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TECHNISCHE UNIVERSITÄT WIEN

VIENNA UNIVERSITY OF TECHNOLOGY

MASTERARBEIT

Implementing 'Happiness' in Sustainable Urban Planning Strategies.

The concept of Sustainable Happiness as a contribution to a promising and independent new planning approach?

ausgeführt zum Zwecke der Erlangung des akademischen Grades
einer Diplom-Ingenieurin unter der Leitung von

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ABSTRACT

Currently, people and planners are increasingly sensitized to threefold sustainable planning strategies that include ecologically, economically and socially compatible aspects. Against the backdrop of these developments we can raise a few questions: Isn't there more to sustainable urban development than the aforementioned threefold concept? Are people's needs adequately included in sustainable urban development processes?

This thesis argues that there is *definitely* more to sustainable urban development: Present sustainable development strategies tend to neglect to put the focus on people's individual needs. This study suggests that planning disciplines have to think 'out of the box' to ensure a *more inclusive* way of sustainable urban development, which starts with considering people's needs.

The thesis is grounded in the cross sectional area amongst three disciplines: planning theory, quality of life research and urban planning. In providing theoretical background information as well as a series of best practice examples, the study claims to serve as an essential document at the interface between theory and practice.

At first, fundamental background information concerning planning theory as well as relevant concepts and definitions, such as 'sustainable development', 'needs', 'urban sprawl', etc. is provided. In a second step the concept of 'Sustainable Happiness' (according to Catherine O'Brien) is introduced and promoted. A range of best practice examples supports the abovementioned claim of the thesis. Thus, the study aims at

(1) accentuating the importance of sustainable urban planning in general,
(2) highlighting the relevance of Sustainable Happiness in the sustainable urban planning context and
(3) promoting a new way of thinking about planning issues by emphasizing the needs of the people, in particular of children and youth.

In the course of the thesis two main research questions are evaluated, namely "Is 'Sustainable Happiness' a promising contribution to effective sustainable urban planning?" and "Can 'Sustainable Happiness' serve as an independent planning approach?"

It turns out that the concept of Sustainable Happiness is indeed a promising approach for effective sustainable urban planning. However, it cannot clearly be seen as an independent planning approach. Rather, it can be denoted as the start of a paradigm shift (according to Kuhn) or simply as a new realm of participation in urban planning (according to Francis & Lorenzo).

KURZFASSUNG

Nachhaltige Planungsansätze und Strategien sind derzeit in aller Munde – so auch in der Raumplanung. Herkömmliche nachhaltige Ansätze in der Raumplanung beziehen sich dabei zumeist auf das so genannte „Nachhaltigkeitsdreieck", bestehend aus den Dimensionen Ökonomie, Ökologie und Soziales.
Im Zuge dieser konventionellen nachhaltigen Planungsansätze tauchen jedoch weitere Fragen auf, wie zum Beispiel: Ist Raumplanung, die im Sinne des Nachhaltigkeitsdreiecks plant, wirklich *ganzheitlich*, im Sinne einer Berücksichtigung der Bedürfnisse der Menschen, nachhaltig? Werden die Bedürfnisse der Menschen in der bisherigen konventionellen Planung ausreichend berücksichtigt?

Diese Arbeit geht davon aus, dass das Nachhaltigkeitsdreieck alleine nicht ausreicht, um *ganzheitlich* nachhaltige Raumplanung zu betreiben. Es bedarf neuer Sichtweisen und Ansätze mit einem umfassenderen, holistischeren Verständnis für Nachhaltigkeit, um bedürfnisorientierte nachhaltige Raumplanung zu betreiben.
In diesem Zusammenhang wird das Konzept „Sustainable Happiness" („Nachhaltiges Wohlbefinden") von Catherine O'Brien vorgestellt.
Ziel dieser Arbeit ist es zu analysieren, ob das Konzept „Sustainable Happiness" in der Stadtplanung als vielversprechender Ansatz Anwendung finden und als unabhängiger Planungsansatz in die Planungswelt eingehen kann.
Mit dem Konzept „Sustainable Happiness" wird ein neuer Ansatz vorgestellt, der die Bedürfnisse der Menschen, besonders die von Kindern und Jugendlichen, in das Zentrum der Betrachtung rückt. An der Schnittstelle von Planungstheorie, Lebensqualitätsforschung und Stadtplanung beabsichtigt diese Arbeit einen Brückenschlag zwischen Theorie und Praxis. Neben wesentlichen Definitionen widmet sie sich zunächst umfassend der Planungstheorie, bevor näher auf relevante Konzepte und das „Sustainable Happiness"-Konzept im Speziellen eingegangen wird. Durch die Aufbereitung von Best Practice Beispielen wird die Umsetzung von Aspekten des neu vorgestellten Konzepts in der Praxis evaluiert.
Die Untersuchung zeigt, dass das Konzept von "Sustainable Happiness" zwar ein viel versprechender Ansatz für eine effektive, ganzheitliche nachhaltige Raumplanung ist, jedoch nicht als unabhängiger Planungsansatz (im Sinne von Bunge) dienen kann. Stattdessen kann das „Sustainable Happiness"-Konzept als Ausgangspunkt für einen neuen Paradigmenwechsel (im Sinne von Kuhn) oder als neuer Bereich auf dem Gebiet Partizipation (im Sinne von Francis & Lorenzo) in der Raumplanung bezeichnet werden.

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LIST OF ABBREVIATIONS

cf.	confer, compare
CFC	Child Friendly City
e.g.	exempli gratia/for example
et seqq.	and the following
etc.	et cetera
QOL	Quality of Life
SH	Sustainable Happiness
SWB	Subjective Well-Being

1 Introduction and Problem Formulation

1.1 Problem Formulation

If we consider various urban planning approaches, strategies and concepts, such as Smart Growth or New Urbanism (cf. chapter 4.2.2), it is striking that recent discussions focus more and more on terms such as "Sustainability" or "Sustainable Development". Currently, people and planners are increasingly sensitized to threefold planning strategies: concepts that include ecologically, economically *and* socially compatible aspects in urban planning strategies. Simultaneously, quality of life research in general and research on happiness and well-being in particular are becoming increasingly popular.

Against the backdrop of these developments we can raise a few questions: "Isn't there more to sustainable urban development than the aforementioned threefold concept?" or "Are people's needs adequately included in sustainable urban development processes?".

This thesis argues that there is *definitely* more to sustainable urban development: Present sustainable development strategies mainly concentrate on economic, ecological and social aspects of planning *in general* and neglect to put the focus on people's individual needs. This study suggests that planning disciplines have to take off their blinders and think 'out of the box' to ensure a *more inclusive* way of sustainable urban development, which starts with considering people's needs. In so doing, existing views on sustainable development could be amplified. To this end the concept of "Sustainable Happiness" (SH) is introduced and applied to urban planning.

1.2 Objectives of the Study

This thesis is grounded in the cross sectional area amongst three disciplines: planning theory, quality of life research and urban planning. It aims to apply the idea of SH, which originates from positive psychology, quality of life research and sustainability principles, to urban planning and to analyze if SH can serve as an independent planning approach. How we intend to achieve aforementioned aims will be explained in chapter 1.4 (Methodology).

As this thesis intends to provide insight into each discipline and serve as a transdisciplinary basis for discussion, we need to focus on specific topics which are relevant to the concept of SH. Thus, it is important to be clear about the foci of this thesis.

The main foci from an urban planning perspective are on public space and transportation planning as transportation systems are fundamental in shaping the land use and physical form of urban areas, as well as in determining the livability of our communities. (WHEELER et al. 2006, p.2) Also, Fassmann (2004) described four driving forces of a city's development: population and society, economy, transport- and building technology, and policy and planning.

