'plug-in services' and 'tectonic uplift' in order to upgrade the abandoned space in between the two buildings which was previously used as a dumpster.</p> <p>-This method is useful here since creating an intervention which promotes recycling and waste collection or otherwise known as 'plug-in services' can make this area a self-sustaining clean area and the tectonic uplift has helped upgrading this in between space into an inviting place for the community to have meetings and functions. This has been done through enhancement of what is already existing in the place and also creating a set of strategies that go with the intervention to make it a futuristic development (Architect, 2011).</p>	<p>-The negative or in other words, an unresolved part of the Navarro system of analysis is that it doesn't create a system in which the developer can understand and use in the appropriate context. It gives the reader an idea of what can be done in terms of the upgrading of an informal settlement but it does not give a guideline on how one can approach a project as such and where should one start?</p> <p>-The combinational use of the interventions is also not mentioned to be an option for the upgrade.</p>	<p>Participation of community is a large part of this category of intervention. If the community's prior needs are just services then the service upgrade will be prioritised as an intervention for the informal settlement upgrade.</p> <p>The Le 56/Eco-Interstice project is a "Tectonic Uplift" intervention where the designers enhanced the structure of the existing construction and revitalised the space into a new use (Architect, 2011). There is community participation involved in the process of making this project which is an integral part of the Navarro-Sertich system of analysis even though it is not repeated under each description of interventions.</p> <p>A project such as Le 56/Eco-Interstice covers issues such as recycling which means it could get government funding for their project. However, the Navarro-Sertich system of analysis does not go into those details.</p>