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Giulia Sala

To cite this version:

Giulia Sala. From neighbourhood sustainability assessment tools, to the upgrading of informal settlements in the global South : the proposal of a methodological approach based on sustainable indicators for guiding the planning practice. Architecture, space management. 2016. dumas-01419544

HAL Id: dumas-01419544

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From Neighbourhood Sustainability Assessment tools, to the upgrading of informal settlements in the global South

The proposal of a methodological approach based on sustainable indicators for guiding the planning practice.

Giulia SALA
ID 21528976

M. Sc. Urbanism, Habitat and International Cooperation
Institut d'Urbanisme de Grenoble - Université Grenoble Alpes

September 2016

Mentor: Jean-Christophe Dissart

International Cooperation in Urban Development

TECHNISCHE UNIVERSITÄT DARMSTADT

Institut d'urbanisme
UNIVERSITÉ Grenoble Alpes

Acknowledgement

To Dr. Jean-Christophe Dissart, for the support and guidance during the development of this master thesis.

To CRAterre institute and LabEx AE&CC, especially to Philippe Garnier and Lalaina Rakotomalala, for the internship opportunity and for the support and dedication during the work. Thank you.

To the experts who were involved in the interviews for this research project. Without their passionate participation, the survey could not have been successfully conducted.

To my family and friends, for their unconditional love, support and patience.

NOTICE ANALYTIQUE

PROJET DE FIN D'ETUDES

Nom et prénom de l'auteur: **Giulia SALA** (Étudiant)

Titre du projet de fin d'études:
From Neighbourhood Sustainable Assessment tools, to the upgrading of informal settlements in the global South:
The proposal of a methodological approach based on sustainable indicators for guiding the planning practice.

Date de soutenance: **08th of September, 2016**

Organisme d'affiliation: **Institut d'Urbanisme de Grenoble - Université Grenoble Alpes**

Directeur du projet de fin d'études: **Dr. Jean-Christophe Dissart**

Collation:
- Nombre de pages: 66
- Nombre d'annexes: 1
- Nombre de références bibliographiques: 45

Abstract

Starting from the assumption that often the planning practice fails in delivering opportune solutions to the problems of the urban settlements worldwide, the thesis wants to investigate new approaches to enhance sustainability at the neighbourhood scale, with a specific focus on the informal settlements in the global South.

The situation imposes the urgent need to focus attention on improving planners' capacity, and the study wants to investigate the plausibility of the adoption of a methodology based on sustainable indicators to guide the upgrading process of informal settlements.

The development of Neighbourhood Sustainability Assessment tools in developed Countries, has been presented in this research as a starting point to develop similar tools that will not only assess but also guide the development of a neighbourhood.
Reports on the sustainability analysis of human settlements in the global south often present interesting and valuable outcomes such as guidelines and best practices, but those are not reflected in direct actions on the territory.

Issues connected with the implementation of these guidelines lie in problems of governance, and the idea of developing a methodology that will directly connect the assessment phase with direct and tangible planning actions, is one of the possible option to overcome this problem.

The research, through semi-structured interviews, collects the point of view of five professionals in the development fields and reflects their opinion through the discussion articulated in four thematic: (1) The failure of the planning practices, (2) The use of indicators as a guidelines for the development, (3) Sustainability as a process, and (4) The governance's role in the planning practice.

The scope of the thesis is not to define the content of the methodology, but to open a debate over the possibility of developing it. In order to do that, recommendations and guidelines for future research and for practitioners that currently deal with the upgrading of informal settlements have been elaborated.

Résumé

Partant de l'hypothèse que, souvent, la pratique de la planification échoue à apporter des solutions opportunes aux problèmes des établissements urbains à travers le monde, le mémoire veut étudier de nouvelles approches pour améliorer la durabilité à l'échelle du quartier, avec un accent particulier sur les établissements informels dans le Sud.

La situation impose l'urgente nécessité de concentrer les effort sur l'amélioration des capacités des planificateurs, et l'étude s'attache à enquêter sur la plausibilité de l'adoption d'une méthodologie basée sur des indicateurs durables pour guider le processus de résorption des établissements informels.

Le développement d'outils d'évaluation de durabilité de voisinage dans les pays développés est présenté dans cette recherche comme point de départ pour développer des outils similaires qui permettront non seulement d'évaluer mais aussi de guider le développement d'un quartier.

Les rapports portant sur l'analyse de la durabilité des établissements humains dans les pays du Sud présentent souvent des résultats intéressants et précieux tels que les lignes directrices et les meilleures pratiques, mais celles-ci ne sont pas prises en compte dans les actions directes sur le territoire.

Les enjeux liés à la mise en œuvre de ces lignes directrices sont rattachés à des problèmes de gouvernance, et l'idée de développer une méthodologie qui reliera directement la phase d'évaluation avec des actions de planification directes et tangibles est l'une des options possibles pour surmonter ce problème.

La recherche, par le biais d'entretiens semi-structurés, recueille le point de vue de cinq professionnels dans les domaines du développement et reflète leur opinion par le biais de la discussion articulée sur quatre thématiques: (1) L'échec des pratiques de planification, (2) L'utilisation d'indicateurs en tant que lignes directrices pour le développement, (3) le développement durable comme un processus, et (4) le rôle de la gouvernance dans la pratique de la planification.

La portée du mémoire ne s'étend pas dans la définition du contenu de la méthodologie, mais d'ouvrir un débat sur la possibilité de la développer. Pour ce faire, des recommandations et des lignes directrices pour la recherche future et pour les praticiens qui traitent actuellement de la résorption des établissements informels ont été élaborés.

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Chapter 1: Introduction

1.1 Background

While the United Nations are finalising the new 20-year strategy on urbanization, most cities in the global South are facing "fleeble economic development, persistent conflict, environmental disaster and weak institutions, as well as legal provision that are disconnected from the realities of their urban experience" (Siame and Muvombo, 2016).

These impacts make extremely difficult for the authorities the implementation the New Urban Agenda strategies that are going to be presented from the United Nations in October 2016.

Moreover cities in developing Countries keep facing the experience of "knowledge gaps in dealing with spatial dynamics and urban development, particularly around informal settlements upgrading" (Siame and Muvombo, 2016).

But even in the global North many cities are simply unable to address the challenges that are facing. This is happening because planners are still dealing with instruments that are not able to ensure sustainable urban development in the current contexts.

The situation imposes the urgent need to focus attention on improving planners' capacity, so that authorities can identify and explore new ways to promote sustainable and inclusive urban development.

The knowledge on which the current planning strategies are lying on are outdated and inaccurate statistics that are not able to represent the actual situation of a territory, and consequently not able to plan its future.

The outcomes of this situation are visible in the use of methodologies to assess the sustainability on the neighbourhood scale based on indicators that wants to guide the planning practices of the single planning unit.

This thesis want to promote the model developed in these methodologies in the informal settlements in the global South, where "many planners do not consider the integration of informal activities in urban development frameworks and policies" (Siame and Muvombo, 2016).

Informality has been defined as "the most profound manifestation of rapid urbanization today" (Siame and Muvombo, 2016), and planners should take this challenge seriously instead of to wish away their

existence.

Since by 2050, more than two-thirds of the world's population is likely to live in cities, there is the urgency to ensure systemic readiness to respond to this problems, both in terms of challenges and opportunities. Consequently planners will need to acknowledge and engage with the lived realities of the cities of the global South, where the issues of urban informality, outdated legal frameworks, the negative effects of climate change and increasing land-based urban conflicts are fundamentals aspects to considered in the planning practice.

This thesis want to propose the development of a methodology that is able to directly connect the data collected in the assessment analysis with the actions proposed in the planning strategies. Planners need to understand that the space is characterised by "contested fabric of social, economic, environmental and political issues" (Siame and Muvombo, 2016), where essential is the participation of the local community. The achievement of sustainability in neighbourhoods, in any context, must be seen as a process and not as a fixed goal to achieve.

1.2 Statement of the problem

The current planning strategies present a series of different problematic related to their inadequacy in connecting the strategic vision over a territory and the actual design of the settlement on the ground.

The planning inadequacy emerges clearly in the informal settlements context, where are represented as a part of the city that should be neglected. By using indicators not only to collect data, but also to transform these data in direct planning actions, the existing gap between data collectors and data users might be filled, with several benefit for the local community and in terms of efficiency of the planning practice.

1.3 Purpose of the study

The master thesis has the aim to investigate if it is plausible the use a methodology, based on qualitative indicators, that can guide and support the upgrading of informal settlements in developing Countries.

In doing so, the study explores first the characteristics of two of the most used Neighbourhood Sustainability Assessment tools, in order to understand until which extent these tools can be used as a method-based planning framework to guide the planning process.

Secondly based on the analysis of a report on sustainability of human settlements in South Africa, the

thesis introduces the different dynamics that are characterizing the context of a developing Country, and explores its relationship with sustainability issues.

Thirdly the research, through semi-structured interviews, investigates until which extent it is plausible to adopt a methodology based on sustainable indicators to guide the upgrading process on informal settlements.

The research questions used for this study are stated as follow:

1. Until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process?

2. Which are the outcomes produced by a sustainability assessment based on global standards in developing Countries?

2.1. In which way the sustainability assessment is useful for defining the following actions in the planning practice?

3. (Main Research Question - RQ) Until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements?

1.4 Significance of the study

This study can be used as a theoretical base for the development of an actual methodology that can be used in informal settlements in the global South. It can also lead the development of different studies on specific planning issues, in areas that are not subject to informality but they, for many reasons, lack in some of the characteristics considered primaries for the current planning practice. For example, as Hall and Pfeiffer (2000) mention, the ongoing migration process worldwide can create condition of informality in cities that are not facing the problem right now. Being able to easily adapt the planning strategies to the constant changes of our time is the key issue that the thesis wants to tackle.

1.5 Scope and limitation

This study investigates the potential of the development of a methodology, without proposing a tangible model of it. In this scenario the thesis builds the initial step over a project that will require much more work and a deep collaboration with professionals in the development field and with the community of specific places.

The scope of the thesis is to offer the theoretical background and the initial analysis useful for the future development of a tangible tool.

1.6 Description of the thesis' chapters

The thesis presented is organized into five chapters.

First chapter, 'Introduction', provides an overview of the topic treated in the presented study. This includes background information on the chosen topic, a brief statement of the problem, the purpose and the significance of the study, the scope and limitation of the thesis and the description of the composition of the chapters.

Second chapter, 'Related literature and theoretical focus', offers a critical selection of the relevant literature on the topic. It is divided in four sub-chapters that analyse (1) The crisis of urban planning strategies and the complexity theories, (2) The role of indicators and their potential uses in guiding the planning practice, (3) Neighbourhood Sustainability Assessment Tools as a method-based framework for guiding the planning practices, and (4) The use of NSA tools in the global South and how to deal with informal settlements.

The third chapter, 'Methodology', describes in details the methods and procedures applied for the definition of the research method used in the study. The comprehensive research plan, supported by the detailed statements of the research questions is presented.

Fourth chapter, 'Research results and discussion' is divided in three sub-chapters that describe the different methods of research used for answering to each one of the research questions investigated.

The first one compares the chosen Neighbourhood Sustainability Assessment tools (BREEAM Communities and LEED – ND) in order to understand their structure, uses, achievements, and potential transferability.

The second subchapter analyses the sustainability assessment conducted in 2002 in South Africa, a Country that due its geographical, socio, cultural and economical characteristics is facing different challenges in term of sustainability, especially if compared with the UK or the US where the methodologies presented above were developed and applied.

The third one, gathered the answers to the questionnaire used for the semi-structured interviews used for understand the point of view of five different professionals that are working on informal settlements from

different perspectives.

The fifth chapter, ‘conclusions’, is the final one and is dedicated to the discussion and conclusion of the results described in the fourth chapter. The implication of this research for a relevant audience, as well as suggestions for the future development of a tangible methodology have been provided.

Chapter 2: Related literature and theoretical focus

2.1 Introduction

This chapter analyses critically the selected literature on different topics in order to support the argumentations proposed in the thesis. The chapter starts with the analysis of the failure of the planning strategies in connection with the application of complexity theories to the urban development field. To overcome this issue, the study of indicators and their potential use in the planning practice has been exposed. The development of Neighbourhood Sustainability Assessment tools, follows the idea that the planning practice can be direct by the use of sustainability indicators that are able to assess and guide tangible actions in the planning practice.
To conclude the chapter investigates the application of similar methodologies in the global South, with the specific focus on the informal settlements.

2.2 The crisis of urban planning strategies and the complexity theories

"All planning can be considered as an attempt to restrict possible futures.
Usually this is not stated explicitly.
However, 'futures scenarios' are explicit rejections of other possible futures."
Treanor, 1998

The multiple concepts explored in this thesis have a common root in the need of a paradigm shift in the current planning strategies.

Normally the city has been treated as a static figure that should be addressed by planning strategies based on development projection designed by technicians with the appropriate techniques. But the current planning practices are not adequate to deal with the constant changes of the urban reality that are characterized by constant chaotic mutations.

The complexity theories applied to the urban development exposed by authors such as McAdams (2010), Archibugi (2004), Batty (2005) and Bertolini (2007), emphasise the gaps between the chaotic reality of a place and the instruments that are trying, unsuccessfully, to regulate this chaos.

McAdams defines urban areas as a composition "of multiple activities, in which governmental and non-governmental bodies at all scales (local, regional, nation, global) are influencing the direction and composition of these multiple interactions" (2010: 1). "Traditionally urban planning has consisted of data collection, goal setting, alternative determination, selection of the best alternative and monitoring. The end result was a 20 year land use plan" (McAdams, 2010: 9), but these tools are now inadequate to deal with the complexity of the urban reality.

The application of complexity theory to the practice of urban planning is building a momentum in urban planning literature (Healy, 2004 and Batty, 2005), and there is a growing literature related to urban plan-

ning methods and theory related to complexity theory.

The irrelevancy of the urban planning theories on the real effect on the practice of urban planning (Archibugi, 2004), represent the "incongruence between the actual urban planning 'reality' which is complex and non-linear and the application of linear rationalist planning methods to 'solve' urban problems" (McAdams, 2010: 2).

The representation of the common beliefs that information, planning and society are connected in a linear and rationalist way, is represented by Bertolini 2007 in the following figure (Figure 2.1):

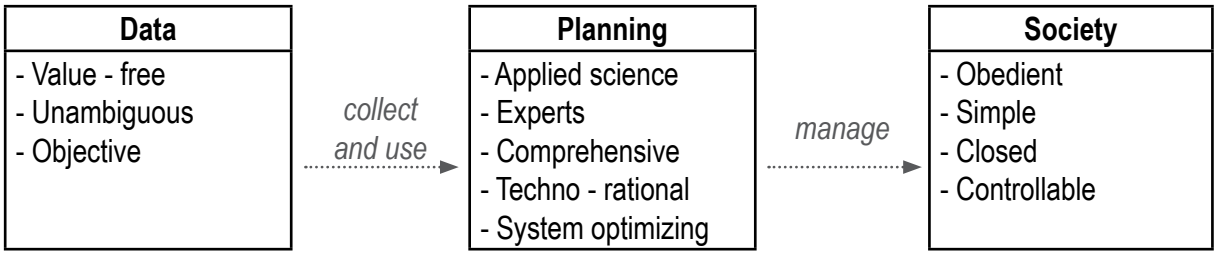


Figure 2.1 *Information, planning and society: a linear and rationalist vision*
Source: adapted by the author from Bertolini, 2007.

The linear relationship among the spheres of 'data', 'planning' and 'society' and the characteristics of each category represent the utopic vision of the planning practices that characterized the production of the planning theories around the world.

"The city system has non-linear dynamics and may display relatively sudden shift in patterns of living" (Cameron and Larsen-Freeman, 2007 as stated in McAdams, 2010: 9). Interaction, non-linear and self-organization are the concepts of change that at one level are affecting another level.

The reality is, instead, represented in the figure 2.2 where the relationship among 'knowledge, 'society' and 'planning' is composed by an interrelation of factors that continuously redefine the goals and the solutions proposed by various stakeholders.