As this thesis does not allow to detail all of these four dimensions, we will mainly concentrate on the relation between society, transport, policy and planning. In addition, the emphasis of this thesis is put

- on theoretical fundaments,
- on new ways of thinking,
- on participation processes,
- on soft skills, and
- on subjective well-being and quality of life.

Considering the abovementioned foci, it may seem that this thesis is not a very typical urban planning thesis as it rather concentrates on qualitative aspects and soft skills than on technical concepts and strategies. But that is just the point. The not-exclusive focus on technical urban planning theories and strategies can be considered as the 'Unique Selling Points' (USPs) of this thesis. Hence, it is aimed to implement a new way of thinking which focuses on resident's needs and individual subjective well-being in addition to ecological, economical and general social aspects in order to plan for cities with a high quality of life in an urban planning context.

Resulting from the aforementioned problems and especially from the fact that "(sustainable) happiness" has not been included in urban planning strategies so far, the following research questions will be evaluated and answered as precisely as possible in the course of this thesis:

Research Question 1 (RQ1): *Is SH a promising contribution to effective sustainable urban planning?*

Research Question 2 (RQ2): *Can SH serve as an independent*[1] *planning approach?*

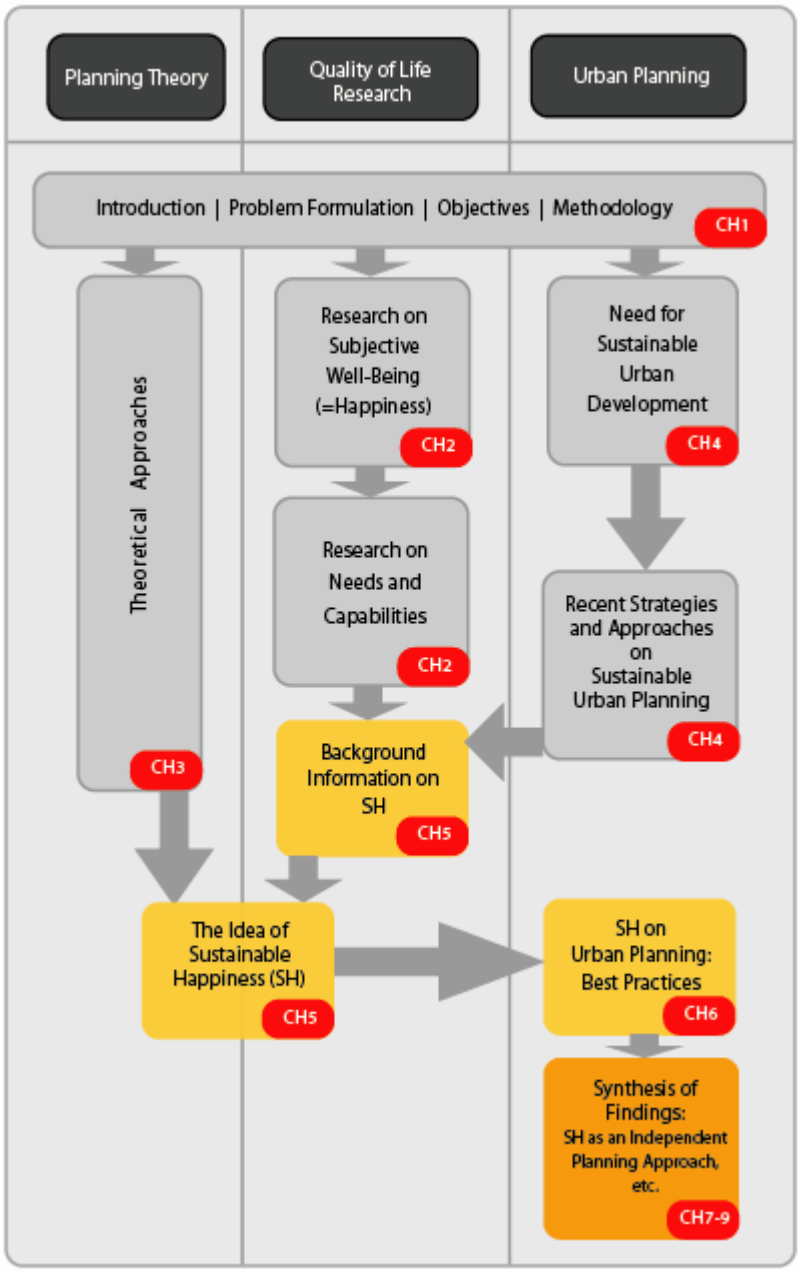
How we intend to respond the aforementioned research questions will be explained in more detail in chapter 1.4 (Methodology).

1.3 Setting and Structure

The diagram below (figure 1) displays how the study is cross-sectionally grounded in the fields of planning theory, quality of life research and urban planning. The notation at the bottom on the right in each box (CH1, CH2, etc.) indicates the specific chapter of the thesis at hand where each task is dealt with. The chronology, contents and interlinkages of the chapters at hand are briefly explained in the following.

[1] The term „independent panning approach" indicates a planning approach which stands on its own and which is not necessarily tied in with other planning approaches in order to be applied.

Figure 1: Setting of the Thesis



Source: Author's own work

Chapter 1:

At first, well-grounded literature research is carried out to frame the study. Chapter 1 comprises the motivation for the thesis at hand as well as the problem formulation, objectives and methodology. Thus, it provides the framework for this thesis.

Chapter 2:

Accordingly, functional and descriptive terms (such as 'approach', 'needs', 'sustainable development', 'subjective well-being' etc.) are defined which are essential for the further understanding of the thesis.

Chapter 3:

As the consolidation of planning approaches and SH can be considered as the key element of this thesis, chapter 3 provides theoretical background information on planning theory. Subchapter "3.1 Semiotic Triangle" explains "*how linguistic symbols are related to the objects they represent*"[2]. In doing so, this subchapter serves as an essential theoretic and scientific fundament for the understanding of further specifications of planning approaches.

The second subchapter ("3.2 Planning Approaches") is the main theoretical element of this thesis as it provides insight into various theoretical planning perceptions (e.g. FLECK, KUHN, BUNGE). It is important to keep those perceptions in mind when reading the other chapters of this thesis, as we refer to the theory of planning approaches in chapter 7 when it comes to bridging the gap between theory and practice and synthesizing the findings.

It has to be stated that we are aware of the amplitude of theoretical perceptions of planning theory and that the basic literature on planning approaches (cf. SCHÖNWANDT & VOIGT 2005) and the semiotic triangle (cf. SCHÖNWANDT & WASEL 1997) is only one possibility for a theoretical framework of this thesis. However, the planning approaches according to Bunge resp. paradigms according to Kuhn seemed to be the most interesting possibilities of approximating and applying SH on a theoretical basis.

Chapter 4:

Chapter 4 deals with the general question "Why do we actually need sustainable urban planning" by addressing the issues of global warming, climate change and urban sprawl in realtion to urban planning. Moreover some responding concepts to the challenge of sustainable development are introduced, such as the Ecological Footprint Concept, Smart Growth and New Urbanism.

[2] Triangle of reference Wikipedia, 2009

Chapter 5:

Chapter 5 introduces the idea of "Sustainable Happiness" according to Catherine O'Brien by providing relevant background information (such as origin from quality of life, positive psychology and sustainability; definitions of happiness; relevant concepts; etc.) and consequently delving into the characteristics of SH.

Chapter 6:

Chapter 6 ties together SH and urban planning. Thus, it focuses on children's participation and planning for happiness. In doing so, it inaugurates various realms of children participation and provides best practice examples, such as the Child Friendly Cities Initiative or the city model of Bogotá (Colombia) for instance.