The definition of the three categories is indeed flexible and blurry, and multiple point of view and different stakeholders are represented in the model. The model presented is characterised by the chaos in which each sphere is constantly influenced by the others in a very articulated pattern.

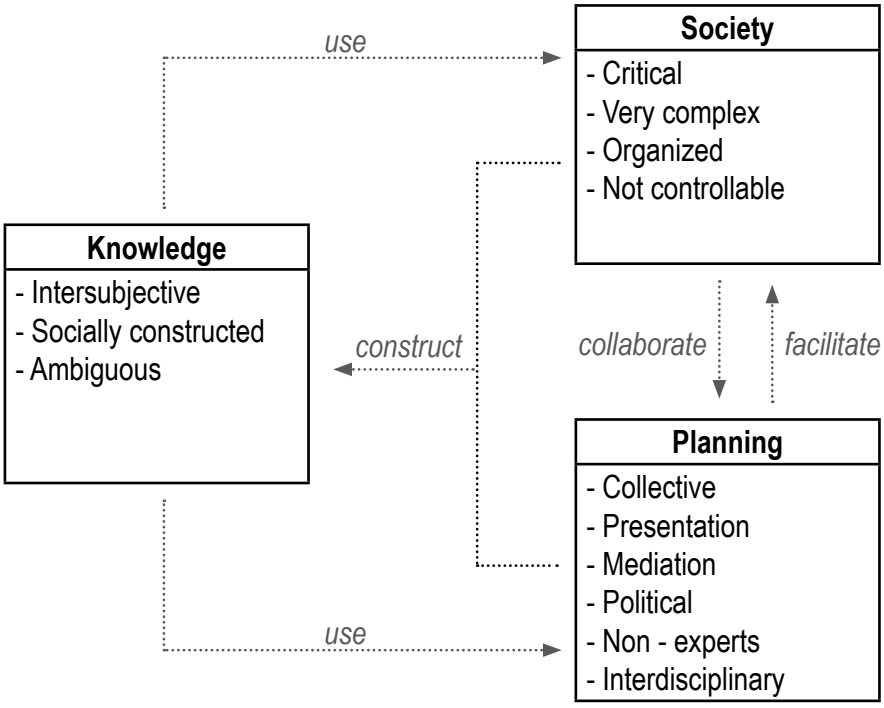


Figure 2.2 *Knowledge, planning and society: how to deal with the chaos.*
Source: adapted by the author from Bertolini, 2007.

The complexity theory can be applied on the planning system since it is characterized by (1) multiple components and relationship, (2) interlocked feed back loops, rather than independent variables and linear causality, and (3) path-dependence and unpredictability (Bertolini, 2007).

These components can help the planners to understand how their role is changing in time and how to cope with 'uncertainty' in planning. Bertolini (2007), after analysing the model proposed by Christensen in 1985 (Figure 2.3), developed a new model in which the uncertainty became 'irreducible' and consequently the path-dependency represents the only way to deal with the chaos in planning (Figure 2.4).

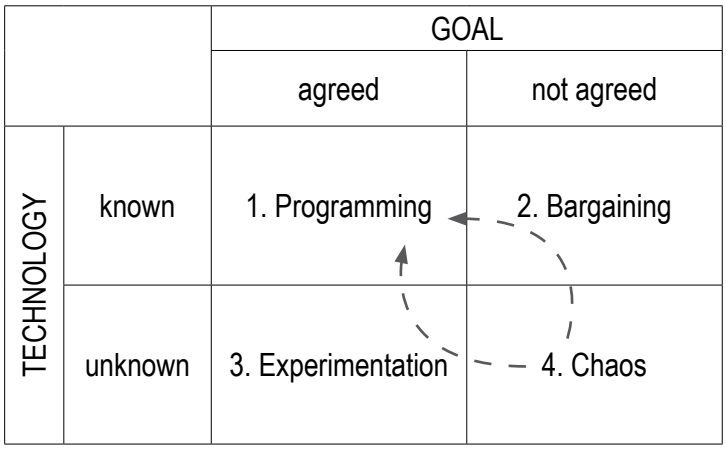


Figure 2.3 *Coping with uncertanty in planning*
Source: Christensen (1985) in Bertolini, 2007: 307.

According to Christensen (Figure 2.3) planning problems and approaches can be characterized in terms of the uncertainty about goals and the means to achieve them (or 'technology', as a means to achieve goals) (Bertolini, 2007). The chaos emerges when goals are not agreed and the technology is unknown. Christensen suggests that through the practices of "bargaining" or "experimentation" it is possible to re-conduct the chaos to a programmed form of planning.

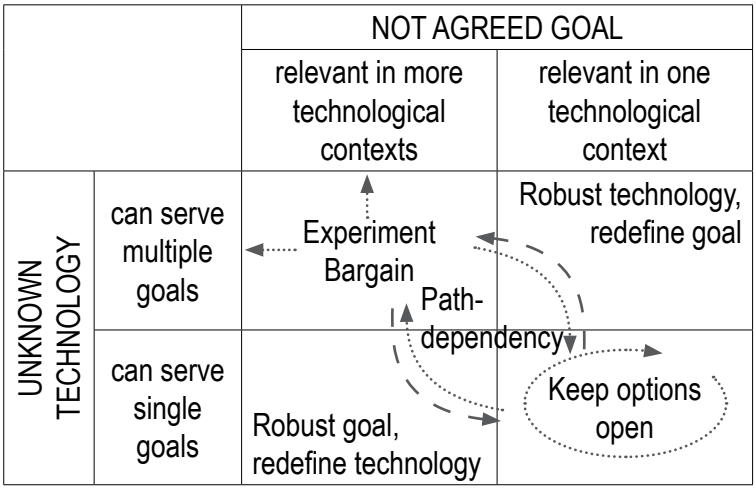


Figure 2.4 *Coping with irreducible uncertainty in planning (or 'chaos').*
Source: Bertolini, 2007: 307.

On the contrary Bertolini (Figure 2.4) defines the planning practice as a field connoted by "irreducible uncertainty and insufficient robustness". In this case options should always be left open. There is "need to keep exploring ways of increasing the resilience and adaptability of the action", and "when further redesign is not deemed possible, it will make explicit that decision makers are taking a risk with unpredictable outcome" (Bertolini, 2007: 308).

To conclude, "an exploratory attitude seems essential, as the answer will be different in different contexts, and contexts will keep changing unpredictably" (Bertolini, 2007: 308).

2.3 The role of indicators and their potential uses in guiding the planning practice

In the situation in which the exploratory attitude is necessary to cope with the complexity of a territory, indicators can be useful tools for guiding the planning practices.

According to Innes (1990: 5) indicators are "a set of rules for gathering and organising data so they can be assigned meaning". In the urban planning practice, they can perform as instrument for describing, simplifying, measuring, identifying trends, clarifying, communicating and instigating actions (Hoernig and

Seasons, 2004).

In the situation of path-dependency described by Bertolini (see Table 2.4), indicators can be seen as the tools that connect the 'experimental bargain' and the tangible application of possible planning solutions. Following the description of Hoernig and Seasons, "Indicators require an appropriate interpretative context, they must be supplemented by other tools", and they can consequently being adapted to many different planning situations (2004: 82).

This thesis is focused on the role of 'sustainability indicators' in the planning practice; due to their nature, "Sustainability indicators integrate environmental and economic accounting, and reflect the capacity of human or social capital to meet social development needs" (Hoernig and Seasons, 2004: 87).

The characteristics that, according to Maclaren (1996), differentiate sustainable indicators form other indicators are four:

(1) Sustainable indicators need to understand and clarify the linkages between the social, economic and environmental factors while integrate them together.

(2) They should be compared to target-points to determine either if a goal has been met or if a critical threshold has been eluded.

(3) Sustainable indicators should be able to say something about the distribution of trends and patterns, as well as to pinpoint outliers situations that affect certain phenomena.

(4) In order to be meaningful and relevant, they should be chosen in closer cooperation with the local community and stakeholders that will provide inputs.

This holistic assessment of the quality of urban life can facilitate the monitoring of improvement and deterioration of the context. At the same time, this goal is hard to achieve and often planners enter in the 'DRIP' phenomenon (data-rich, information-poor) defined by Briggs (1998, as stated in Hoernig and Seasons, 2004: 90).

URBAN SUSTAINABILITY INDICATORS

"are tools that allow city planners, city managers and policymakers to gauge the socio-economic and environmental impact of, for example, current urban designs, infrastructures, policies, waste disposal systems, pollution and access to services by citizens. they allow for the diagnosis of problems and pressures, and thus the identification of areas that would profit from being addressed through good governance and science-based responses. they also allow cities to monitor the success and impact of sustainability interventions."

Science for Environment Policy (2015) Indicators for sustainable cities.

In order to avoid this phenomenon “planners must have a clear understanding of the purpose, focus and application of their monitoring activities, so that monitoring is conducted for a defined set of specified, prioritised purposes that relate directly to use in practice” (Hoernig and Seasons, 2004: 90-91).

Clearly define the purpose of the monitoring phase, would make easier to avoid the critical relationship between knowledge producers and knowledge users. This is clearly expressed by Hoernig and Seasons that state that sustainable indicators “become powerful only when they are used and when decision makers come to depend upon them in their practice” (2004: 91).

This thesis wants to overcome the classic dilemma knowledge/action that characterize the criticisms over indicators, by proposing a way to translate and incorporate new knowledge into practical actions.

Based on Hoernig and Seasons (2004), few steps have been emphasized in order to achieve a greater connection between knowledge and actions in planning:

(1) monitoring and evaluation phases must be tailored to fit the culture and the unique circumstance of the specific context; (2) the political and social dimensions must be taken into account; (3) planners need to provide incentives to the community in order to actively participate in the activities; (4) planners must develop monitoring systems that are well integrated into decision making process in order to catalysed actions.

The development of an integrated approach that can directly connect planning actions to the needs emerged in the monitoring phase, can be applied to various contexts characterized by a specific scale of intervention.

The scale of intervention proposed in this thesis is the neighbourhood scale, that is considered to be the most appropriate planning unit to lead the sustainable development of a city.

After having presented the potential uses of indicators in the planning practices, that is characterized by unpredictability and constant changes, the next subchapters are focused on the use of Neighbourhood Sustainability Assessment (NSA) tools, and their potential use for guiding the planning practices in the specific context of informal settlements.

2.4 Neighbourhood Sustainability Assessment Tools as a method-based framework for guiding the planning practices

"Neighbourhood is the bundle of spatially based attributes associated with clusters of residences, sometimes in conjunction with other land uses"

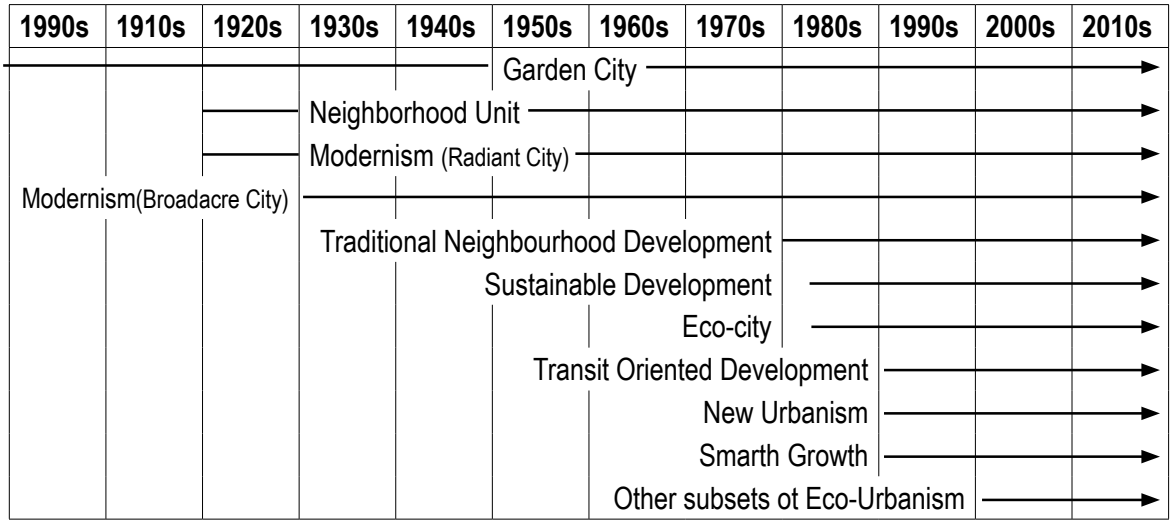
Lancaster, 1966 as stated in Galster, 2001: 2112.

The importance of neighbourhoods in the fabric of the city is recognisable since antiquity; since when human settlements have been spatially divided into districts and neighbourhoods (Friedmann, 2010; Smith, 2010). Currently the emergence of the concept of sustainable development emphasises the interest in developing new initiatives for the 'neighbourhood planning'.

As stated by Sharifi (2016), neighbourhood planning is a well established discipline that has been practiced since the early 20th century. Sustainable neighbourhood development, on the contrary, is a relatively new concept and can be seen as a continuation of the trend that wants to focus the attention on the neighbourhood scale, as it is considered the most appropriate planning unit to guide sustainable development.

NEIGHBOURHOOD PLANNING

Since the early 20th century various planning movements have been developed, and trace of the evolution of these movements are visible in their approach to the neighbourhood scale.
The evolution of neighbourhood planning is characterized by the progressive inclusion of different dimention of the sustainability concept. Still, many difficult are existing in terms of translating the rhetoric into action.



Sharifi, A. (2016)

Planning at the neighbourhood scale is recognized as essential for achieving sustainable development; a significant contribution in terms of climate change adaptation and mitigation can be made at the neighbourhood scale, and worldwide there is an increasing interest for tool to assess neighbourhood sustainability (Sharifi, 2016; Sharifi and Muramaya, 2014; Friedman, 2016).

"Neighbourhood sustainability is defined as the process of developing a neighbourhood level urban form or built environment that meets the needs of its residents whilst avoiding unacceptable social and environmental impacts both locally and in a broader context" (Yigitcanlar, Kamruzzaman, and Teriman, 2015: 2571).

"Neighbourhood Sustainability Assessment (NSA) tools, are defined as a set of criteria and themes; and are used to: (1) evaluate and rate the performance of a given neighbourhood; (b) assess the neighbourhood's position on the way towards sustainability, and (3) Specify the extent of neighbourhoods' success in approaching sustainability goals" (Yigitcanlar, Kamruzzaman, and Teriman, 2015: 2571). But more important, NSA tools can help local authorities and planners to design the development of the neighbourhood towards sustainability goals.

A number of NSA tools has been developed and with some differences are currently operational around the world. The most popular ones (and the ones explored in this thesis) are: LEED Neighbourhood (US) and BREEAM Communities (UK). They have been characterised as: "(1) third-party assessment tools, which are spin-off of building assessment tools and assess the sustainability beyond a single building, and (2) tools, which are embedded into neighbourhood –scale plans and sustainability initiatives to assess their sustainability performance" (Yigitcanlar, Kamruzzaman, and Teriman, 2015: 25712).

The relatively good diffusion of these tools in Europe and in North America, helped many neighbourhoods to became more sustainable and to achieve important benefit in economic, social and environmental terms.

The tools represent different indicators that can be adapted to various contexts, and their promotion is collecting consensus. At the same time planners and policy makers should consider the limits of physical and technological solutions in regard to the emergence of social problems. In this sense the tools are promoting the holistic vision upon sustainability, but the influence of the market forces are limited the success of this planning approach that is mainly focused on the environmental sphere.

In order to promote a more holistic approach, according to Yigitcanlar, Kamruzzaman, and Teriman (2015),

the characteristics that NSA tools should possess are:

(1) sustainability coverage, (2) inclusion of pre-requisites, (3) adaptation to locality, (4) scoring and weighting, (5) participation, (6) presentation of results and (7) applicability.

For the purpose of this thesis particular attention is focused on the (1) sustainability coverage, and on the (3) adaptation to locality, that consequently includes the (5) participation of different stakeholders and the (7) applicability of the assessment tools.

According to Sharifi (2014), the (3) adaptation to locality of the promoted global standards for the assessment of neighbourhood sustainability, is one of the major limitations of the NSA tools, but through a contextualization of the indicators for the specific project is it possible to overcome this issue. The adaptation of global standards by local planners and with the (5) participation of various stakeholders and the local community can offer a contextualized vision over sustainability and raising the chance of obtaining a greater (7) applicability of these principles in the practice.

Fundamental is a proper discussion based on the meaning of (1) sustainability, that should be carried with the participation of all the relevant stakeholders in order to identify the priority for the local context. Based on Friedman (2015) the focus on development must be on the process itself, where different aspects are being explored and manipulated in order to find the best solution for the specific project. In this sense, the key aspects that are influencing sustainability (Figure 2.5) should be discussed with the local community in order to find the more appropriate indicators to assess and than to guide the planning process.

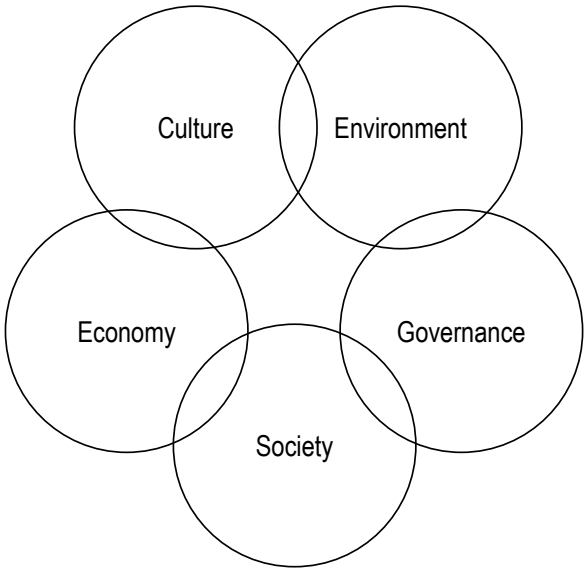


Figure 2.5 *Five key aspects likely to contribute and influence the sustainable functioning of a community.*
Source: Friedman, 2015: 8.

In this scenario, even if the NSA tools are promoted as instruments that can be applied everywhere, the problem of transferability, especially in the global South, is an issue that hasn't been solved yet. Different authors analysed the application of NSA tools in developing countries with misleading results.

Often sustainability and development are seen as contradicting terms, and they generate problems connected to the legitimization of the development. Other times only the development of high-end neighbourhood is involved on the process of achieving sustainability, and many times sustainability has been perceived as a standard for rich.

Researchers as Yigitcanlar, Kamruzzaman, and Teriman (2015), Sharify and Murayama (2014) explored, and are still exploring, the application of NSA tools in developing countries in order to define which steps are necessary for achieving sustainability in neighbourhoods world wide.

2.5 The use of NSA tools in the global South: how to deal with informal settlements

"The study of cities is today marked by a paradox:
much of the urban growth of the 21st century is taking place in the developing world,
but many of the theories of how cities function remain rooted in the developed world."
Roy, 2005: 147.

According to different International Development Agencies' reports, the 90% of global urban growth now take place in the global South. This unprecedented urban growth possesses great concerns for policy makers on how to steer growth in a sustainable way in future, because urban growth is attractive as it leads economic growth of cities.

Despite some similarities in sustainability principles of neighbourhoods between developed and developing countries, the differences are even larger and the resources to deal with them are considerably scarce in developing countries. Nevertheless, the urbanization can provide and opportunity for developing countries by practicing sustainability principles in their residential development and thereby avoiding problems that experienced by developed nations (Yigitcanlar, Kamruzzaman, and Teriman, 2015).

In the global South the sustainability assessment over human settlements requires specific features and a deep understanding of the political, social and economical situation over a specific territory. In the case of

South Africa, as presented in the chapter 4.2, the analysis of the sustainability of the human settlements starts with an overview on the background of the country historical path and on the definition of different settlements based on common characteristics.

In the South African context, as in many other developing countries, the issue of informality is predominant and this has not be contemplated in none of the NSA tools promoted at the global level. More important, the absence of title deeds would be perceived as an absence in the prerequisite of the application of any sustainable assessment tools. This is one of the main obstacles to the assessment of neighbourhood sustainability in developing countries, but since informality "is now seen as a generalized mode of metropolitan urbanization" (Roy, 2005: 147), the planners must learn how to work with the 'unplannable'.

As explained by Roy (2005), two contrasting frames dominate the current discussion of informality: a frame of crisis and a frame of heroism.

While Hall and Pfeiffer (2000), express a great concern for the expansion of the phenomenon of informality, that is not simply restricted to the cities of the global South but it will expand and diffuse in the developing world through migration, De Soto (2000) describes informality as 'heroic entrepreneurship'.

Both frames are recognising the great impact of poverty on these settlement "as caused by isolation from global capitalism" (Roy, 2005: 148) and that the 'state of exception' in which informality is lying is produced by the planning apparatus of the state. This has been expressed also in the Pretoria Declaration for HABITAT III (2016), that recognizes informality as "the result of dysfunctional urban land markets and policies, not simply a manifestation of poverty".

INFORMAL SETTLEMENTS are residential areas where:

(1) inhabitants have no security of tenure vis-à-vis the land or dwellings they inhabit, with modalities ranging from squatting to informal rental housing,
(2) the neighbourhoods usually lack, or are cut off from, basic services and city infrastructure and (3) the housing may not comply with current planning and building regulations, and is often situated in geographically and environmentally hazardous areas.
In addition, informal settlements can be a form of real estate speculation for all income levels of urban residents, affluent and poor. Slums are the most deprived and excluded form of informal settlements. Characterized by poverty and large agglomerations of dilapidated housing often located in the most hazardous urban land. In addition to tenure insecurity, slum dwellers lack formal supply of basic infrastructure and services, public space and green areas, and are constantly exposed to eviction, disease and violence.

Habitat III (2015) Issue Paper n.22 on Informal Settlements

However informality should be seen as a model of urbanization to deal with instead of something to neutralize, and the conceptual division should not be seen in the differentiation of formality and informality but rather in the differentiation within informality itself. In the figure 2.6 a representation of the planning continuum is proposed in order to understand the subtle differences between formal and informal planning and within them.

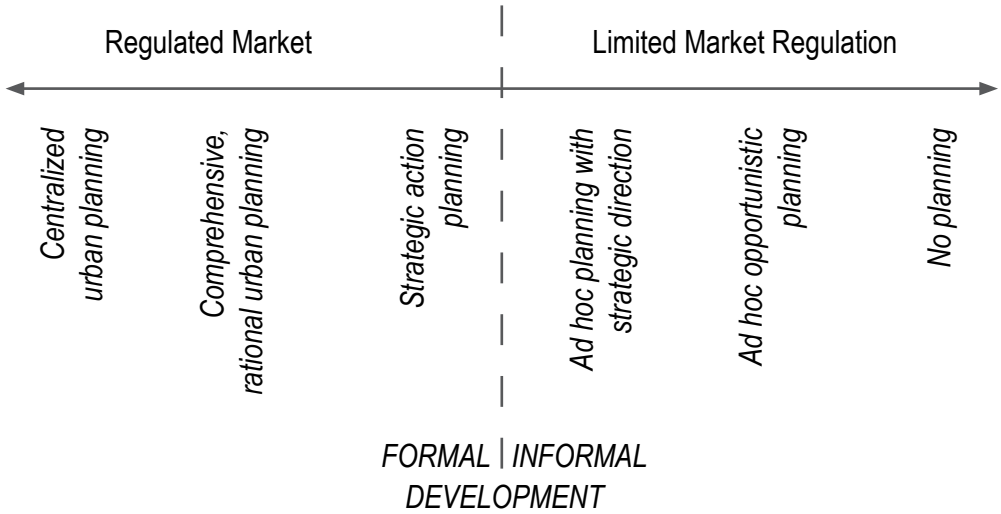


Figure 2.6 *The urban planning continuum.*
Source: Adapted by the author from Tsenkova, 2012: 294.

By stating that the relationship between informality and planners is complicated, the necessary action to cope with the absence of realm control, in which informal settlements lies, is to change the approach over the current planning practice.

Changing the approach and hiring a new paradigm of "Sustainable Human Development" in the planning practice, focused the emphasis on participatory upgrading strategies, can be one of the strategies (Roy, 2005). Today's international planning is constituted through models and best practices and the replicability of good planning practices can serve the research of a new planning strategy. Also, in this direction, the need for a paradigm shift in the approach to the upgrading of informal settlement has been expressed in April 2016 in the Pretoria declaration for HABITAT III. It promotes an approach based on the achievement of sustainable neighbourhoods instead of a stigmatized methods founded on the practice of "upgrading of informal settlements".

2.6 Conclusion

The aim of this thesis is to investigate if the adaptation of sustainability indicators, similar to the ones presented in the NSA tools, could be used as a framework for the development of a method-based planning

model for guiding the sustainable upgrading of informal settlements.

This idea comes from the auspicate paradigm shift toward the application of sustainable neighbourhood principles on informal settlements. The acknowledgment of the “prioritisation in situ upgrading to respond on the scale of urban poverty” and the necessity to “strengthen socio economic and cultural dynamics for safe and sustainable neighbourhood” is the starting point of this research (Pretoria Declaration, 2016: 2). Since informal settlements are the emblematic representation of the failure of the current planning practices in dealing with the complexity of the reality, this thesis wants to investigate if an approach based on flexible and adaptable sustainability indicators can guide the upgrading of informal settlements at the neighbourhood scale.

Ch 3. Methodology

3.1 Purpose of the study

The primary aim of this research is to explore the potential use of a methodology based on sustainable standards and indicators that might guide the upgrading process of informal settlements in the global South.

In doing so, the research explores first (1) 'until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process', and then (2) 'which are the outcomes produced by sustainability assessment tools in developing Countries' and (2.1) 'in which way the sustainability assessment is useful for defining the following actions in the planning practice'.

The research problem presented is divided in three research phases that are going to lead to the answer to the main research question: (RQ) 'Until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements?'

3.2 Overview of the chosen methodology

The description of the research design used for this thesis, follows the definitions advanced by du Toit in 'The Routledge handbook of planning research methods' (2015).

According to du Toit, research design "can be defined as a logical plan to maximise the validity of research findings" and "designing a study involves choosing and customising a prototypical design that will maximise the validity of findings given the nature of the question being asked" (du Toit, 2015: 61).

Based on the need of achieving a certain degree of validity of the research, and after taking into account the limitations connected to the methodological and practical considerations, an evaluative research design has been chosen.

An evaluative research design with a variety of methods for the data collection has been used in order to ensure the validity of the research. The qualitative approach of the study allowed the researcher to collect various inputs necessary to fully understand the point of view of field experts on the topic, and to open the floor for further research.

3.3 Research design

The following table (Table 3.1) summarises the characteristics of the proposed research design in order to clarify some of the features considered:

Research design:	Evaluation research
Research design subtypes:	Programme monitoring
Research context & research aim:	Practical aims
Research purpose:	Evaluative
Methodological paradigm:	Pragmatic
Methodological approach:	Qualitative
Source of data:	Hybrid (primary & secondary data)
Core logic:	Evaluation

Table 3.1 *Characteristics of the proposed Research Design*
Source: Adapted by the author from du Toit, 2015: 67-70.

The research design is based on the purpose of the research that in this case is evaluative, meaning that the aim of the research is to "evaluate practice by diagnosing or clarifying problems, monitoring programmes and measuring outcomes and impacts" (du Toit, 2015: 63).

Since the research presented has practical aim, that is connected with the possibility of "offering practical solution to concrete problems", it is possible to define it as an applied research, even though there is not a clear and net division between applied research and basic research in the planning field (du Toit, 2015: 62).

Basic research, has been defined by du Toit as a research "driven by theoretical aims and is conducted in academia for purposes of advancing fundamental knowledge about planning and the world that planning deals with" (2015: 62). In this case is possible to understand how the thesis is developed starting by the context in which basic research are promoted, but with the final aim of defining some strategies that might be applied in the planning practice.

In this regards the methodological paradigm used is the pragmatism that, according to du Toit, emphasises the relevance of the research in solving the "problems in the real world and improve the human condition". (2015: 65).

In this research a variety of qualitative data has been collected due to the purpose of evaluative core logic that stands behind the topic. "Methodological approaches revolve around the use of different types of data, particularly quantitative (numerical) and qualitative (textual and visual) data" (du Toit, 2015: 62).

This research wants to show that a methodological coherence is visible in the proposed design. Since the

final purposes of the thesis is to advance the hypothesis that with a methodology based on sustainable indicators and standard, it is possible to guide the planning and upgrade process in informal settlements, the first step is to monitor the existing programme.

Silverman, in the chapter 'Analysing Qualitative Data' (2015), discusses the application of qualitative methods to planning practice and the different forms of data collection. One of the advantages of qualitative research is that is able to captures various "nuances of public life and urban development processes" while it is able to makes the results "more accessible to a broad spectrum of individuals and groups in the society" (2015: 141).

3.4 Data Collection

There are two sources of qualitative data that can be collected: primary and secondary data.

Du Toit defines primary data as "newly collected data, typically in raw format, which are then analysed to address a specific research question" and secondary data has something that "have been already been collected and presented in a particular format, which is usually more cost-effective, but there are likely to be limits in terms of reanalysing the data to address a different research question" (2015: 66).

The two sources have been used in this research in direct connection with the form of the data collected that are different for each questions and sub-questions.

Different forms of data collection are available, but this research is focused on two forms: the document analysis (Bowen, 2009) and the semi-structured interviews (Silverman, 2015).

The following table (Table 3.2) shows the forms of data collection and the sources of data used for the main research question (R.Q) and for the sub-questions (1, 2, and 2.1):

Type	Questions	Form of data collection	Sources of data
1.	Until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process?	Document analysis	Secondary data
2.	Which are the outcomes produced by a sustainability assessment based on global standards in developing Countries?	Document analysis	Secondary data
2.1.	In which way the sustainability assessment is useful for defining the following actions in the planning practice?	Document analysis	Secondary data
R.Q	Until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements?	Semi- structured interviews	Primary data

Table 3.2 *Characteristics of the data collection.*
Source: Author

3.5 Document analysis

Bowen defines document analysis as “a systematic procedure for reviewing or evaluating documents” (2009; 27). It is part of the analytical methods used in qualitative research, and it requires an examination and interpretation in order to “elicit meaning, gain understanding and develop empirical knowledge.” (Corbin and Strauss, 2008). The document analysis takes into consideration a variety of different documents such as manuals, books, brochures, institutional reports, survey data and much more.

The nature of this research makes almost necessary its combination with other qualitative research methods as a means of triangulation. It is necessary to seek convergence and corroboration through the use of at least two sources of evidence (Bowen, 2009).

In this regard, the document analysis is supported by semi-structured qualitative interviews that will provide “a confluence of evidence that breeds credibility” (Eisner, 1991: 110, as stated in Bowen, 2009: 28). The document analysis in this research provides supplementary research data that add valuable additions to a knowledge base. They are providing a means of tracking change and development of a certain phenomenon (Bowen, 2009).

Benefits

As stated by Bowen, the advantages of this method are connected with its efficiency that “requires data selection, instead of data collection”, with the availability of the documents, that are often in the public domain, with its cost-effectiveness, and with its exactness since “the inclusion of exact names, references and details makes documents advantageous in the research process” (2009: 31).

Limitations

On the contrary, the method presents also some limitations connected with the insufficiency of details presented, since they are created independently from the purposes of the research agenda, with the biased selectivity, connected with the availability of a certain typology of documents that “are likely to be aligned with corporate policies and procedures and with the agenda of the organisation’s principals” (Bowen, 2009: 32)

In order to overcome the problems connected with the biased selectivity the presented research tries to look at the documents with a critical eye and to be cautious in using documents in the study. The research

recognised the role of the authorities that promote the creation and distribution of the analysed documents and take into account the possibility of a biased contribution to the topic.