Chapter 7:

Chapter 7 aims to bridge the gap between theory and practice and starts to synthesize the findings by responding the research questions.

Chapter 8:

This chapter provides recommendations for planning policies - for people who are engaged with urban planning, who take SH to heart and intend to make profound changes towards more sustainable environments.

Chapters 9 and 10:

Chapters 9 and 10 give a final overview of the lessons learned in the course of the thesis at hand and provide English and German summaries of the results.

1.4 Methodology

The thesis is structured in three main parts:

Part I – Basic knowledge (chapter 1-4): Part I focuses on the theoretical background of the thesis. At first, functional terms are defined and fundamental elements of planning theory are explained. In a second step, reasons for sustainable urban development are provided as well as recent concepts which meet the needs of sustainable development.

Part II – The idea of SH (chapter 5-6): The second part concentrates on the idea of SH, shedding light on its background, origin and definitions. Apart from that, part II provides a series of best practice examples.

Part III – Synthesis (chapter 7-10): The third part merges findings of part I and II. Thus, it includes responses to the research questions, gives recommendations for planning policies as well as a general summary (English and German) of the findings and informs about the lessons learned in the course of the thesis.

Real evidences are used in order to answer the research questions (cf. chapter 1.2). Thus, we refer to best practice examples (cf. chapter 6) to coherently illustrate the ideas of SH. But not only best practice examples are crucial to answer aforementioned research questions. As the research questions also comprise theoretical components, theoretical elements which deal with planning theory etc. (cf. chapter 3) are of utmost importance.

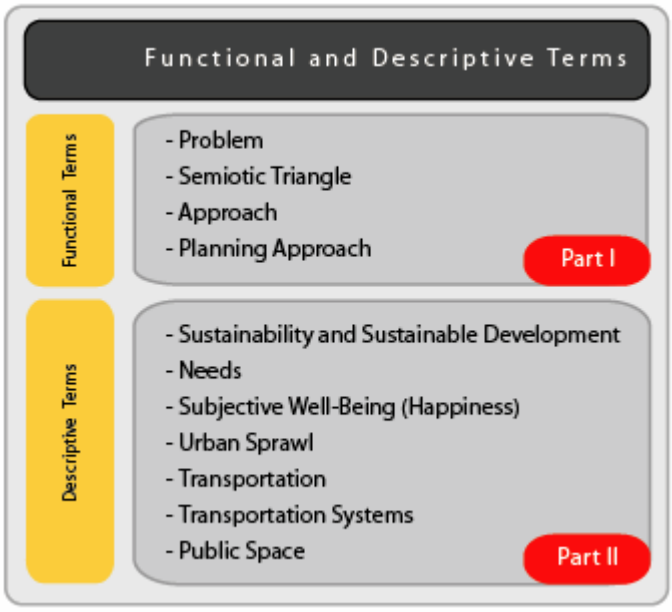
Thus, the basic knowledge provided in part I of the thesis at hand is essential for answering the research questions as the research questions refer to both, the concept of SH (part II) on the one hand and to the theoretical background (part I) on the other hand.

The precise answer of the research questions is carried out in chapter 7. Firstly, table 11 in chapter 7.1 connects the theoretical findings on planning approaches with the main characteristics of SH. Subsequently, chapter 7.2 provides definite answers of the research questions in particular.

2 Theoretical Framework

In order to provide a common understanding of crucial terms in the course of this thesis, it is important to clarify a few functional and descriptive terms. 'Problem', 'semiotic triangle', 'approach' and 'planning approach' will be defined in the subsection 'Functional Definitions'. The subsection 'Descriptive Definitions' comprises concepts such as sustainability, needs, subjective well-being etc. which are essential for the comprehension of the concept of Sustainable Happiness. Figure 2 below provides an overview of the terms which will be defined in this chapter. The notation at the bottom on the right in each box (Part I and Part II) indicates the specific part of the thesis at hand (explained in chapter 1.4) where the cited definitions are implemented and dealt with.

Figure 2: Functional and Descriptive Terms



Source: Author's own work

2.1 Functional Definitions

2.1.1 Problem

A problem is defined as an unsolved task. Starting points for a problem can either be negative actual situations which should be improved or positive actual situations which should be maintained (cf. chapter 3.2.1). (cf. SCHÖNWANDT & VOIGT 2005, p.772) What is actually considered as a problem depends on the underlying planning approach (cf. chapter 3.2).

2.1.2 Semiotic Triangle

The semiotic triangle is a model which shows how linguistic symbols are related to the objects they represent and comprises three elements: concepts, symbols and objects. (SCHÖNWANDT et al. 1997, p.1028-1042 and p.1118-1120) In the course of this thesis the semiotic triangle is essential as it serves as the basic scientific fundament on which the further theoretical discussion builds on.
More detailed definitions and explanations related to the semiotic triangle are provided in chapter 3.1.

2.1.3 Approach vs. Planning Approach

Approaches are "ideas or actions intended to deal with a problem or situation"[3]. In the course of this thesis we use the term 'approach' in this sense, in order to summarize a set of ideas or actions to deal with a specific situation.
The term 'planning approach', according to Bunge, is more specific and comprises of four different elements: problems, objectives, methods, and background knowledge. (SCHÖNWANDT & VOIGT 2005, p.771-776) In planning, approaches describe the specific way of how we observe things in our everyday life, how we notionally deal with them and how we finally put the results into practice.

2.2 Descriptive Definitions

2.2.1 Sustainability and Sustainable Development

We cannot talk about sustainability without referring back to the definition of sustainable development in the so called "Brundtland report", the report of the UN World Commission on Environment and Development:

> *"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs." (UN WCED 1987)*

[3] WordNet Princeton University, 2009

The first part of this definition can be considered as omnipresent in our modern society. Especially in the context of this thesis it is important, however, to notice the above-mentioned term 'needs of the world's poor'. Related to urban planning we will later recognize that many cities simply neglect planning for meeting the needs of the poor, still emphasizing the needs of the rich (e.g. building infrastructure for automobiles which are only accessible for wealthy people, etc.).