3.5.1 Document analysis in the answer to the first question

The comparative data analysis of the two NSA tools is helping the research to answer to the first question: "Until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process?"

The comparison between two or more documents in the analysis is essential for identifying categories and for their development (Corbin and Strauss, 2008). In this research the comparison between the constitutive elements of the methodologies analysed in the BREEAM Communities and in the LEED - ND technical manuals is necessary in order to understand the difference between the limitation of the single tools and the limitation of the NSA methodologies in general.

For this first question the analysed documents and data are the following:

Documents selected	Data Analysed	Type of document
BREEAM Communities: 1. BRE Global (2013). *BREEAM Communities.* Technical Manual: SD202 Version: 2012 Issue: 0.1. BRE Global. 2. BRE Global (2014). *The Case for BREEAM Communities.* Fact Sheets. 3. BRE Global (2016). *Why BREEAM?* Retrieved from (http://www.breeam.com/why-breeam) (July 3, 2016) 4. Parker, J. (2012). *The Value of BREEAM.* BSRIA Report 42/2012.	- Type of indicators and their relevance in guiding the design and in the planning phase; - Connection with the context and the achievement of the presented goals; - Transferability. - Adaptability of the indicators; - Implementation; - Participation of the community.	Technical manuals and academic articles

Table 3.3 (1) First question: *Data analized.*
Source: Author

Documents selected	Data Analysed	Type of document
LEED – ND: 1. US Green Building Council (USGBC) (2012). *LEED 2009 for Neighborhood Development.* 2. Welch, A., Benfield, K., and Raimi, M. (2010). *A Citizen's Guide to LEED for Neighbourhood Development: How. How to Tell if Development is Smart and Green.* US Green Building Council. 3. Boeing G. et al (2014). LEED –ND and Livability Revisited. *Berkley Planning Journal 27,* 31-55. 4. LEED. (2015). Homepage of LEED_ND. Retrieved from (www.usbc.org/articles/getting-know-lwwd-neighbourhood-development) (May 21, 2016).	- Type of indicators and their relevance in guiding the design and in the planning phase; - Connection with the context and the achievement of the presented goals; - Transferability. - Adaptability of the indicators; - Implementation; - Participation of the community.	Technical manuals and academic articles

Table 3.3 (2) First question: *Data analized.*
Source: Author

The systematic review of the documentation provided background information helps the research to understand the feasibility of the use of Neighbourhood Sustainability Assessment tools in different context. Moreover the comparison between the two tools is essential for identifying categories and to analyse their development. As describes by Corbin and Strauss, by comparing different objects it is possible to look for "similarities and differences among their properties and to classify them" (Corbin and Strauss, 2008: 94).

3.5.2 Document analysis in the answer to the second question and its relative sub-question

A slightly different approach has been used for the document analysis of the institutional report "Sustainability Analysis of Human Settlements in South Africa".

In this case the document analysis has the purpose of fully understand the outcomes of a sustainable analysis of the human settlements located in the global South, with a close look on the South African dynamics.

The necessity to understand the outcomes of this document is connected to the idea that the neighbourhood context in this part of the world is not comparable with the dynamics described in the previous section of this thesis. The sustainability issues are different and the thesis wants to investigate first (question 2) 'which are the outcomes produced by Sustainability Assessment tools in developing Countries' and

then (sub-question 2.1) 'in which way the sustainability assessment is useful for defining the following actions in the planning practice'.

Documents selected	Data Analysed	Type of document
Du Plessis, C. and Landman, K. (2002). *Sustainability Analysis of Human Settlements in South Africa.* Report n. BOU/ C368. CSIR Building and Construction Technology	Outcomes recommendations and guidelines	Institutional report based on multiple case studies.

Table 3.4 *Second question and relative sub-question: Data analized.*
Source: Author

The document is an institutional report that analysed in depth the socio, economic and political situations of the Country and their impacts on the spatial configuration of the different settlements. Thorough the analysis of seven case studies, the authors conducted an analysis on the distribution of different typologies across the Country, define the limited achievement of sustainable goals and suggest recommendation for the necessary actions for the improvement the planning practice.

3.6 Semi-structured interviews

Semi-structured interviews has been used for answering to the Research Question presented in this thesis that wants to investigate 'until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements'

Semi-structured interviews are in-depth interviews, often called a 'conversation with a purpose', that represent a situation in which the interviewer and the interviewee are equal partners.

According to Silverman (2015), semi-structured interviews are essential tools for handle a qualitative research. Due to its nature, planning is a discipline in which the opportunities "to collect data through informal conversation occur naturally", but "in contrast to informal interviewing, the purpose of semi-structured interviewing is to gain […] an in-depth understanding how key stakeholders perceive and understand an issue" (Silverman, 2015: 149).

The semi-structured interviews can provide reliable, comparable qualitative data, and they are often preceded by observation and informal and unstructured interviewing in order to allow the researchers to develop a keen understanding of the topic of interest necessary for developing relevant and meaningful semi-structured questions.

Benefits

Semi-structured interviews allow informants the freedom to express their views in their own terms.

The interviews can be prepared ahead of time and be adjusted during the process of interviewing, according to the specific answer received.

It is a way to collect in-dept information and different input that can enrich the research.

Limitations

Wide degree of generalization and a limited spectrum of interviewers are the limitation of this data collection method.

The interview can be biased by the personal believes of the person and by its personal experience on the specific contexts.

Another source of biases is emerging from the relationship with the interviewer and its expectation on the results.

Since the presented research is not providing a draft of methodology, but wants to investigate 'if' a methodology based on indicators can be suggested as a method to guide the planning process, the idea of having semi-structured interviews has been evaluated as the appropriate way of investigation.

3.6.1 Sampling procedures

Sampling is the technique that allows the researcher to identify the most appropriate target for the semi-structured interviews.

For this research a non-probability sample has been chosen; more specifically a purposive sample has been selected because of the needs of the research. The research, in fact, wants to include "only people who meet very narrow and specific criteria" (Blackstone, 2012: 80).

The selected criteria for the interviewers are:

- Being involved in the upgrading process of informal settlements or in the development of neighbourhood scale intervention in the global South;
- Being involved and/or carried-on participatory planning processes at the neighbourhood scale.

3.6.2 Participant selection

The selection process has been handled by the researcher through her professional network. The contact details for the people interviewed were collected during the current and previous working experiences.

The interviews occur in the context of informal conversations as programmed semi-structured interviews. The research presented has foundation in the internship's project followed by the authors [1] , therefore the information collected thorough informal meetings during the internship and a series of questions addressed to former colleagues regarding their opinion on the use sustainable indicators in their daily practice, has been used as primary data to support the findings of this research.

The following participants contributed to the compilation of the questionnaires:

Codification	Professional sector	Area of intervention
1	International Development Agency	Mozambique, Angola, Myanmar
2	Private sector	Mozambique, Tanzania, South Africa
3	NGO	Egypt
4	NGO	Colombia, Nicaragua, Venezuela
5	Private sector	South Africa

Table 3.5 *Codification of the respondants to the semi-structured interviews.*
Source: Author

3.6.3 Questionnaires

The structure of the interviews is defined by a general framework consisted in three main questions and relative sub-questions, that could guide the respondent to the main research question of the thesis without limiting their answers. (see appendix 1)

The research wants to gather opinions and information regarding, in the general, the approach to the planning practices without proposing a defined model to evaluate, and that's the main reason that leads the questionnaire thorough an open questions format, without a provision of multiple choices in the module.

For each interview a brief contextualization of the topic has been provided. The definition of what is intended by 'sustainability', 'indicators', 'informal settlements' and 'methodological approach', was explained in order to provide a more clear and homogeneous background to the participants.

The objective of the inquire is focused on the (1) consideration of sustainability issues in the upgrading of informal settlements, (2) on the current use of methodologies to guide the design of informal settlements and (3) on the needs of using a methodological approach based on sustainable indicators to guide the

[1] Development of SHERPA Methodology, for the Laboratoire CRATerre 2016.

development of informal settlements.

In the design of the questionnaire, the main issues emerging from the literature review and the results of the documents analysis have been used.

3.6.4 Data analysis procedures

The objectives of this research phase are: (1) to understand and collect the participant's perspective, and (2) to answer the research question.

The interviews were conducted in person or through Skype, and the answers of the participants have been collected in the form of written notes by the author.

In order to accomplish the analysis of the questionnaires, three steps has been followed, based on Miles and Huberman (1994) description: (1) data reduction, (2) data display, and (3) conclusion drawing and verification.

Data reduction

The data reduction consists in the process of selecting, simplifying and extracting information from the transcript of the interviews and other notes (Miles & Huberman, 1994). In this research the answers to the different questions have been re-arranged in a matrix in which is easy to compare the results from each respondent and to understand the relation with the different planning roles played. (see Appendix 1)

Data display

The data display is the phase in which the results are presented and interpreted. In order to present the results, quote, tables and diagrams can be used. The purpose is to present the findings of the research in the most appropriate way, based on the quality of the data collected and on the purposes of the study. In the chapter 4.3, the results are first presented in a synthetic way, in order to extremely simplify the comparison of the different answers. Then the results are organized by thematic according to the common emergencies identified by the author.

Conclusion and verification

The last step of the data analysis consists of drawing conclusions that are based on the comparison of the

collected answers and the verification of the procedures. The verification of the findings in the qualitative research is based on the trustworthiness of the results.

Trustworthiness of results, as mentioned in Lincoln and Guba (1985) is the representation of several construct, such as: (1) credibility, (2) transferability, (3) dependability, and (4) confirmability.

Credibility

It is the "confidence in the 'truth' of the findings". (Lincoln and Guba, 1985)

In this research the research design proposed contains a "triangulation" method that, by comparing the data collected from different sources, helps the research to increase its internal validity. For the semi-structured interviews, by sharing a summary of the collected results with the respondents, the credibility of this study was enhanced.

Transferability

It helps the researcher to ensure the external validity of the research showing the applicability of the results in other contexts. In this case, experts from different institutions, working in various areas of the world have been interviewed, and that represents a quite good level of transferability.

Dependability

It shows "that the findings are consistent and could be repeated" (Lincoln and Guba, 1985).

In this research the interview can be repeated and the general concepts gathered from them can be found.

Confirmability

It is a "degree of neutrality or the extent to which the findings of a study are shaped by respondents and not researcher bias, motivation, or interest" (Lincoln and Guba, 1985).

It ensures that the findings are reflective of the respondent's perspective, rather than being the reflection of the assumption of the researcher. By clearly state the researcher's perception at the beginning of the interview, the confirmability has been enhanced.

3.7 Limitations of the research

Field research: the main structure of this research is based on secondary data. For the first part of documents analysis, the official documents regarding the Neighbourhood Assessment tools are made by the companies that developed the methodologies and their successful perspective over the tools can be seen as a bias.

The second part of the documents analysis relies on one single report on the analysis of sustainability of human settlements in South Africa dated 2002. Since it was the only document available, the researcher was not able to compare the scenario proposed in that document with others more recent in time.

Interviews: the semi-structured interviews have been handled by the researcher through informal meetings or through Skype. The notes collected by the researcher during the interviews are sufficient to understand and report the general feeling over the topic but they are lacking of many direct quotes.

Sample: the respondents have been selected from the working network of the researcher. The availability of the interviewers in spending time during the in-depth interviews must be seen as a courtesy from them in the regards of the interviewer. Harder would have been having the same interview with random respondents.

This affects the spectrum of the answers collected in this research. A wider spectrum of answers could have lead to different outcomes.

Time: The time is always a constrain. In this case the research is investigating on the potential use of a methodology based on sustainable indicators to guide the planning process but is not presenting a prototype of research.

For further research the idea of developing and testing a methodology that takes in consideration the findings of this research can be proposed. Interesting would be have contact with the local community and collect their opinion over the topic.

Chapter 4: Research results and discussion

Following the presentation of the methodology designed for this research, in this chapter the analysis and findings for each research question are presented.

First the document analysis of the selected NSA tools, used for answer to the first research question, is presented. Chapter 4.2 shows the analysis and findings derived from the document on the sustainability assessment of human settlements in South Africa, used for answer to the second question and its sub-question.

In the final section (chapter 4.3), through the presentation of the results collected from the semi-structured interviews, the research proposes the findings used to answer to the main research question: 'Until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements'.

4.1 Document analysis: Comparison BREEAM Communities & LEED - ND

This sub chapter presents the analysis between two of the most used Neighbourhood Sustainability Assessment (NSA) tools: BREEAM Communities and LEED for Neighbourhood Development (LEED – ND). The analysis is made by comparing the methodologies and their field of application through the analysis of technical documents produced by the developers of the methodologies, and the analysis conducted by various scholars in the field of sustainable development and NSA tools.

For each tool the structure and the proposed aim are analysed and the relative findings are presented. Then the tools are compared through a synthetic table that shows the most relevant figures, and the common features are presented in order to answer to the first research question that want to investigate *'until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process'.*

4.1.1. BREEAM Communities Analysis

Developed by BRE (Building Research Establishment) Global Limited, a United Kingdom based company leader in environmental assessment methods since 1990, BREEAM Community is a tool for sustainability

assessment at the neighbourhood scale.

At the beginning with BREEAM (Building Research Establishment Environmental Assessment Method) the target was represented by assessment tools for new building design, but in time its focus expanded toward a more vast range of building types and designs, and its application is currently extended to 50 countries worldwide. BREEAM aims to be a vehicle for achieving sustainability in the design phase of a development project, in the assessment and rate of the performance of a building, in the life cycle of infrastructures and buildings and, with a specific feature called 'BREEAM Communities', to the master planning of neighbourhood development.

Developed in 2009, BREEAM Communities is aimed at helping construction industry professionals to design places in which people want to live and work in, that are good for the environment, and that are economically successful (Sharifi and Murayama, 2013).

Structure

BREEAM Communities is developed as a matrix that intersects three different planning scales of intervention, called 'steps', with six impact categories, which are considered through appropriate criteria in each one of the three steps.

With this structure the tool ensure that each categories would be taken into account in each step of the project.

The three steps are: (1) Establishing principle of development, (2) determining the layout of the development, and (3) designing the details.

STEPS	SCALE OF INTERVENTION	GRAPHICAL REPRESENTATION
(1) Establish principles of development	STRATEGIC PLAN	
(2) Determining the layout of development	MASTERPLANNINIG PROCESS	
(3) Designing the details	DETAILED DESIGN OF THE DEVELOPMENT	

Table 4.1 *BREEAM Communities: the three steps and relative scale of interve...*
Source: Author, Images from BRE Global, 2013, 3.

The first step is referring to the site selection process, based on the strategic plan developed by the local authority in which the indication of the required facilities is expressed. In this phase BREEAM Communities assesses the holistic approach to sustainability planned for the site. The degree to which the design team understands the opportunities and improves the design of the site based on defined developed principles is evaluated in this step.

The second step is connected with the master planning process and how the layout of development has been defined. In step 2 the focus is on the connections between buildings and facilities and on their connection with the surrounding.

The third step is focus on the scale of the detailed plan, in which the design of the built environment and the details of the surrounding is developed. In this scale architects and planners are working closely for the definition of the details that could be assessed with methods such as BREEAM building schemes.

BREEAM Communities defined sustainability as a three dimensions phenomenon, in which the social, environmental and economic aspects are interconnected. Through the six categories of interventions presented in the methodology, BREEAM Communities encompasses these issues with a holistic approach. The six categories are defined as follow:

1. "Governance

Addresses community involvement in decision affecting the design, construction, operation and long-term stewardship of the development

2. Social and economic wellbeing

Addresses societal and economic factors affecting health and wellbeing such as inclusive design, cohesion, adequate housing and access to employment

3. Resources and energy

Addresses the sustainable use of natural resources and the reduction of carbon emissions

4. Land use and ecology

Addresses sustainable land use and ecological enhancement

5. Transport and movement

Addresses the design and provision of transport and movement infrastructure to encourage the use of sustainable modes of transport

6. Innovation

Recognises and promotes the adoption of innovative solutions within the overall rating where these are likely to result in environmental social or economic benefit in a way which is not recognised elsewhere in the scheme." (BRE Global, 2013: 3-4).