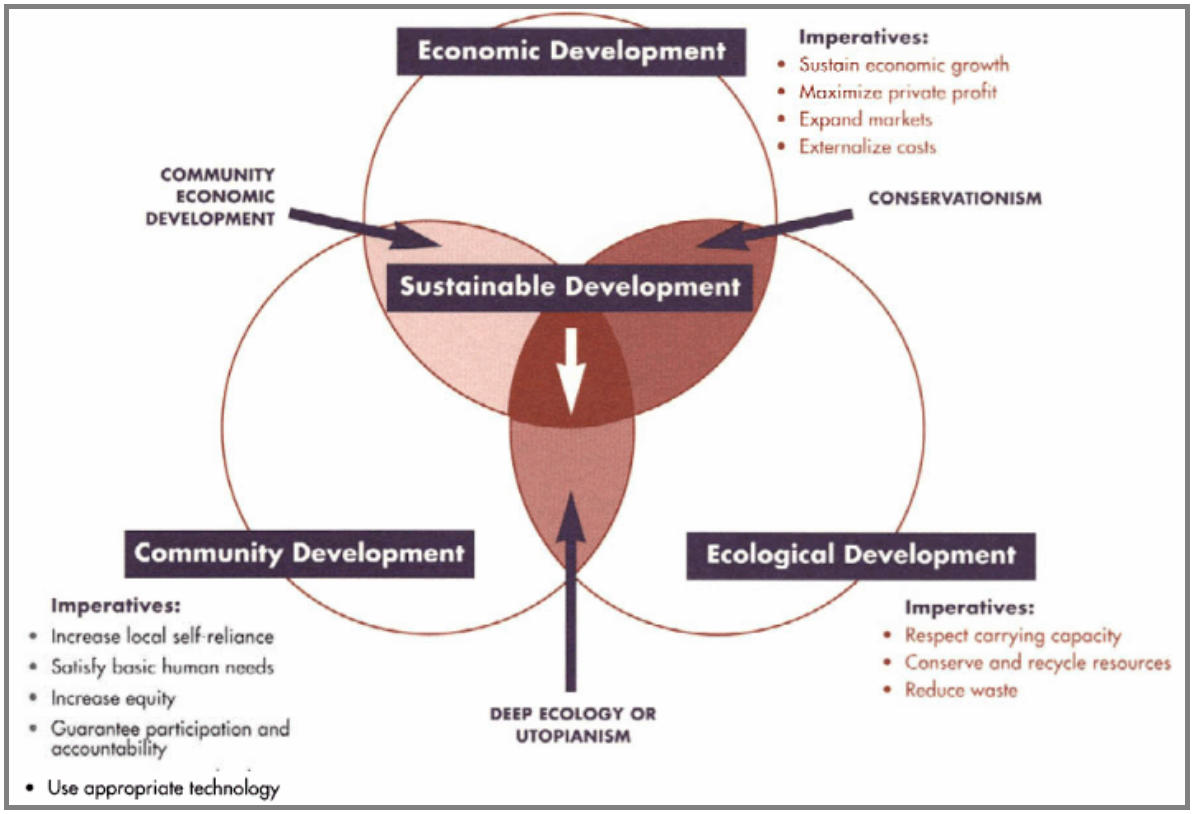
The International Council for Local Environmental Initiatives (1996) defines "Sustainable Development" in a more community and urban planning related sense which is essential for the further understanding:

> *"Sustainable development […] is a program of action for local and global economic reform – a program that has yet to be fully defined. The challenge of this new program is to develop, test, and disseminate ways to change the process of economic development so that it does not destroy the ecosystems and community systems (e.g. cities, villages, neighbourhoods, and families) that make life possible and worthwhile. […] There is a growing consensus that it [sustainable development] must be accomplished at the local level if it is ever to be achieved on a global basis"* (ICLEI 1996, p.1)

This definition of sustainable development already includes the perspectives that sustainable development has to start at a local and even individual level in order to create broad effects. The ICLEI (1996) also caters to the very social aspects of sustainable development, indicating that sustainable development requires that local economic development supports community life and power, "*using the talents and resources of local residents*". (ICLEI 1996, p.1)

Building on the general triangle of sustainability comprising the three elements economy, ecology and social aspects, the ICLEI (1996) set up a slightly altered triangle as can be seen below (figure 3). This figure basically reveals the three components of sustainable development, namely economic, ecological, and community development. In an urban and community planning perspective these three components can be considered as processes which are underway in order to assure sustainable development at a local level. As displayed below, each of these processes has its own distinct imperatives, which often contradict one another. Sustainable development has to juggle these processes in order to bring them into balance with each other respecting each distinct imperative. (ICLEI 1996, p.2)

Figure 3: Elements of Sustainable Development



Source: ICLEI 1996, p.2

After having clarified the term 'sustainable development' it is interesting how this can be applied to sustainable urban development. According to Fassmann (2004), urban development is considered as *"all time-bound processes that change the physical processes of a city."* (FASSMANN 2004, p.86) More information on how these processes can be designed in a sustainable way and why at all they are supposed to be designed in a sustainable way will be provided in chapter 4 of this thesis.

2.2.2 Needs

Rauschmayer et al. (2008) define needs as *„… the most fundamental dimensions of human flourishing. Actions to fulfill these needs require no further reasoning.*". (RAUSCHMAYER et al. 2008, p.5) They argue, that according to Gasper (1996), the term 'needs' can be used in three different ways as follows:

- Needs are understood as positive entities related to some form of want or desire (descriptive analyses).
- Needs are understood as requisites for meeting a given end (instrumental analyses).

- Needs are understood as justified or priority requisites (normative analyses). (RAUSCHMEYER et al. 2008, p.7)

According to Max-Neef the researchers list nine fundamental human needs, such as subsistence, protection, affection, understanding, participation, leisure, creation, identity, and freedom. (RAUSCHMEYER et al. 2008, p.8) In this context we also have to shed a light on the term 'capabilities'. Capabilities determine the objective conditions and the freedom to choose which needs should be fulfilled and how. (RAUSCHMEYER et al. 2008, p.11)

For the further course of this thesis we rather refer to the instrumental analyses, regarding needs as requisites for meeting a given end.

2.2.3 Subjective Well-Being (Happiness)

At first we want to be clear that in the course of this thesis the terms 'subjective well-being' and 'happiness' are used synonymously. At this point we want to provide a more philosophical background of subjective well-being. In chapter 5 we will introduce a somewhat different definition of happiness according to Lyubomirsky which will also be essential for the understanding of SH.

Concerning well-being it hast to be stated that we can distinguish between hedonic and eudaimonic well-being. Well-being in general refers to "*… emotional states and reflections of meaning in life based on the subjective experience of one's fulfillment of needs*." (RAUSCHMEYER et al. 2008, p.14) Hedonic well-being reflects the pleasure experienced and is linked to emotional well-being. The eudaimonic understanding of well-being refers to the striving to realize ones personal and social potential. (RAUSCHMEYER et al. 2008, p.14)

In this respect, 'real' subjective well-being can be considered as a positively rated fulfillment of the combination of hedonic and eudaimonic well-being.

2.2.4 Urban Sprawl

According to the British Columbia Round Table on the Environment and the Economy (1993), urban sprawl describes the "*… rapid physical expansion of urban and suburban areas into outlying lands*". (ibid p.38)

Maierbrugger (2008) mentions ten characteristics of urban sprawl according to Anthony Downs: unlimited outward extension of development, low-density residential and commercial settlements, leapfrog development, fragmentation of powers over land use among many small localities, dominance of transportation

by private automotive vehicles, lack of centralized planning or control of land uses, widespread strip commercial development, great fiscal disparities among localities, segregation of types of land use in different zones, and reliance mainly on the trickle-down or filtering process to provide housing to low-income households. (MAIERBRUGGER 2008, p.18)
Chapter 4.1.2 provides more information related to urban sprawl and its relation to urban planning.

2.2.5 Transportation

Transportation is defined as "*the movement of people and goods from one location to another*"[4] and can be performed by various modes such as air, rail, road, water, cable, pipeline and space. The field of transportation can be divided into three elements: infrastructure, vehicles, and operations. The essential fields of transportation in the course of this thesis are infrastructure, consisting of fixed installations such as roads or railways and of terminals (such as railway or bus stations), and vehicles (automobiles, bicycles, buses, trains). In addition, it is important to distinguish between public and private passenger transport. Good transportation planning is crucial to make traffic flow and restrain urban sprawl.[5] Green transportation is a sustainable alternative to 'conventional' transportation as green transportation options can contribute to reduce our dependence on cars and foreign oil, are safer, and help save the planet. Trains, bicycles or simply walking can be considered as 'means of green transportation'.[6]

2.2.6 Transportation Systems

Transportation systems are defined as facilities which consist of the means and equipment necessary for the movement of passengers or goods.[7]
Dahlgren (1998) argues that various actors (such as travellers, shippers, private carriers, communities, public transportation agencies, etc.) pursue various goals regarding transportation systems. In the course of this thesis, the goals of communities and travellers are considered as crucial.