The matrix constituted by the three steps and the six categories is composed as presented in the Table 4.2 and ensure that each sustainability issue, represented by the categories, will be fully considered in each step of the project.

		STEPS		
		(1) Establish principles of development	**(2) Determining the layout of development**	**(3) Designing the details**
CATEGORIES	**Governance**	GO 01 - Consultation Plan	GO 02 - Consultation and engagement GO 03 - Design review	GO 04 - Community management of facilities
	Social and economic wellbeing	SE 01 - Economic impact SE 02 - Demographic needs and priorities SE 03 - Flood Risk Assessment SE 04 - Noise pollution	SE 05 - Housing provision SE 06 - Delivery of services, facilities and amenities SE 07 - Public realm SE 08 - Microclimate SE 09 - Utilities SE 10 - Adapting to climate change SE 11 - Green infrastructure SE 12 - Local parking SE 13 - Flood risk management	SE 14 - Local vernacular SE 15 - Inclusive design SE 16 - Light pollution SE 17 - Labour and skills
	Resources and energy	RE 01 - Energy strategy RE 02 - Existing buildings and infrastructure RE 03 - Water strategy	-	RE 04 - Sustainable buildings RE 05 - Low impact materials RE 06 - Resource efficiency RE 07 - Transport carbon emissions
	Land use and ecology	LE 01 - Ecology strategy LE 02 - Land use	LE 03 - Water pollution LE 04 - Enhancement of logical value LE 05 - Landscape	LE 06 - Rainwater harvesting
	Transport and movement	TM 01 - Transport assessment	TM 02 - Safe and appealing streets TM 03 - Cycling network TM 04 - Access to public transport	TM 05 - Cycling facilities TM 06 - Public transportation facilities
	Innovation	-	-	-

Table 4.2 *BREEAM Communities: Matrix between steps and categories.*
Source: Adapted by the author from Welch, Benfield and Raimi, 2010.

In order to fully benefit from using BREEAM Communities is important to appoint to a 'BREEAM Communities Assessor' at the beginning of the project. The BREEAM Community Assessor is a licensed expert that will help the local authority or the developers to fully apply the methodology on their project in order to ensure the integration of it in the procurement process.

However, BREEAM Communities methodology can also be used by local authorities and members of the project team in the development of neighbourhood programmes, but the rating phase will always depend by the assessment of a independent third party auditor (BREEAM Assessor).

BREEAM Communities in its standard version is appropriate only to assess projects located in the UK. Any project outside of the UK that is seeking to be certified is required to contact BRE Global and apply for BREEAM Communities Bespoke certification (BRE Global, 2013).

Aims

"BREEAM aims to ensure that its standards provide social and economic benefits whilst mitigating impacts of the built environment. In doing so, BREEAM enables developments to be recognised according to their sustainability benefits and stimulates demand for sustainable developments" (BRE Global, 2013: 1).

Specifically BREEAM Communities "is a framework for considering the issues and opportunities that affect sustainability at the earliest stage of the design process for a development. The scheme addresses key environmental, social and economic sustainability objectives that have an impact on large-scale development projects" (BRE Global, 2013: 2).

BREEAM Communities recognises the importance of tackle sustainability since the design phase, and in doing so, the scheme proposed covers the assessment of the designs and plans for a development at the neighbourhood scale.

4.1.2 BREEAM Communities: Findings

BREEAM Communities recognises the importance of focusing on sustainability at the neighbourhood scale, and the necessity of having a strong correlation with the actors involved in the planning process.

Its methodology promotes the crucial role in helping local planning authorities and developers to deliver better projects and more sustainable communities and buildings, independently form the context in which they are located. As stated in the official website "Planners and local governments typically struggle with lack of resources, and often burdened with undertaking stringent assessments of planning applications in very short time frames. BREEAM offers to simplify the planning process for both planners and developers,

by clearly illustrating the credentials of the development, whilst meeting local planning requirements" (BRE Global, 2016).

The selling point of BREEAM Communities consists in its recognized methodology based on sustainable criteria that guide and assess the development of the neighbourhood.

The proposed methodology is strongly based on the top-down model of planning, a characteristic that is connected with the context in which the methodology has been developed (the UK) and the countries in which it is spread (Europe). In these contexts in which the existing policies on urban planning and sustainable development are largely defined and commodified, BREEAM Communities can show its positive impact on the market. The connection between sustainability and market is one of the key objects of the methodology.

According to Parker (2012), BREEAM Communities makes policy objectives more attainable and provides an environmental, social and economic path towards meeting sustainable development targets while it increases the rates of return for investors, and increases rental rates and sales premiums for developers and owners.

In conclusion, BREEAM Communities is a tool that perfectly fit in the UK's reality or in other context in which the process of planning is fully regulated and offers greater chance to achieve sustainability at the social, environmental and economic scale, and offers positive benefit in terms of investments for the developers. It allows local decision-makers to quickly understand the proposal's benefits and potential and provides a measurable target for monitoring and reporting against objectives within local authority strategies. On the other hand is a complex methodology that requires a specific knowledge and it is often dependent from a skilled expert (BREEAM Communities Assessor).

4.1.3 LEED - ND Analysis

Developed by the United States Green Building Council (USGBC), LEED (Leadership in Energy and Environmental Design) is a green building certification programs used worldwide. It includes a set of rating system for the design, construction, operation and maintenance of green buildings, homes and neighbourhood. Started in 1998 for the certification of green buildings, LEED enlarges his influence on different development scales during time. In 2003 the design of a tool that can encompass the issue of smart growth, green buildings and sustainable urban planning began, and in 2009 the system called "LEED for Neighbourhood Development" (LEED –ND) was launched.

The tool is developed by the USGBC in partnership with the Congress for the New Urbanism and the Natural Resources Defence Council (NRDC).

"LEED - ND promotes best practices in location, design and development at the neighbourhood scale, [and] it is the first LEED rating system to focus beyond the building level and evaluate whole neighbourhood" (Welch, Benfield, and Raimi, 2010: 37).

Its focus on an area larger than the building scale implies the prioritisation of criteria such as urban design, location, transportation and socio-economic factors in addition to presence of green buildings.

Structure

Due to its approach to the neighbourhood scale, the sustainability criteria presented are divided in five sections:

1. Smart Location and Linkage

It focuses on the importance of choosing the most appropriate location, the adequate transportation alternatives, while preserving the sensitive lands avoiding sprawl.

2. Neighbourhood Pattern and Design

It emphasises the necessity of create vibrant, equitable neighbourhood that are walkable and characterized by a mixed-use.

3. Green Infrastructure and Buildings

It promotes the plan of sustainable buildings and infrastructures that are able to reduce energy and water use, while recycling the dismissed materials and structures.

4. Innovation and Design Process

Recognizes exemplary environmental and innovative performance in areas not addresses by the LEED-ND rating system.

5. Regional Priority Credit

It encourages projects to address geographically-specific environmental, social equity, or public health priorities.

As presented in the following figure (Figure 4.1), the sections present multiple sub-criteria, and different weights, that will lead to a specific score in the final rate.

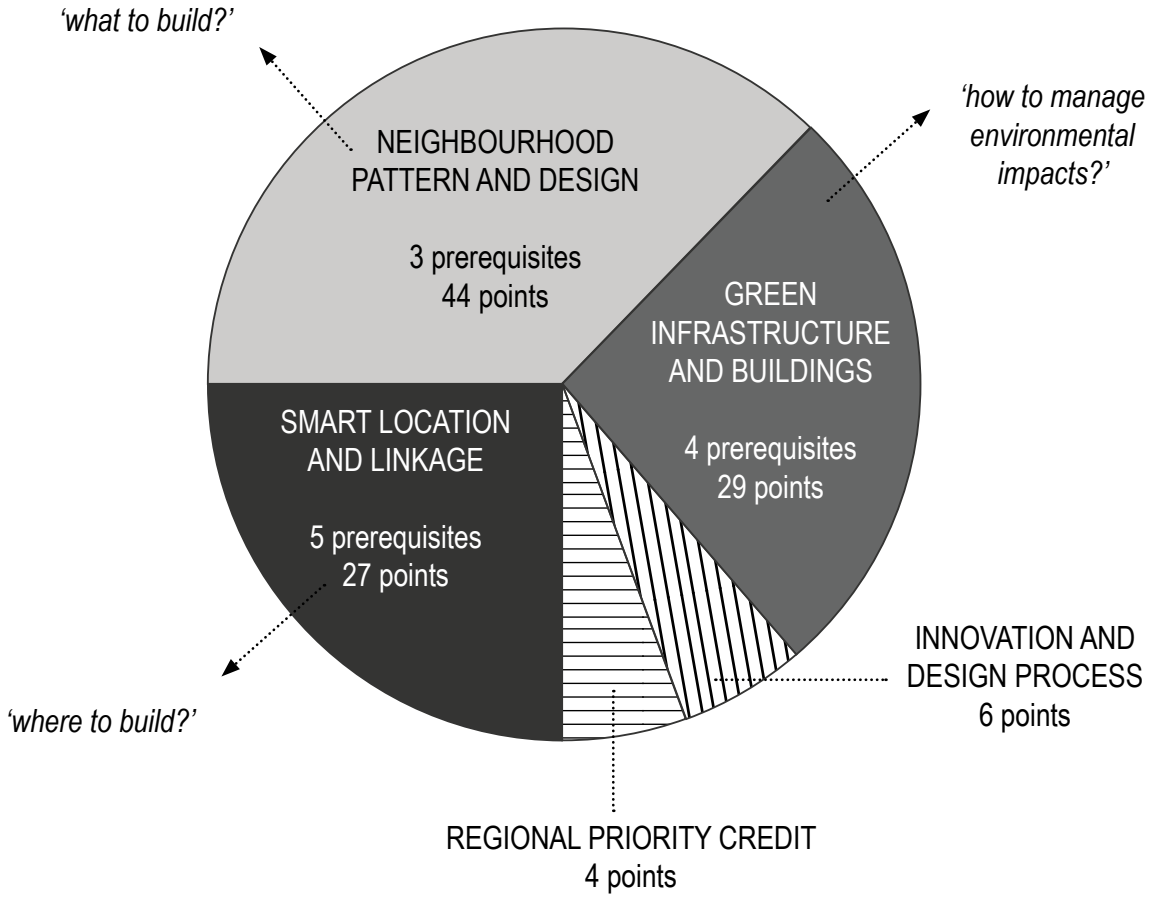


Figure 4.1 *LEED - ND: Credit Breakdown.*
Source: Adapted by the author from Welch, Benfield and Raimi, 2010: 4.

The first three sections contain in total 12 prerequisites, required as a baseline for sustainable neighbourhood developments, while in the sections related to Innovation and Design Process and Regional Priority prerequisites are not required due to the added values represented by the issues contained in the sec-

tions themselves.

The credits contained in each section represent the additional best practice standards for sustainable neighbourhood development.

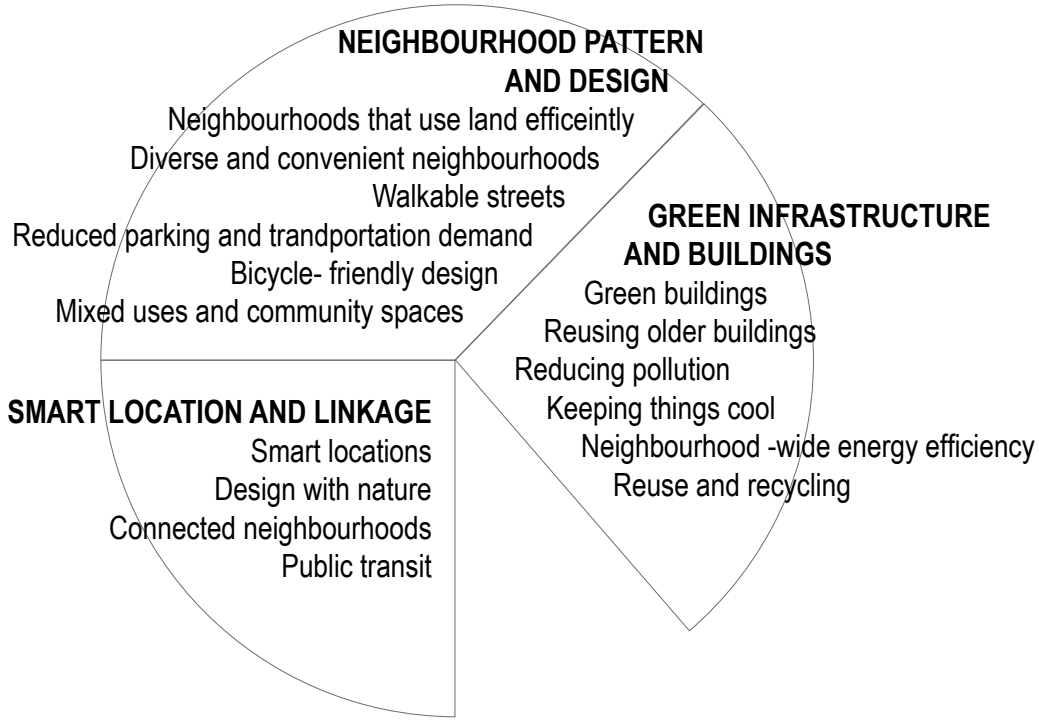


Figure 4.2 *LEED - ND: Main thematic for each section.*
Source: Author

Aims

The methodology is not finalised only to rate and certify green building systems, but it is also a "ready-made set of environmental standards for land development" (Welch, Benfield, and Raimi, 2010: 2). The methodology can be useful to anyone interested in understanding and evaluate the sustainability of the neighbourhood, from government officials to single citizen.

In this regard the importance of the methodology for the presented research assumed a particular sense. One of the aims of the methodology is "to evaluate and improve development proposals, to guide improvements to existing neighbourhood, inform community planning and zoning, and other policy-making" (Welch, Benfield, and Raimi, 2010: 3).

With this purposes the “Sustainable Neighbourhood Development Checklist”, offered as supplementary material by LEED - ND, is a sort of “crib sheet” that presents in an easy-to-use format all the prerequisites and credits contained in the methodology that facilitate the process of evaluation of development proposals, the sustainability assessment of existing neighbourhood and the information process around a development project for citizens.

The use of this tool as self-assessment methodology highlights the potentials and weaknesses of the project in its design phase, allowing developers, policy makers and the community to actively intervene in the process in order to fix the future potential issues.

4.1.4 LEED - ND Findings

The USGBC’s handbook on LEED - ND emphasizes the environmental, social, health, and equity benefits connected to the development of green neighbourhoods. “Green neighborhood developments are beneficial to the community and the individual as well as the environment. The character of a neighborhood, including its streets, homes, workplaces, shops, and public spaces, significantly affects the quality of life” (USGBC, 2012: XI).

Thanks to the contribution the Congress for the New Urbanism and the Natural Resources Defence Council in the development of the tool, the methodology is highly recognize among developers and local authorities in the US. It “has certified over 100 projects and 31 local and state governments and federal agencies are using LEED - ND to promote green neighbourhood-scale development” (Sharifi and Murayama, 2013: 82), but since is a voluntary tool there is no legal base for its implementation.

Due to the presence of the additional instrument called “Sustainable Neighbourhood Development Checklist”, the participation of the community in the process is more efficient, but the procedures connected to the final rating of the project are still complex and require the work of experts.

This is one of the main barriers that the tool is facing in the reality. The compliance with the assessment criteria and undertaking the assessment itself are costly, and the use of the tool is not compulsory.

More over, LEED - ND has a “certified Green Building” prerequisite and credit, meaning that it requires presence of at least one certified green building in the neighbourhood (Yoon and Park, 2015).

4.1.5 BREEAM Communities and LEED - ND: a comparative analysis

The following table (Table 4.3) summarizes the main characteristics of the two examined rating tool. As stated in the introduction of the chapter, this research chooses to take into account only these two methodologies based on their worldwide applicability.

Tool	Release date	Country / Region	Rating method	Implementation	Themes	Country application
BREEAM Communities	2011 (updated 2012)	UK	Ratio of acquired to available credits is calculated.	Voluntary tool without legal basis for implementation and with some degrees of flexibility based on the context in which is applied.	Climate and Energy; resources; Place shaping; Transport; community; ecology and biodiversity; business; buildings.	13 Countries 8 Certified projects 18 project registered
LEED - ND	2009 (pilot 2007)	US, Canada, China	Credit acquired by individual criteria are aggregated	more promising implementation prospective since is based on European Directives and the UK Planning policies and statutes	Smart Location and Linkages; Neighbourhood pattern and design; Green infrastructure and buildings; Innovation and design; Regional priority credit	18 Countries 100 certified projects 135 project registered

Table 4.3 *Comparative analysis: BREEAM Communities and LEED - ND.*
Source: Author. Data from Sharifi and Murayama (2013; 2014). BRE Global (2014). http://www.usgbc.org/projects/neighborhood-development-plan

Common features

There are some common features in the two analysed tools that can lead to the answer to the first question of this research. This question wants to investigate 'Until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process'.

The research is not interested in the rating procedures of the two methodologies, and wants to focus the attention on: (1) the participation of the community in the assessment phase, on (2) the implementation and (3) applicability of the tools in various contexts and on (4) the possible integration of these methodologies in the planning process.

1 – Community participation

The importance of community involvement during different stages of the project is widely recognized in the two methodologies, as well as the idea of the inseparability of planning and evaluation, in which for evaluation is intended the negotiation between stakeholders in order to affect positively the project.

In doing so the tools present additional features as the "easy-to-use checklist" that can be used to understand methodologies that are expert based and sometimes do not reflect the specific needs of the community.

Both "tools are mainly developed by experts, and citizens are not adequately involved in the process" (Sharifi and Murayama, 2013: 85). Moreover, since the tools are expert-oriented, the presence of "different parties in the community that have different, if not conflicting values, needs, and priorities are not adequately involved in the judgment about which elements to include, the assignment of weightings, and providing feedback" (Sharifi and Murayama, 2013: 85).

2 – Implementation

In strong connection to the topic of community involvement, it is necessary to underline the close interrelation that these tools have with the regional context in which they have been developed. In the US and the UK contexts the planning rules and laws are strongly rooted in the development of each single building and the tools presented in this research are answering to the need of easily connect the role of the developer with the local authority in charge of the approval of the project. Consequently these tools are playing and important role in the context in which its implementation can be defined by a certain framework, but it is hard to imagine the same implementation in contexts that are lacking of a strong level of governance.

According to the research of Sharifi and Murayama (2013) most of the tools are facing the challenge of implementation, and in the specific case of the presented tools the implementation conditions are showing

relevant difference between the two.

LEED - ND, in fact, is a voluntary tool without legal basis for implementation and with some degrees of flexibility based on the context in which is applied. On the contrary BREEAM Communities has more promising implementation prospective since is based on European Directives and on the UK Planning policies and statutes. These characteristics make the tool more context-based and its efficiency and usage it's more spread in the UK than in other contexts. As Sharifi and Murayama (2013) describe, the impact of the economic downturn on the uptake of the tools that have been developed since 2007 plays a major role. There it is more likely that people would be interested in approved developments that can attract more investors in a situation of economical recovering from recession.

In this case the transition from voluntary guidelines to mandatory requirement, is related to economic benefits and project's prestige. The prevision of bonuses and grants for the certified projects, accompanied by citizen awareness and the guarantee for more transparency and simplicity in the planning tools are great incentives for spreading the use of the methodologies.

3 – Applicability of the tools in various contexts

The implementation is a key aspect to evaluate the applicability of the tools in various contexts.

Assessment tools that sound appropriate in theory can have no adequate recognition and use for it in the real world and they might fail in achieving sustainability goals. The presented tools claimed to be suitable for assessment in different context and they have been utilised in various countries already, but as presented by Sharifi and Murayama (2014), there are doubts on the viability of using global standards in different contexts.

The adaptation of the Neighbourhood Sustainability Assessment tools to the local context is indispensable, and it would be necessary to create a "database of all relevant criteria and indicators" (Sharifi and Murayama, 2014: 20) instead of developing global standards.

"The final decision about the criteria and indicators [should] be made by local planners in a process that involves input from various stakeholders" (Sharifi and Murayama, 2014: 20), and most important, from the community itself.

The close connection between the use of Neighbourhood Sustainability Assessment tools and the involvement of urban planners and stakeholders, is the key concept that leads to the main issue of the

integration of NSA methodologies with the planning practice.

4 – The integration of NSA tools in the planning process

By integrating assessment tools into planning process it will be possible to establish a network of linkages among assessment system in various territorial scales. The interactions between neighbourhood and its surrounding implies that the optimization of assessment process requires a coordinated assessment framework with interlinkages among neighbourhoods and between neighbourhoods and the surrounding areas. The neighbourhood scale has been defined as the most appropriate planning unit for the achievement od sutainability (see chapter 2.4) and this concept can be applied to any context worldwide.

In this discourse emerges the importance of institutional sustainability as the fourth pillar for achieving neighbourhood sustainability.

It was noticed that acknowledging the importance of the institutional dimension, can help the diffusion of NSA tools and consequently achieve a greater level of neighbourhood sustainability together with a higher level of citizens participation in the planning practices.

4.1.6 Conclusion

From the analysis of the two methodologies emerge the idea that, with a proper customization of the existing criteria based on the peculiarity of each territory, it is possible to use Neighbourhood Sustainability Assessment tools as a method–based planning framework as a complementary tool to conduct the planning process.

By considering the fact that worldwide different planning rules are in force, a variety of challenges need to be addressed and various degree of governance are present, it is possible to imagine that a methodology based on NSA standards can be used for different purposes and can lead to different outcomes.

Furthermore, by keeping in mind the “pluralistic nature of the sustainability concepts” (Sharifi and Murayama, 2014: 21), the use of these methodologies can address different needs expressed by the stakeholders during the process. The strongest feature of these tools is the greater participation of various stakeholders in the decision making process, that can substantially increase the chance to achieve a more sustainable and successful project. The participation of the community and their involvement in any

decision phase can be seen as the greater achievement for the real implementation of NSA methodologies toward sustainability goals.

4.2. NSA in South Africa

This chapter analyses in depth the document "Sustainability Analysis of Human Settlements in South Africa" prepared for the South African Department of Housing by the company "CSIR Building and Construction Technology", in 2002.

Having in mind the sustainability criteria considered in BREEAM Communities and LEED - ND, and in general the global sustainability standards, the research wants to investigate the gap between the theory and the practice in the process of achieving sustainability in the South African context.

The attention is then focused on the outcomes of the sustainability assessment of human settlements, and on the relative guidelines suggested by the authors, in connection with the idea of using Neighbourhood Sustainability Assessment methodologies as a tool of directly connect the analysis of a neighbourhood with the planning strategy for upgrading the area.

This analysis is focused on the second research question and its sub-question, that are respectively: (2) *Which are the outcomes produced by a sustainability assessment based on global sustainability standards in developing Countries?*, and (2.1.) *In which way the sustainability assessment is useful for defining the following actions in the planning practice?*

4.2.1 Analysis

The history of South Africa is pretty unique due to the effect of the apartheid regime that, with its aims of division and control over the territory, created a specific condition of urban segregation that still shows its peculiarity nowadays. Moreover, as other Countries in the African continent, South Africa is facing large-scale migration from rural areas, increasing urbanization, extensive suburbanization and peripheral growth.

Du Plessis and Landman (2002) use the identification proposed by Dewar (1992) for the definition of

three types of settlements that were mainstreamed in the 90s and that, due to their spatial characteristics, deeply characterized the neighbourhood's sustainability in all its spheres.

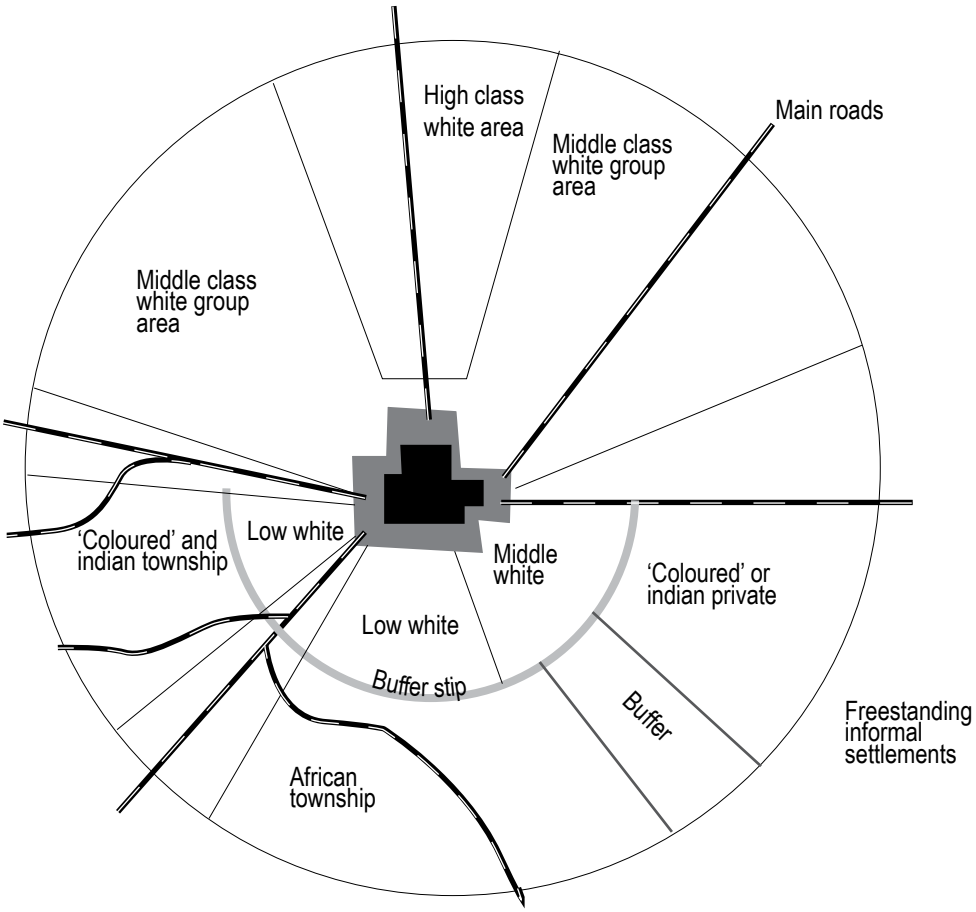


Figure 4.4 *The spatial formation of the South African city.*
Source: Du Plessis and Landman, 2002: 3.

The three typologies are: (1) low-density sprawl, (2) fragmentation and (3) separation.

(1) The low-density sprawl has three different subcategories that are very different one from the other. The first is the (a) speculative sprawl in which the neighbourhood is developed in order to meet the interest of a group of wealthy people that are looking for private spaces with full amenities in a place of beauty. The second one, a (b) low-density sprawl, is characterized by low-cost housing neighbourhood located at the periphery of the city and planned by the central government.
The third model is represented by the (c) informal settlement built by people who could not find a place in the designate neighbourhood or was not in possess of the legal right to reside in the city.

(2) The fragmentation pattern is a cellular development inspired by the garden city concept. It consists in

a neighbourhood unit or “urban village”, often gated, in which, thanks to physical infrastructure (mostly highways, but also green buffer zones), the interaction with the surrounding areas are very limited.

(3) The third typology identified is the separation of land uses, races and income groups. It can be compared with the most common practice of “zoning”: a land-use pattern that divides, based on functions, the areas of the city. The effects of this division are the “distorted, fragmented, unequal, incoherent and inefficient” (Du Plessis and Landman, 2002: 4) displacement of urban settlements. The spatial, social and economic exclusion of certain group of people, often based on race, is one of the greater issues in these settlements.

Problems of fragmentation, separation and sprawl are widely spread around the world, often connected with different social and political problems, but this research wants to focus the attention on the scale of these settlements: the neighbourhood.

The neighbourhood scale is, in fact, the basic unit of sustainability assessment in every city around the world; with different parameters and indicators, it is the scale at which the sustainability assessment is looking at.

It is important to notice how the typologies of settlements defined by Dewar (1992) and used by Du Plessis and Landman (2002) in the sustainability analysis, are not so different from the one that we can commonly find in the UK or in the US – exception made for the informal settlements typology.

In the case of South Africa, the historical, cultural and social background of the country has a relevance that will deeply affect the sustainability assessment if carried out with tools like BREEAM Communities and LEED - ND. The tools presented in the chapter 4.1 are, as previously mentioned, context based, and in order to be applied to other Countries they need to be customized. In South Africa the sustainability of settlements is a multidimensional problem and its “spatial characteristics, geographical location, settlement dimensions, environmental conditions, economic viability, institutional ability and structure, human development, social relationships, and values and aspiration”, must be considered (Du Plessis and Landman, 2002: 4).

4.2.2 Findings

As the authors suggested, it is necessary to analyse and assess the sustainability of a settlement, through a systemic approach that will analyse the interaction of the multi-dimensional aspects described above. From the cross cutting analysis of seven different neighbourhood presented in the paper, a set of conclusions was presented. The connection between the conclusions drew by the authors and the findings on the use of methodologies based on sustainable indicators (chapter 4.1) to guide the development planning process of a neighbourhood are explained as follow:

1. The identification of an appropriate terminology of sustainability is necessary to clarify the connection with the local conditions and to take some distance from the global standards for sustainability where there are not appropriate.

2. "The correlation between policy documents (which are often based on normative principles) and legislation and local regulations (practical mechanisms to guide implementation and enforce specific outcomes)" (Du Plessis and Landman, 2002: 68), must be ensured by an adequate regulamentation based on different contexts.

3. The gap between policies and legislation and their actual implementation on the ground, must be solved with adequate policy that will define roles, competences and duties of each actors involved in the process. Current policies have the tendency to pull back the role of the government in providing houses and to enable NGOs and communities to be responsible for delivery, or to privatise service and housing delivery. In this cases the main concern of these actors are on the cost-recovery, both in terms of initial implementation and ongoing service provision.

4. Community participation at the grass-roots level is necessary to ensure a democratic process in which the needs of the community will be clearly defined and addressed in both policy and programme planning.

5. Tensions connected with economic sustainability, can be generated when a programme of long-term ecological protection is not meeting the achievement of short-term economic goals. The gap between

global sustainability standards and the concept of sustainability at the ground level is very evident and can generate tension in the community.

6. The tension between increased centralization and the promotion of greater local responsibility is a thematic connected with problems of governance and it negatively impacts the achievement of a sustainable neighbourhood.

7. The policy gaps are emerging when the sustainability problems of the human settlements are not adequately addressed by policies that are focusing just on certain settlements and not on others.

4.2.3 Conclusions

The second research question wants to investigate 'which are the outcomes produced by a sustainability assessment based on global standards in developing Countries', and from the sustainability assessment presented in this document in relation to the role of global sustainability standards, problems in terms of governance, participation and policy implementation emerge.

The focus of this research on the analysis of these problems is supporting the idea that new methods for assessing and, at the same time, planning the upgrade of any human settlements are necessary.

The outcomes produced by the sustainability assessment lead to the necessity of an holistic methodology that will improve the sustainability of the human settlements at the neighbourhood scale, according to the characteristics of the context in which the development, or upgrading, will take place.

The global sustainability standards represent general milestone for the achievement of a greater level of sustainability, but they need to be adapted to the real need that emerge from the local community.

With the recommendation for the future policy development, the authors suggested a series of strategies that can help the different actors to narrow the gap between the knowledge collected during the assessment phase and the planning phase. Different practices and strategies can be used in order to facilitate the planning process and the achievement of sustainable goals in various human settlements.

Based on these recommendations, the answer to the second sub-question: "in which way the sustainability assessment is useful for defining the following actions in the planning practice", is articulated as follow:

From the sustainability assessment emerges clearly failure of urban planning practices based on the envision of a future development situation through inaccurate data that are used for defining urbanization rates and infrastructure needs. And this is extremely visible in the South African context in which would be more helpful take decision at the neighbourhood scale involving the local community.