Thus, Dahlgren (1998) defines three main goals of travellers as follows:

[4] Transportation Wikipedia, 2009
[5] Transport Wikipedia, 2009
[6] New Urbanism, 2009b
[7] The Free Dictionary, 2009

(1) *Access to activities:* Most trips that people make are in order to engage in some activity. (DAHLGREN 1998, p.2)
(2) *Entertainment:* Some people travel just for fun (e.g. walking, biking or driving solely for purposes of fun and entertainment). (DAHLGREN 1998, p.2)
(3) *Minimizing travel costs:* People intend to minimize their travel costs. Thus, they want to minimize
   - the overall travel time,
   - the money spent on traveling (maintenance of vehicles, cost of insurance, purchase tickets for public transit, etc.) and
   - discomfort (e.g. stress due to driving itself, worrying about being late or missing the bus, having an accident, etc.). (DAHLGREN 1998, p.3)

Besides, he emphasises a range of goals which communities pursue related to transportation systems:

(1) *Development:* Communities often implement transportation systems in order to promote or enable development and thus to control economic and social development. Thereby they are able to influence the direction and scale of development. (DAHLGREN 1998, p.4)
(2) *Minimizing the external costs of transportation:* Transportation not only involves costs that affect individual travellers or fright carriers but - amongst others - also the environment (e.g. emissions, noise, damage of land and water resources, etc.). (DAHLGREN 1998, p.4 et seqq.)
(3) *Other community goals:* The implementation of a light rail system for the purpose of adding prestige to the city or of demonstrating new transportation technologies can be considered as an example of 'other community goals'. (DAHLGREN 1998, p.7)

2.2.7 Public Space

An area or place which is open and accessible to all citizens (regardless of gender, race, age, ethnicity or socio-economic level) is considered as 'public space'.[8]
Public space is an essential element of each community as it offers great benefits for various realms (e.g. economy, local population, etc.) and largely contributes to the well-being of communities' residents. Thus, especially in the context of the thesis at hand, public space has an impact on physical and mental health and holds benefits for children and young people. (CABE SPACE, 2004).

[8] Pubic Space Wikipedia, 2009

3 Planning Theory

First of all it is important to provide basic scientific and philosophical background knowledge on planning theory. This chapter aims at compiling all necessary information about the tools and instruments we use when we are actually 'planning', and about how these tools and instruments relate to each other. For this reason, we take a closer look at the so-called 'semiotic triangle' (also known as 'triangle of reference').[9]

As this thesis aims to analyze if the concept of *sustainable happiness* can be considered as an independent planning approach, it is important that we have a clear and common understanding of the term 'planning approach' itself and of all the relevant elements it comprises.

For this purpose we will differentiate between 'planning paradigms' and 'planning approaches' to later define the relevant components of planning approaches and to scrutinize their respective relations.

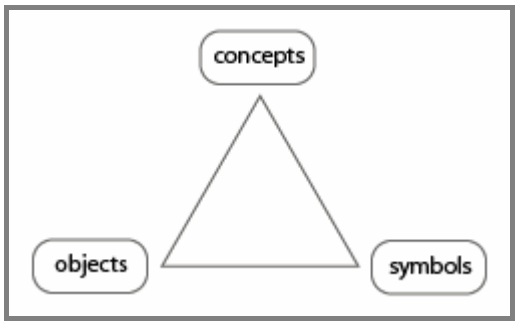
3.1 Semiotic Triangle

The semiotic triangle, also known as the 'triangle of meaning' or the 'triangle of reference', is a model which shows how linguistic symbols are related to the objects they represent. The discussion on the need to define and clarify the relationships between concepts, symbols and objects is not recent, on the contrary, it has a long history. Plato, Aristotle and Socrates were the first ones who put a lot of thought into this theoretical concept. Since then, many philosophers, such as Kant, Wittgenstein, Mead, Popper or Bunge, have been engaged in the development of this scientific model now called 'semiotic triangle'. (SCHÖNWANDT et al. 1997, p.1028-1042 and p.1118-1120)

As can be seen in figure 4, the semiotic triangle consists of three main components: concepts, symbols and objects.[10]

[9] Semiotic triangle, 2009; Semiotisches Dreieck, Wikipedia, 2009; Triangle of reference, Wikipedia, 2009
[10] SOWA 2000

Figure 4: Semiotic Triangle



Source: SOWA 2000

3.1.1 Concepts

Concepts describe thoughts or references we have in our minds. When planners discuss questions such as "What is a *region*?", "What is *nature*?", "What are *slums*?" or "What is *waste*?", they basically discuss concepts. Planners have to develop a common understanding of the aforementioned concepts, which normally refer to various objects (see chapter 3.1.3), if they want their discussion to be fruitful. The concept 'nature', for instance, refers to objects such as an oak, human beings, a sparrow, etc. The concept 'waste' refers to objects such as an empty can, an old car tyre, etc. According to Schönwandt et al. (1997) we distinguish between four types of concepts:

- *Term:* Terms are units that are used to describe propositions.
- *Proposition:* Propositions are entities that comprise terms. For instance, the phrase '3 > 2' is a proposition which comprises three terms: '3', '>' and '2'.
- *Context:* Context is a set of propositions. It consists of terms with common references. For example, a set of propositions that refer to 'individual motor car traffic' can be denominated 'context'.
- *Theory:* A theory designates a cohesive context in respect of logical operations. Thus, a theory is a set of logically linked propositions with common references. (SCHÖNWANDT et al. 1997, p.1037)

Apart from this distinction, concepts also dispose of various attributes. They are the bearer of knowledge, they convey contents and meaning. Moreover, concepts are fiction. They only exist conceptually and are based on social conventions. They totally depend on human beings and their social settings. If humankind becomes extinct, no one will be able to read or interpret concepts people coined in their

minds. Other than that, concepts are not observable and they have to be expressed via symbols (language, signs, etc.) to be comprehensible. In a sense, concepts are arbitrary and never overarching. They aim at contributing to the solution of planning tasks. As concepts are mostly developed with regard to planning questions, they are partially 'blind' as far as the specific view of the question is concerned. That is the reason why they often only gradually 'meet' reality. As a last important attribute it has to be stated that concepts direct planning activities. In relation to what has been mentioned above, it is our cognitive fictions that provide the bases for our planning activities, not primarily the so-called 'reality'. If we, for instance, understand the concept of 'urban planning' as the pure sum of land use planning and restrictions, zoning maps and the planning and construction of buildings, we might forget about how particular actions influence human behaviour in this setting (actions such as car sharing, car pooling, road tolls, etc.). Thus, it is crucial to frame concepts in a very comprehensive sense. (SCHÖNWANDT et al. 1997, p.1034-1041)

Besides, we can identify three categories of concepts: defined concepts, to-be-defined concepts, and self-explanatory concepts. Defined concepts are concepts which are indisputable, given that they have already proved their value (e.g. site occupancy index). If the contents of a concept are not adequately defined yet, we speak of 'to-be-defined concepts'. One example of a to-be-defined concept is the concept of urban development. Further definitions are needed to be completely sure about what 'urban development' means. The only fixed component concerning urban development is the city as a physical entity and as a social concept. All further components (such as tourism, improved infrastructure, designation of recreational areas, etc.) are rather vague and need to be defined. Self-explanatory concepts are concepts everyone is clear about. For instance, 'living room' is an example for a self-explanatory concept, as probably every person knows what is meant by 'living room'. Though, self-explanatory concepts are sometimes a little bit tricky, as they are context-dependent as well as sensitive to cultural differences. In this way, an ordinary living room in Austria is totally different considering the table, seating, etc. (SCHÖNWANDT et al. 1997, p.1041 et seqq.)