Connected to this issue, emerges the necessity to focus the attention on the creation of liveable and sustainable settlements by shifting the emphasis away from meeting purely quantifiable housing delivery targets or global sustainable goals, towards more achievable and meaningful levels of sustainability that are meeting the real needs of the local community. In doing so the emphasis should be on the ecologically responsible design and technologic choices.
Moreover the acceptance that, sometimes, the global standards are not suitable for the local context must be clearly emphasized. For example the nuclear family household is not the norm in South Africa, and the peculiarity of the community must be integrated in the conceptualization of sustainable standards.

From this context emerges the urgency to find mechanisms that allow the settlements to be holistically developed, through a strong participatory process that can enable all the relevant stakeholders and the community to play an active role in the planning of the neighbourhood. Often, especially in the global South, the integration of planning policies at the national and local level, with the coordination among different sectors (housing, transport, energy, education), is an utopia.

It is also necessary to admit that the continued application of outdated planning regulations at the local level contributed to the current lack of urban sustainability, and it is necessary to encourage and enable the development of new innovative paths, able to achieve sustainability in different contexts, and help the “communities to develop their own sustainable solution to local problems” (Du Plessis and Landman, 2002: 83). Essential is the connection of the findings emerged by the assessment on the human settlements, with direct actions that will lead the planning process by answering to the needs and wishes of the community.

A special emphasis is draw on the final suggestions proposed by the authors that advise to not be too

prescriptive, but to keep in mind that "at the national and provincial level, roles and responsibility need to be clear as possible, information needs to be widely available and people (decision makers and communities) should be given the tools to understand the requirements of sustainable development and to use these as the main guidelines for planning and implementation" (Du Plessis and Landman, 2002: 84). More over the "local level interventions aimed at the creation of more sustainable settlements should follow a strategic but connected approach, the focus is on the priority needs of the community, as identified by themselves, and how these needs can be optimally addressed with the limited resources available to local government" (Du Plessis and Landman, 2002: 84).

"Settlements will only be sustainable once the values of sustainability have become the basis from which the majority of decisions on the creation and management of settlements are made" (Du Plessis and Landman, 2002: 84).

4.3 Questionnaire: practitioners and NGOs working in Informal Settlements

From the documents analysis described in chapter 4.1 and 4.2, emerges the necessity of enhancing sustainability at the local level through a strategic approach focused on the needs of the local community, and which may define, in accordance to those needs, the sustainable criteria to follow in the planning practice.

In the document "Sustainability Analysis of Human Settlements in South Africa", a model of settlements defined as 'informal settlement' has been identified and it represents the focus of this last section of the research.

The informal settlement, as defined in chapter 4.2, are "built by people who could not find a place in the designate neighbourhood or was not in possess of the legal right to reside in the city", and due to the complete absence of control from the governmental body of the Country, represents the most challenging area for the achievement of sustainability goals.

The main research question presented in this thesis wants to investigate 'Until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements', and in doing so a set of semi-structured interviews have been done in order to understand the point of view of people that are dealing with informal settlements in their practice. As presented in the chapter 3.8, the respondents have been coded, and their answers have been re-arranged in a matrix that

allows the researcher to understand similarities and differences among the answers. In the next chapter the answers has been presented in a extremely synthetic way, by using tables that are showing the answers for each respondents that are going to be discussed in the analysis.

4.3.1 Findings

The questionnaire is structured by three main open questions, with relative sub-questions that allow the interviewed to articulate more its response.

The first question wants to investigate if the 'sustainability issues are taken into account in the upgrading of informal settlements'.

Question 1	**1**	**2**	**3**	**4**	**5**
Are sustainability issues taken into account in the upgrading of informal settlements?	Yes	Yes	Yes	Yes	Yes

Table 4.4 *Semi - structured interviews: Question 1.*
Source: Appendix 1

All the respondents confirmed the importance and the implementation of sustainability issues in the upgrading of the informal settlements. They are also aware of the different dimension of the sustainability concept and they expressed the necessity of defining sustainability according to the local needs. Although one of the main problem of addressing sustainability in a holistic way, is the strong focus on environmental sustainability promoted by the local government and by international funds programmes.

This aspect emerges from the answer of the respondents n. 1, 2, and 5 that express the challenge of promoting sustainability in its broader term; especially when they have to meet the specific requests of the client (often the local government) in the upgrading project.

The respondent n. 2 emphasises the necessity to support cultural, economical and social sustainability with governmental policies that are complementary to the planning practices focused on the upgrading of the settlement from a technical point of view.

In connection with the first question, three sub-questions have been formulated.

The aim is to explore if (1) 'the sustainability has been addressed using indicators', (2) if 'the indicators and global goals promoted by the International Community have a direct impact on the current practice', and in case of positive answer, if (3) 'the impacts of the global indicators are positive or negative for the

current life of the community'.

Sub-question 1.1	**1**	**2**	**3**	**4**	**5**
Has sustainability been assessed using indicators?	Yes	No	Yes	Sometimes	Sometimes

Table 4.5 *Semi - structured interviews: Sub - question 1.1.*
Source: Appendix 1

The first sub-question shows a variety of different answers. The respondents n. 1 and 3 answer 'yes' to the use of indicators in addressing sustainability, and they emphasise the use of indicators in the evaluation of tangible aspects strongly related with the environmental sphere. The respondents n. 4 and 5 answer 'sometimes', due to the different context in which the project takes place. The respondent n. 2, doesn't use indicators for assessing its projects due to its opinion that "indicators are often controversial in the representation of the reality of a place".

Sub-question 1.2	**1**	**2**	**3**	**4**	**5**
Do the indicators and global goals promoted by the International Community, have a direct impact on the current practice?	Yes	Sometimes	No	Yes / No	Yes

Table 4.6 *Semi - structured interviews: Sub - question 1.2.*
Source: Appendix 1

The respondents n. 1 and 5 answer positively to the question and they explain the strong relationship between the allocation of international funds for the upgrading of informal settlements and the correlation with the global goals promoted at the international level. For the respondents n. 2 and 4 the impact is not so direct and it is visible only when the policy at the national level reflects the global goals by implementing strategies to the local level. The respondent n.3 is sceptical about the impact of the indicators promoted at the global level and emphasized the necessity to evaluate, understand and answer to the challenge of sustainability from a local perspective without comparing them to a global scenario.

Sub-question 1.3	**1**	**2**	**3**	**4**	**5**
Are the impacts of the global indicators positive or negative for the current life of the community?	Positive	Positive	N / A	Positive	Positive

Table 4.7 *Semi - structured interviews: Sub - question 1.3.*
Source: Appendix 1

The sub-question 1.3 is related to the previous one (n. 1.2) and the respondent n.3 was not involved in

this question.

All the other respondents agreed that, generally speaking, the impacts of these global indicators are positive and they are allowing the informal settlements to achieve some degrees of improvements.

After having defined the role of indicators in the planning practices on the upgrading of the informal settlements the second main question is focused on the acknowledgment and use of methodologies that can guide the upgrade of informal settlements. This question has 2 sub-questions that want to investigate (1) who developed the methodology, and (2) which are the motivations that drive the developers to use the methodology.

Question 2	**1**	**2**	**3**	**4**	**5**
Do you use any methodology for guiding the upgrading of informal settlements?	Yes	No	No	Yes	Yes

Table 4.8 *Semi - structured interviews: Question 2.*
Source: Appendix 1

The respondents n. 1, 4 and 5 use methodologies that have been adapted to the specific context, while the respondents n. 2 and 3 define their interventions on approaches that are different all the time and they are customized based on the requests of the client and on the needs of the context.

Sub-question 2.1	**1**	**2**	**3**	**4**	**5**
Who developed the methodology?	Institutions	N / A	N / A	NGO	Private Practice

Table 4.9 *Semi - structured interviews: Sub - question 2.1.*
Source: Appendix 1

The sub-question n. 2.1 is related to the previous main question, and the respondents n. 2 and 3 were not involved in this question.

The answers of the other respondents show the influence of the belonging institutes, that they are respectively institution (local government), an NGO and a Private Practice. In all these cases the developer of the used methodology is directly the belonging institute.

Sub-question 2.2	1	2	3	4	5
Which are the motivations that drive the practitioners to develop and use the methodology?	Control Guidance	N / A	N / A	Control Guidance	Simplification Control

Table 4.10 *Semi - structured interviews: Sub - question 2.2.*
Source: Appendix 1

Also in the sub-question 2.2 the respondents n. 2 and 3 were excluded.

The respondents n.1 and 4 agree on the main motivations that are the control over the process and the role of guidance that these methodologies offer in the planning phase. The respondent n.5 confirms on the role of internal control of its methodologies and focuses the attention on the simplification of the steps to take into consideration in the planning phase.

The third and last main question investigates the potential interest on a methodology based on sustainable indicators for guiding the upgrading of informal settlements. In this case the open answers have been reduced to a yes/no scheme just to present the overall feeling over the question.

Question 3	1	2	3	4	5
Do you think a methodological approach based on sustainable indicators could be useful to guide the upgrading of informal settlements?	Yes	Yes	Yes	Yes	Yes

Table 4.11 *Semi - structured interviews: Question 3.*
Source: Appendix 1

All the respondents agree on the potential use of a methodology based on sustainable indicators for guiding the planning phase of the informal settlements upgrading. In their responses they underline the necessity of having a flexible instrument that can guide the planning process in accordance with the context and the needs of the local community.

In the next chapter the full answers are analysed and contextualized in order to better understand the reasons that are leading to the answer to the main research question.

4.3.2 Analysis

The purpose of the study is to investigate if there is a potential interest for the development of a methodology based on sustainable indicators that can guide the upgrading process of informal settlements in different areas in the global South.

The analysis of the questionnaires in which five different respondents have been involved, allowed the author to identify the emergence of specific thematic, defined as: (1) Sustainability as a non objective issue, (2) Indicators as labels without tangible meaning, (3) Methodology as flexible set of guidelines to consider in closer relationship with the context.

(1) Sustainability as a non objective issue

In connection with the first main question, the answers collected are showing how in the term 'sustainability', the environmental sphere has a predominant attention. While all the respondents recognize the multi-dimensional character of the concept, they agree on the difficulties in implementing sustainability, in its broader term, in the reality.

Environmental sustainability has been taken into account in all the projects of upgrading of informal settlements but it is hard to address the complexity of its meaning. Moreover sustainability has been defined as a "necessary element for the development of the settlement at the neighbourhood scale" (respondent n.3), but it should be reflected in tangible actions and not remaining an empty concept.

The impacts of global indicators are usually positive due to the fact that, again, are focusing the attention mainly on the environmental issues. Moreover, here emerges the limitation of the global indicators that with their generic and vague prescriptions, have a low impact level on the neighbourhood scale.

From the limited (but positive) impact of the global indicators on the local level emerges the importance of a local declination of the definition of sustainability. Sustainability must be adapted to the local context, at the neighbourhood scale, where the inputs from the local community and its tangible needs, emerge. At this scale the term sustainability assumes a subjective meaning, and will lead the development of actions and policies that will have a real impact on the life of the community.

(2) Indicators as labels without tangible meaning

Indicators have also a controversial meaning, due to the perception of their role in the planning practice. From the answers collected emerge the limitations that indicators are facing in the representation of the reality. They can be successfully used to measure the achievement regarding the implementation of a specific project, but just if the project presents tangible features. In strong correlation with the difficulties of encompassing all the sustainability's spheres, indicators are also used in the measurement of specific objective. The achievements in the cultural, social, governmental and economical sphere of sustainability

are hard to measure through indicators. From these reasons emerge the negative opinion on indicators that are connected with the necessity of labelling a project or to present certain achievements in a reality that is not fully represented by them.

(3) Methodology as flexible set of guidelines to consider in closer relationship with the context

The last thematic regards the use of a methodology to guide the planning process. It is evident, from the variety of approaches used by the respondents, that every practice has its own way to address the issue of upgrading of informal settlements. These can involve specific methodologies or simply rely on the analysis of the emerging needs of the territory, but everyone agree on the general idea that the development of a methodological approach based on sustainable indicators might be useful to guide the process of upgrading informal settlements by enhancing sustainability. The previous thematic investigated are representing the limitation of the possible methodological approach, and from them the criteria that the methodology should meet are:

Clarity: the sustainable indicators should be clearly defined, easy to understand and tangible.

Adaptability: the sustainable indicators should be customized based on the context of the project, on the needs of the local community and on the scale of the intervention.

Flexibility: The sustainable indicators should be flexible enough to allow the practitioners to adapt the strategies to the continuous changes of the context.

Efficiency: The sustainable indicators should be efficient and effective in order to allow the tangible upgrade of the situation in the informal settlements. They should be tangible and fit the real needs of the community avoiding vagueness and abstraction. Their efficiency should be perceived at any level, from the single member of the community, to the neighbourhood scale, to the regional scale.

4.3.3 Conclusions

From the semi-structured interviews emerged the real knowledge of people that are directly involved in the planning practice in informal settlements and that developed a disillusioned attitude over the buzz concepts promoted by the international community.

Concepts such as sustainability, indicators, methodologies, approaches, assume different influence based on the context of the project, and the necessity of develop a common understanding over the real

needs of the local community is essential.

The idea of developing a methodology based on sustainable indicators has been perceived as a positive intervention, as soon as it will not represent another empty tool that has no direct impact on the community.

Meeting the requirements of the international development community it is necessary in order to attract funds for financing the upgrading projects, but without tangible outcomes nothing has real value.

A methodology will be successful only if it will simplify procedures, overcome problems of governance on the local level, and improve the life of the local community.

Chapter 5: Conclusion

The fifth chapter, 'conclusions', is the final one and is dedicated to the discussion and conclusion of the results described in the fourth chapter. The implications of this research for a relevant audience, as well as suggestions for the future development of a tangible methodology have been provided.

5.1 Key findings

From the documents analysis and the semi-structured interviews, common thematic emerged in the discussion over the use of a methodology based on sustainable indicators to guide the planning practice, in general, and the upgrading of informal settlements, in the specific case.

The discussion is organized in the following topics: (1) The failure of the planning practices, (2) The use of indicators as a guidelines for the development, (3) Sustainability as a process, and (4) The governance's role in the planning practice.

(1) The first one is focused on the failure of the planning practices in deal with the real urban condition.

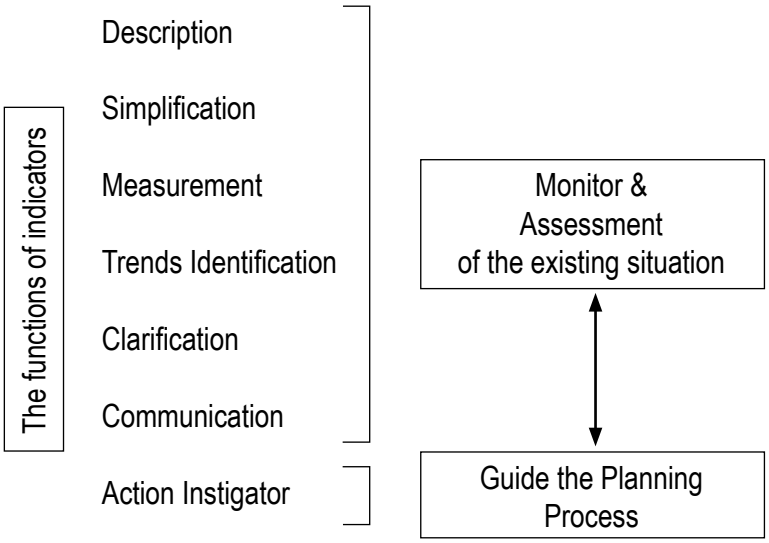
From the literature review to the analysis of the documents on the sustainability analysis of human settlements in South Africa, the failure of the current planning practice emerged clearly.

In a context of constant changes that are impossible to predict, prescriptive planning practices are showing all their gaps in the implementation and in the actual achievement of the planned goals.

There is a necessity to use new instruments that are customized for the specific context and that can be able to achieve a greater participation of the stakeholders and the community in their implementation.