3.1.2 Symbols

Symbols convey and communicate concepts. Schönwandt et al. (1997) distinguish between two different types of symbols in the context of the semiotic triangle: language and figures.

3.1.2.1 Language

Language is defined as a system of coded characters used for communication. It provides a fundamental basis for successful planning processes. We can distinguish between the following types of languages:

- *natural versus artificial languages:* "German", "French", "English", etc. can be subsumed under so-called 'natural languages'. The term 'artificial language' refers to computer language, or various symbols used for network construction or for logical operations.
- *emblematic versus non-emblematic languages:* The abovementioned natural and artificial languages are 'emblematic languages' as they use symbols for communication. Nonverbal communication is a type of 'non-emblematic languages'. It does not use any symbols for communication.

With regard to planning tasks, we can additionally distinguish between five other types of language, namely colloquial language, technical language, object language, meta language, and jargon. Colloquial language is used in informal, private situations. Thus, first comments on a planning problem are mostly made in colloquial language. As soon as we go on processing the planning task, a shift to technical language is required to ensure adequate structural work on the problem. Object language enables us to talk about a planning issue. Also, technological descriptions use object language. When we think about which object language is appropriate to describe the problem itself, we use meta language. Every shift from one language to another carries the risk of lapsing into jargon, which basically means incomprehensible muttering with a lack of clearness. (SCHÖNWANDT et al. 1997, p.1034)

3.1.2.2 Figures

We can differentiate between three types of figures: icons, symbolic figures and indexes.

Pictograms are an example of icons because they provide factual and pictographic affinities between symbols and objects. Thus, icons can be considered as replications which simplify and accentuate the essential. Construction plans or wire frame models are examples for 'icons' in the field of planning issues.

The relation between symbolic figures and real situations is based on conventions. The significance of a symbolic figure depends on the cultural context and is language-dependent. With regard to planning issues, illustrations in zoning maps can be characterized as 'symbolic figures'.

The relation between indexes and real situations is not based on affinities. It is rather a causal link due to experience, which means that specific causes have to be given. A crack in a wall, for instance, can be considered as an index for lowering subsurface. (SCHÖNWANDT et al. 1997, p.1034)

3.1.3 Objects

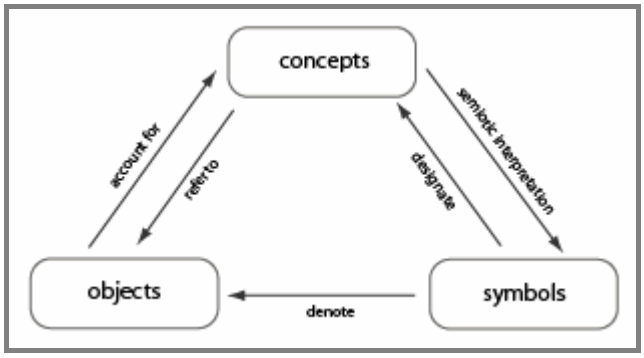
Objects are entities in our physical reality, such as trees, stones or human beings. Also non-natural things (houses, paper, books) can be classified as 'objects' and are described through various characteristics concerning quality, quantity or their relation to other objects. Thus, characteristics can hold different specifications. The sum of all specifications of all characteristics is called 'state', modifications of specifications are designated as 'incidence'.

When it comes to solving planning issues it is important to develop instructions to modify a set of objects. (SCHÖNWANDT et al. 1997, p.1042)

3.1.4 Relations within the Semiotic Triangle

After having clarified the individual components of the Semiotic Triangle, we will now take a closer look at the relations between them and at how they influence each other. Figure 5 shows the Semiotic Triangle as already introduced before, including all relevant relations. (SOWA 2000; SCHÖNWANDT et al. 1997, p.1118).

Figure 5: Relations within the Semiotic Triangle



Source: cf. Schönwandt et al. 1997, p.1118

On the one hand, language as a component of symbols denotes objects and incidences. With regard to planning issues, this is one of the crucial aspects concerning the unambiguity of plans. On the other hand, language designates concepts. Concepts refer to objects, some objects allocate concepts. It is important to notice, however, that although all concepts refer to objects, not all objects stringently account for concepts. More precisely, the amount of objects referring to concepts is not coactively identical to the amount of objects accounting for concepts. The relation between concepts and symbols is identified as 'semiotic interpretation'. This means that concepts are assigned to symbols, but only to symbolic figures and indexes, as explained in chapter 3.1.2.2. Icons, on the other hand, only describe objective and concrete elements but do not denominate concepts.

3.2 Planning Approaches

Planning strategies are usually based on either a concrete drive or on initial questions. Each planning strategy uses a specific planning approach. Planning approaches comprise of four different elements: problems, objectives, methods, and background knowledge. (cf. SCHÖNWANDT & VOIGT 2005)

Choosing the 'correct' planning approach is always a question of the nature planning issue. To develop a better understanding of planning approaches and their background, let us first take a closer look at the scientific basis of planning approaches: paradigms scrutinized by Ludwig Fleck and Thomas Kuhn. (SCHÖNWANDT & VOIGT 2005, p.771)

According to Kuhn, we cannot advance science by continuously increasing our level of knowledge. In a revolutionary process we should rather replace an existing paradigm with a new and contradictory one. In this process, we can distinguish three different stages:

1. *Normal Science:* At this stage, science rather means elaborating major theories (so-called paradigms) than criticizing existing theories. The objectives are not to seek new phenomena, but to prove new facts consistent with existing paradigms.
2. *Crisis of Paradigm:* The more examination results we get, the more antagonisms and inconsistencies we will observe. Increasing anomalies put more and more pressure on the existing paradigm, urging to alter various elements of the existing normal science. Thus, the paradigm experiences a crisis. As soon as an adequate, new paradigm arises, some kind of revolution will take place where exponents of the old and the new paradigm will compete for domination.
3. *Paradigm Shift:* The term 'paradigm shift' characterizes a scientific revolution and fundamental change of perspective which follows the crisis of paradigm. A well known example for a paradigm shift is the shift from the geocentric to the heliocentric system.

How does all of this relate to planning approaches? According to Kuhn, every paradigm shift leads to adjusted norms which indicate what is regarded as a valid problem or legitimate problem solving. Moreover, Kuhn argues that specific theoretical assumptions always form the basis of our thinking and acting. These assumptions determine what is accepted as a problem and which solutions are feasible.
Though, Kuhn was criticized for defining the term 'paradigm' only vaguely. A second point of criticism focused on his misbelief that disciplines were dominated only by one paradigm. In fact, multiple, partly rivalling paradigms exist at the same time and sometimes even over a long period of time.

In view of the aforementioned points of criticism, Bunge (SCHÖNWANDT & VOIGT 2005, p.771-776) suggested the term 'approach' as an alternative to Kuhn's term 'paradigm'. According to Bunge, approaches are not only used in science, but also in planning. In planning, approaches describe the specific way we observe things in our everyday life, how we notionally deal with them and how we finally put the

results into practice. As already mentioned above, approaches comprise a set of problems, a set of objectives, a set of methods as well as background knowledge. It is important to notice that all four components hold specific contents which, however, are interdependent.

3.2.1 Problems

According to Bunge, planning problems are defined as unsolved tasks. There are two different starting points for a planning problem. The first one is a negatively rated actual situation which should be improved. The second one is a positively rated actual situation of which one presumes that something has to be done in order to maintain this situation. What is considered as a problem depends on the following three components of the specific planning approach: objectives, methods and background knowledge. In other words, each perspective, description, and solution of a problem is not objective but originates in its underlying planning approach. (cf. SCHÖNWANDT & VOIGT 2005, p.772)

3.2.2 Objectives

In relation to planning, objectives are considered as positively rated target situations. Negatively rated actual situations should be transformed to these target situations. It can also be an objective to maintain actual situations if they are considered as advantageous. Similar to problems, objectives are not 'objective' but depend on the underlying planning approach. (cf. SCHÖNWANDT & VOIGT 2005, p.772)

3.2.3 Methods

Methods and planning instruments are approaches and techniques applied to solve problems. The broad range of approaches is closely related to a variety of methods. Depending on the specific planning approach, only a specific set of methods is available. (SCHÖNWANDT & VOIGT 2005, p.772)

3.2.4 Background Knowledge

Background knowledge in general is a combination of both, discipline-specific and philosophical knowledge. Discipline-specific background knowledge refers to

various fields of knowledge of individual disciplines, such as law, sociology, psychology, economics, or architecture. The second part of background knowledge is called 'philosophical background knowledge' and comprises ontological, epistemological, and ethical aspects. Ontology questions what the real world consists of and what it incorporates. Epistemology deals with theories of cognition and knowledge and scrutinizes how mental processes work and to what results and products they lead. Epistemology that is applied in the field of planning is supposed to enable us to compile the most applicable representations and descriptions of the specific planning situation. Ethical aspects deal with moral concepts, which are at the bottom of planning strategies and thus are the basis of certain planning approaches. In planning practice, those moral concepts mostly appear as conflicts between inconsistent values (e.g. tensions between personal freedom and equality). (cf. SCHÖNWANDT & VOIGT 2005, p.772 et seqq.)

After having explained the four elements of a planning approach and their relations to paradigms according to Kuhn, it is also important to clarify some characteristics and limitations of planning approaches:

- Planning approaches have only a limited potential to solve problems. Each approach only holds certain problem definitions, certain objectives and thus certain possibilities to solve problems.
- Each planning approach has a specific potential to solve problems. This means that different approaches lead to different solutions for the same problem. Accordingly, a shift should be considered if a certain planning task cannot be solved using a certain planning approach.
- Planning approaches alter and are time-dependent according to the changes of our knowledge and our moral concepts.
- Planning approaches cannot be 'true' or 'false', they can only be eligible or ineligible, relevant or irrelevant, adequate or inadequate concerning certain planning questions. (cf SCHÖNWANDT & VOIGT 2005, p.775 et seqq.)

Finally, we have to mention that if we only use one particular planning approach, we will generate both, understanding and partial blindness. Therefore, we should strive for combining a variety of planning approaches and adapt them to specific situations.

4 Sustainable Urban Development

What will our cities and regions be like in fifty years? What will they be like in a hundred? How can cities and communities be developed to meet long-term human and environmental needs? Sustainable Urban Development provides a basis for citizens, planners and policymakers to answer questions of this kind.
Many cities and regions are facing similar problems, such as growing automobile dependency, urban and suburban sprawl, pollution, wasteful use of natural resources, rising inequities, and loss of indigenous landscapes and ecosystems. In addition, they are also confronted with a global economic system that undermines local traditions, businesses, communities, the environment, and the sense of place. Therefore, sustainability is becoming an objective of official city plans and sustainable policies are also informing architecture, landscape architecture, environmental planning, and many other disciplines. (WHEELER et al. 2006, p.1)

With respect to recent developments, we will first examine the need for sustainable urban planning and thus investigate three of the most important drivers for sustainable urban planning: global warming, climate change and urban sprawl.
Then we will take a closer look at some exemplary concepts which intend to either antagonize current developments, such as urban sprawl, or simply contribute to more sustainable policies in urban planning strategies.
Finally we will introduce the Ecological Footprint Concept as one of the most intriguing tools to measure the sustainability of particular places or lifestyles. Consequently we will present two urban planning movements, namely Smart Growth and New Urbanism, as examples for implementing the ideas of sustainable urban development in recent planning strategies.

4.1 The Need for Sustainable Urban Planning

At first, we have to understand why there is a need at all to include sustainability in urban planning strategies. This chapter provides crucial information on three recent phenomena (global warming, climate change and urban sprawl), which can be considered as "main drivers" for the need of sustainable urban planning. Global warming, climate change and urban sprawl demand the inclusion of sustainability

in urban planning policies in order to provide for a livable future which accounts for the limited resources of our natural environment.

4.1.1 Global Warming and Climate Change in Relation to Urban Planning

By now, the terms 'global warming' and 'climate change' have become a universal concern: heat waves are becoming more and more frequent, sea-levels are rising, natural hazards are becoming severer, average temperatures are increasing, and many more impacts of global warming and climate change have shown recently. The terms 'global warming' and 'climate change' are often used synonymously, though global warming is only one effect of climate change. Other consequences are, for instance, the melting of polar ice-caps, increases or decreases in average precipitation or alterations of species make-up associated with the changing ecosystem. The sharp increase of greenhouse gas emissions (Carbon Dioxide, Methane, Nitrous Oxide, Chlorofluorocarbons, and Ozone) is closely linked to climate change and global warming.[11] Thus, particularly Carbon Dioxide (CO_2) emissions are a major factor for global warming. (BLAKELY 2007, p.3) In this context it is striking that cities account for about 78% of carbon emissions from human activities.[12]

Researchers often underestimate, however, that cities and urban activities contribute a lot to climate change. According to Blakely (2007), it is clear that new planning legislations will have to be designed and implemented in a way that includes climate change in impact assessments for future development applications in urban areas around the world. (BLAKELY 2007, p.4)
Thus, cities have a great responsibility to mitigate climate change and adapt to the new situation, as polluting industries, commercial businesses as well as heavy traffic and our dependency on cars contribute to a large extent to the emission of greenhouse gases and consequently to climate change. These aspects correlate with zoning policies of cities, which often lead to the isolation of inhabitants, employment and customer services. Consequently, people have to use their cars more frequently which again results in increased emissions of greenhouse gases.

[11] Duke University, 2002
[12] Duke University, 2002a

Therefore it is obvious that the denser a city is covered with buildings, the lower its carbon emissions caused by transportation.[13]

A lot of research has been carried out on what constitutes an environmentally friendly urban form that might mitigate or adapt to the changes in climate and cope with the threat of natural hazards for human settlement. To take one example, Donald Geis (2000) has developed a set of general urban design, planning, and local government guidelines that serve as blueprints for designing disaster-resistant communities (Disaster Resilient Communities [DRCs]). (BLAKELY 2007, p.7)
Moreover, there exists a wide range of planning strategies and concepts dealing with mitigating and adapting climate change on a city- and community-wide scale. Thus, attempts to reduce greenhouse gases and build carbon-free cities have become a hot topic in current urban planning policies. How some of these strategies might look like is explained by introducing the concepts of Smart Growth and New Urbanism in chapter 4.2.2.

4.1.2 Urban Sprawl and Its Relation to Urban Planning

Before talking about Urban Sprawl we have to be clear about the term 'urban form'. According to Frumkin et al. (2004, p.3), 'urban form' is "*… the amalgamation of individual elements of the towns and cities in which we live, work, play and travel*" and is partly determined by natural features. To characterize 'urban form', we use terms such as density, concentration, diversity, mixed use, connectivity or proximity. From this understanding, sprawl is considered as one kind of urban form, to which land use and transportation are intrinsic.
Urban sprawl denotes "*rapid physical expansion of urban and suburban areas into outlying lands*"[14]. Accordingly, valuable farmland, wildlife habitat and green space at the urban fringe can be lost as a consequence of urban sprawl. Also, longer distances between home, work and amenities can lead to traffic congestion and air pollution. In order to provide an adequate infrastructure for the people who live outside the urban core, high costs for road construction, water supplies, sewers and other services may accrue.[14]

[13] Duke University, 2002b
[14] British Columbia Round Table on the Environment and the Economy 1993, p.38

Maierbrugger (2008) identifies a series of drivers which cause urban sprawl, as demonstrated in the table below (table 1).