The applicability of the tools to a certain territory, the transferability of methodologies or practices in different contexts, and the integration with the legislative apparatus are fundamental conditions for the success of a new set of planning instruments.

(2) As a potential answer to the lack of appropriate responses from the planning tools, a methodologies based on indicators that guide the planning practice could be considered an alternative.

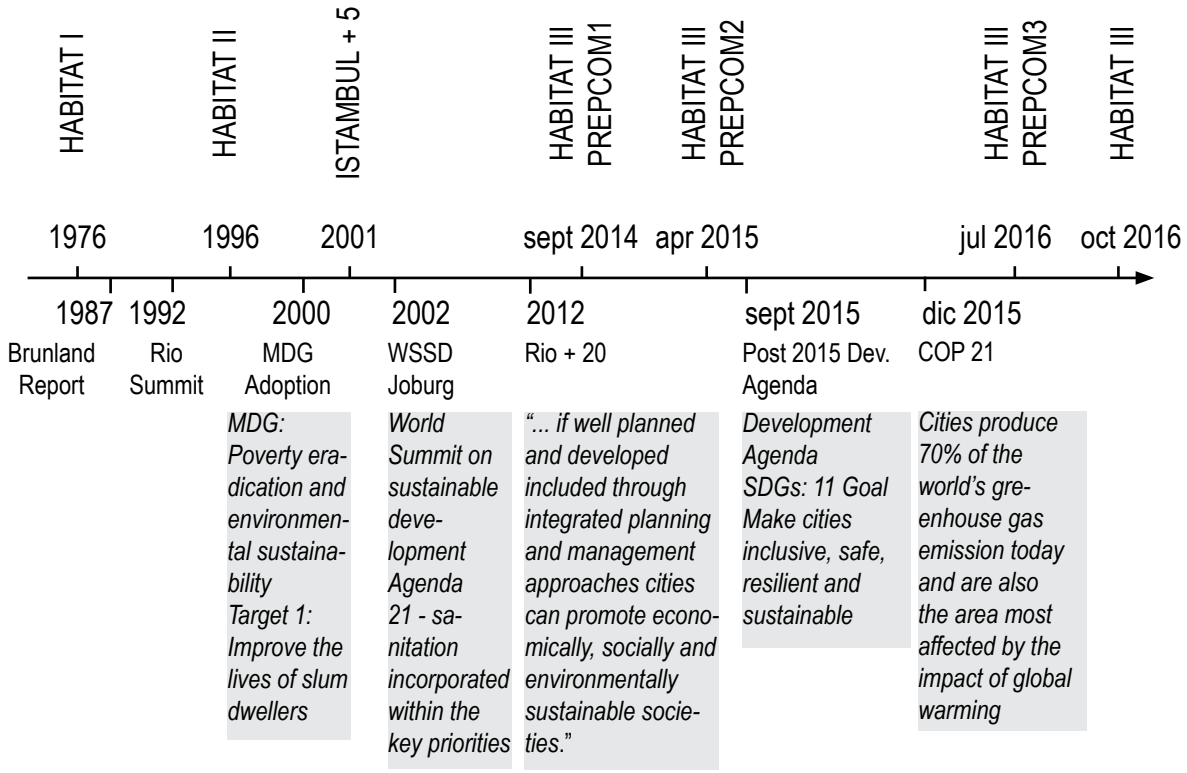


Scheme 5.1 The potential use of indicators
Source: Author with data from Hoerning and Seasons, 2004.

As discussed in the literature review, indicators are tool "for gathering and organising data so they can be assigned meaning"(Innes, 1990: 5) and they can be used to assess and consequently guide the actions for the development. Obviously, opportune considerations must be done in this regard, such as the necessity clearly state what is the object of the research and which are the peculiarity of the local context. In doing so, the interplay between theoretical and technical knowledge on the one hand and interpersonal communication on the other remained vital at all stages of the project. Planners should sharpen their skill to listen, initiate and softly direct the community debate, and be ready to manage the emerging conflicts.

(3) In this thesis the achievement on sustainability in informal settlements is the focal point of the discussion. Subsequently, from the definition of sustainability another set of issues emerged from the documents analysed and from the semi-structured interviews. Even if the term 'sustainability' is commonly used in many of the aspects of our life, there is still an on-going debate on what is exactly sustainability. Sustainability can mean different things for different community. From this research emerges how for each territory, and with a large participation of stakeholders and local community, sustainability should be defined, in order represent the holistic vision over a development. Too often sustainability has been seen just in its environmental meaning, due to the fact that is the easier to tackle this sphere thanks to the advanced technology in the field. Also from the respondents emerged a bias vision over sustainability, that it is often used as a buzz word in the development field without clearly define the immediate consequences on the field (if there are actual consequences).

If considered in the perspective of the United Nation's work, articulated definitions of sustainability have been offered in time and the topic has been more and more connected with urbanization issues.



Scheme 5.2 Global development Frameworks
Source: HABITAI III (2016). Retrieved (form https://velatianetworks.com/2016/07/02/habitat-iiithe-united-nations-conference-on-housing-and-sustainable-urban-development-will-take-place-in-quito-ecuador-from-17-20-october/) (July 6, 2016)

The figure 5.2 show the growing recognition of urbanization reflected in global frameworks for sustainable development. Often developing Countries are not in capacity to deal with the global goals promoted by the International Development Agencies and the results is a distorted vision over sustainability, in which sustainability is a non-required condition in informal settlements. But sustainability must be seen as a process and not as a static goal to achieve.

(4) The last element explored in this thesis is connected to the problem of lack of governance that many cities worldwide are facing. The planning practice is highly dependent from the bureaucratic apparatus of the State, and when the State is not in capacity to provide sufficient support to the development, different alternative systems control the development.

According to specific contexts, different degrees of fragmentation of the urban form are visible and one of this is represented by informal settlements. Strategies focused on neglecting these settlements are not

proposing any solution to the problem. Instead a planning framework based on sustainable indicators that can be adjusted according to the specific characteristics of a place, can be seen as a tool to guide the sustainable development of any places.

5.2 Conclusion emerged form the research

Based on the presented findings, and from the research proposed in this thesis, three research questions have been investigated and the results are presented as follow.

The first research question: '*until which extent the Neighbourhood Sustainability Assessment tools can be used as a method-based planning framework to guide the planning process?*' has been analysed through the comparison of two NSA tools : BREEAM Communities and LEED – ND.

From the analysis emerge the idea that, with a proper customization of the existing criteria based on the peculiarity of each territory, it is possible to use Neighbourhood Sustainability Assessment tools as a method–based planning framework as a complementary tool to conduct the planning process.

The same idea has been confirmed by the findings emerged from the second research question, that explores *'which are the outcomes produced by a sustainability assessment based on global standards in developing Countries'.*

The outcomes show the gaps of the current planning practice and the need to search for other tools that can ensure the achievement of global sustainability goals. In the outcomes presented in the report on the sustainability analysis on human settlements in South Africa different guidelines emerged. These answer to the second sub-question that investigates: *"in which way the sustainability assessment is useful for defining the following actions in the planning practice".*

The assessment on sustainability is useful to understand the state of the settlements analysed and their specific problems. From the analysis of the problem and the research of their causes, in this case mainly connected to the lack of governance and the lack of participation of the community in the decisional process, it is possible to directly connect tangible actions to change the improve the state of the settlements. The idea of directly connect the knowledge and data collected from the ground, and to use them to directly address the problems of the local community is not new, but has not be presented as a simplified methodology ables to delivery the intended tangible actions.

The last part of the research, based on semi-structured interviews, in which five professionals in the

development field have been interviewed, support the general idea of using a methodology that is able to directly connect the findings emerged from the assessment with the tangible planning actions derived from it.

The third, and main, research question investigate '*Until which extent is it plausible to adopt a methodology based on sustainable indicators to guide the upgrading process of informal settlements'*, and the re-elaboration of the answers collected towards the interviews allow the author to develop a set of guidelines for future research or for professionals.

5.3 The importance of the presented research

The research is presented as a first theoretical step for the elaboration of a tangible methodology that could lead the planning practice toward sustainability in different contexts worldwide. In doing so the main question is focused on gathering the consensus over a methodology that might contain certain characteristics, instead of proposing a draft of it.

The recommendations and guidelines developed from the semi-structured interviews can be used in two ways:

(1) to propose a first theoretical step for possible future research focused on the creation of a methodology based on sustainable indicators, or (2) to guide the professionals that are facing challenges of implementation of sustainability in informal settlements in their daily practice.

5.4 Recommendations for future research

Since the presented research offers a theoretical background on the thematic, a future research should focus more on the practical aspect of the methodology. A field research with communities of informal settlements in various areas of the world would be very interesting. A remarkable research would also connect the topic with different level of government, in order to understand better their mandate and limitations.

An in-dept study that develops a methodology with the participation of the local community and than explores the feasibility of the tool with the government levels could be proposes as PhD dissertation.

5.5 Guidelines for professionals

More practical guidelines for professionals involved in the upgrading of informal settlements emerge from the answers to the semi-structured interviews and from the report on the sustainability analysis of human settlements in South Africa.

The guidelines proposed are the following:

1. It's essential to focus on the creation of liveable and sustainable settlements by shifting the emphasis away from meeting purely quantifiable goals, towards more achievable and meaningful levels of sustainability that are meeting the real needs of the local community. The term sustainability should be declined differently, based on the actual resources of a specific place;

2. The development of sustainable neighbourhoods can be achieved through a strong participatory process that can enable all the relevant stakeholders and the community to play an active role in the planning of the neighbourhood;

3. It is necessary to encourage and enable the development of new innovative paths, able to achieve sustainability in different contexts, and help the communities to develop their own sustainable solution to local problems.

4. The connection between findings emerged by the assessment on the human settlements and the development of direct actions based on the needs expressed from the local community, should be seen as an answer to the problem connected to the low level of governance existent in many areas.

5.6. Final remarks

The thesis propose general guidelines that can be seen as 'common sense' indications but they are often neglected in the development of informal settlements.

The paradox of this study is that it highly encourages the use of common sense in the current upgrading of informal settlements, while planners are often stuck in the bureaucratic machinery of the planning practice. The second paradox of this thesis relies on the idea of develop a methodology for the achievement

of sustainability in informal settlements. This must not be perceived as a pure provocation, but it should be understood as one of the big challenges of our time. Cities are not just New York, London or Tokyo; Cities are also Dar es Salaam, Nairobi, Lagos.

The main stream planning theories exported from the global North are not the only legitimate alternative, and the alternatives in developing Countries shall come directly from the people that are living in this reality.

> *"Settlements will only be sustainable once the values of sustainability have become the basis from which the majority of decisions on the creation and management of settlements are made"*
>
> *(Du Plessis and Landman, 2002: 84).*

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APPENDIX 1

	1	2	3	4	5
1. Are sustainability issues taken into account in the upgrading of informal settlements?	Yes Sustainability has different meanings; the environmental part is the one that attracts more funds and visibility. There is awareness on the topic but the funds from the local government are not enough to cover all the aspects.	Yes, environmental sustainability is taken into account more than other aspects. In order to achieve a successful project sustainability needs to be addressed in all its forms and the role of the government at the local level should ensure the necessary support for the project team and the communities.	Yes, especially if there is the necessity to justify some intervention. When sustainability is not just a buzz concept but it has strong and tangible implications that are impacting the life of people, sustainability is necessary for the development of the neighbourhood.	Yes The economic, social, cultural and environmental sustainability of the neighbourhood are tangible aspects of a community. Without these elements the community will not live in the neighbourhood, but a plan for the upgrading of the informal settlements needs to understand which are the assets of the community and works on these.	Yes The upgrading projects on informal settlements are often promoted by the central government and, as architects, we are working closely with them to built sustainable housing and sustainable neighbourhoods.
1.1. Has sustainability been assessed using indicators?	Yes, for what concerns the environmental pillar. In connection with the environmental part yes, and they have been used for evaluate internally the success of the project.	No Sustainability in general terms needs to be achieved in a holistic way, and indicators are often fail in the representation of the bigger picture.	Yes, for tangible aspects Indicators connected to the increase in the economic value of the house, to the opportunity of employment in the area, to the accessibility to clean water are used to show tangible results of the project	Not always, it depends from the context. Indicators can be useful, but it is more important to understand which are the fundamental conditions that are at the base of the settlements. “killer” indicators like the lack of drinkable water are a form of indicators that can make you aware of the conditions without which your project will not be sustainable.	Sometimes, to compare the previous situation with the planned one. Parameters are defined and compared in order to show the success of the project at the end of the realization of the project in order to show the achievement of the proposed interventions.
1.2. Do the indicators and global goals promoted by the International Community, have a direct impact on the current practice?	Yes They have impact when the project is financed by International Organization such as UN-Habitat	Sometimes Presenting the results in relation to the sustainable development goals is always a plus but focusing on the planning sphere it’s hard to connect the practice with them. The central government or other governative bodies are more focus on these thematic.	No The confront of the weight of global goals at the local level is an un-necessary exercise. If the neighbourhood is sustainable and the life of its community is providing all the needs of its inhabitants, there is no need to confront the results at the global scale.	Yes / no It is important to look at the big picture but is more important to be grounded on the local level and listen to the needs of the people in the neighbourhood.	Yes The central government is interested in a connection between global goals and local development, and in general I would say that these goals are reflected on the decisions taken at the local level
1.3. Are the impacts of the global indicators positive or negative for the current life of the community?	The general interventions on the environmental sustainability are positive (prevention and reduction of flooding areas primarily) On the other side any intervention that is dealing with problems of title deeds, illegality ect. can be seen as negative for the local community.	-	-	More than Indicators, are the policies of the country that have direct impact the local level, especially in the provision of basic services in the remote areas, but the life of the community is based on the decision taken at the local level.	Generally speaking the impacts are positive, when the goal is to achieve sustainability at the global level, there should not be mistakes at the local level.

APPENDIX 1

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2. Do you use a methodology for guiding the upgrading of informal settlements?	Yes We are using gerenral guidelines promoted by the municipal council and we adapt them to the context	No More than methodology I would say that different approach can be used. The approach used by our team is based on a strong cooperation between levels of governance, ngo's and the community. The approach is based on best practices that are reinforcing the relationship between legal and illegal settlements and the path thorough the legalization of them.	No In our practice we start from the communication with the community in accordance to the prevision of projects by the government. By this exchange of information we define the intervention without predefined methodologies.	Yes Developers according with different planning rules have their own approach to the design of the informal settlement. We have different models that we applied in different situations	Yes Guidelines and best practices are promoted by the local government and a set of tools prepared ad-hoc for each project by the professionals.
2.1. Who developed the methodology?	Under the umbrella of specific frameworks for cooperation project between the International Development agency and the local level, guidelines and best practices are proposed by the organization in charge of the intervention.	-	-	Our NGO's	Each practices has its own way of dealing with a certain methodology.
2.2. Which are the motivations that drive the practitioners to develop and use the methodology?	Control, guidance The guidelines are promoted and used in order to better fit the achievement of the project with the initial expectations.	-	-	Control, guidance Having guidelines to lead the process can be useful to control every aspect of the project in time constraints.	Simplification, control Simplification of procedures and guidelines that can smoothly lead the process
3. Do you think a methodological approach based on sustainable indicators could be useful to guide the development in informal settlements?	Yes It would be helpful, but at the same time the peculiarity of each territory are emerging in the moment in which you are actually on the ground. Generalizations and global goals need to be contextualized.	Yes Indicators that are tangible, easy to understand and can be reflected on a concrete practice can be useful for everyone. From the local community to the governmental level.	Yes People are playing the major role in the upgrade of informal settlements. Indicators that are reflecting their role in the achievement of sustainable neighbourhood can play a role, others are not impacting the life of people at the neighbourhood level.	Yes It is important to identify the factors that will influence negatively the project in order to avoid them. A methodology based on indicators can ideally lead to a project that is developed at the local level without government control.	Yes Sustainable indicators can be helpful to not forget any aspect of the project while you are completely absorbed by the daily tasks of your project.