Table 1: Drivers of Urban Sprawl

Drivers	Elements
Macro-economic factors	▪ Economic growth ▪ Globalisation ▪ European Integration
Micro-economic factors	▪ Rising living standards ▪ Price of land ▪ Availability of cheap agricultural land ▪ Competition between municipalities
Demographic factors	▪ Population growth ▪ Increase in household formation
Housing preferences	▪ More space per person
Inner city problems	▪ Poor air quality ▪ Noise ▪ Small apartments ▪ Unsafe environments ▪ Social problems ▪ Lack of green and open space ▪ Poor quality of schools
Transportation	▪ Private car ownership ▪ Availability of roads ▪ Low cost of fuels ▪ Poor public transport
Regulatory frameworks	▪ Weak land use planning ▪ Poor enforcement of existing plans ▪ Lack of horizontal and vertical[15] coordination and collaboration

Source: Maierbrugger 2008, p.25-26

If we study this table and recognize that according to Frumkin et al. (2004, p.5), land use and transportation are intrinsic to urban sprawl, it is striking that one can counter such undesirable developments by applying adequate strategies and policies which antagonize dispersed, auto-dependent, and single use developments and strive for more compact and diverse urban forms.

[15] This refers to the 'level' of governments: 'vertical' indicates coordination between cities, regions and districts for example; 'horizontal' signifies coordination between two regions or two districts.

4.2 Responding Concepts

There exists a range of current concepts which aim at mitigating and adapting to the influences of global warming, climate change and urban sprawl on a city- and community-wide scale. A few of them will be introduced in the following subsections: the Footprint Concept, Smart Growth and New Urbanism (chapters 4.2.1 and 4.2.2).
In order to link theory and practice, the last subsection of this chapter (chapter 4.2.2.1) provides specific information on a best practice project called "Sustainability by Design" which is carried out by the Design Centre for Sustainability at the School for Architecture and Landscape Architecture, University of British Columbia, Vancouver, Canada.

4.2.1 The Ecological Footprint Concept and Its Relation to Urban Planning

Developed by William Rees, Mathis Wackernagel et al., the Ecological Footprint analysis is considered as one of the most intriguing tools to measure the sustainability of particular places or lifestyles. The Ecological Footprint analysis aims at converting resource needs and pollution into the equivalent land area that would be required to produce or offset these and hence, provides an indication of the impacts of modern life on our environment. (WHEELER & BEATLEY 2006, p.211)
Thus, the Ecological Footprint is based on the relationship between humanity, the biosphere and the land area required to sustain a population of any size. It measures the amount of arable land and aquatic resources necessary to sustain a population (based on its consumption levels at a given point in time). Footprints can be calculated for individuals, cities, regions and nations and include water and energy use, use of land for waste assimilation, infrastructure and different forms of agriculture, forests, and all other forms of energy consumption and material use that are required in our daily lives. [16]
For city governments, the Ecological Footprint is a useful tool to gather information about a city's 'resource metabolism', as it can track a city's demand for natural capital, and compare this demand with the amount of natural capital

[16] Global Development Research Center, 2009

actually available.[17] On this basis, committed governments can start tracking progress and setting targets and guide their cities towards a more sustainable and environmentally friendly future.

Figure 6: The Ecological Footprint

Source: Wheeler & Beatley 2006, p.212

Closely related to the concept of the Ecological Footprint (figure 6) and a very effective tool to publicly demonstrate the effects of elevated Ecological Footprint levels is the so-called 'Earth Overshoot Day'. Nature has a limited budget. The Earth Overshoot Day indicates the day of the year when our demand for nature's services exceeds the resources nature can provide. In 2008, Earth Overshoot Day was September 23, as for 2009 it is expected to occur in early September.[18]

4.2.2 Smart Growth and New Urbanism

Smart Growth and New Urbanism are two concepts which emerged as a response to urban sprawl. Both theories generally intend to concentrate growth in the center of a city and to support compact, transit-oriented, walkable, bicycle-friendly land use.

According to the US Environmental Protection Agency (EPA), Smart Growth in particular aims at providing a basis for sensible growth that balances the need for jobs and economic development with the desire to save the natural environment. (EPA 2001, p.1)

A more precise definition of Smart Growth, also provided by the EPA, indicates that

[17] Global Footprint Network, 2009
[18] Global Footprint Network, 2009a

> "*Smart growth development practices support national environmental goals by preserving open spaces and parkland and protecting critical habitat; improving transportation choices, including walking, bicycling, and transit, which reduces emissions from automobiles; promoting brown field*[19] *redevelopment; and reducing impervious cover, which improves water quality*".[20]

The table below (table 10) provides 10 guidelines for Smart Growth developed by the Environmental Protection Agency.

Table 2: 10 Guidelines for Smart Growth

Principle	Description
1. Mix land uses	mixture of homes, retail, business, and recreational opportunities in each neighbourhood
2. Take advantage of compact building design	easy accessibility of daily activities for people, viable transit and support of local business
3. Create a range of housing opportunities and choices	options for people in different family types, life stages and income levels to afford homes in their neighbourhood
4. Create walkable neighbourhoods	
5. Foster distinctive, attractive communities with a strong sense of place	
6. Preserve open space, farmland, natural beauty, and critical environmental areas	planning in respect with natural landscape features
7. Strengthen and direct development towards existing communities	carrying out smart and efficient investments in infrastructure to prevent urban sprawl
8. Provide a variety of transportation choices	safe infrastructure for walking, cycling and transit, in addition to driving, attractive neighbourhoods.
9. Make development decisions predictable, fair and cost-effective	
10. Encourage citizen and stakeholder participation in development decisions	

Source: EPA 2001, p.1 and Smart Growth BC, 2009

Thus, by promoting a shift in the conventional development patterns and by pursuing multidisciplinary approaches, Smart Growth initiatives identify the relationship between development patterns and the quality of life. The concept implements new policies and practices with respect to improved housing,

[19] 'Brownfields' are abandoned or underused industrial and commercial facilities available for re-use (Brownfield Wikipedia, 2009)
[20] New Urbanism, 2009

transportation, economic development and the preservation of environmental quality.[21]

In order to demonstrate the analogies between Smart Growth and New Urbanism, table 3 illustrates the 10 principles for New Urbanism.

Table 3: 10 Principles for New Urbanism

Principle	Description
1. Walkability	pedestrian friendly street design, pedestrian streets free of cars in special cases, needs for daily life are accessible within a 10-minute walk
2. Connectivity	interconnected and hierarchic street grid network which disperses traffic and eases walking, high quality pedestrian network
3. Mixed use and diversity	mixed use within neighbourhoods, blocks and buildings, diversity of people (age, income levels, culture, races)
4. Mixed housing	a range of types, sizes and prices in close proximity
5. Quality architecture and urban design	emphasizing beauty, aesthetics, human comfort, creating a sense of place
6. Traditional neighbourhood structure	discernable centre and edge, transect planning (e.g. highest densities at town centre, progressively less dense towards the edge)
7. Increased density	more buildings, residences, shops, and services closer together for ease of walking, a more efficient use of services and resources and for the sake of creating a more convenient, enjoyable place to live
8. Green transportation	pedestrian-friendly design, network of high-quality trains
9. Sustainability	eco-friendly technologies, energy efficiency, more local production, more walking, less driving, minimal environmental impact of development and its operations
10. Quality of life	emerging from the fulfilment of the 9 previously mentioned principles

Source: New Urbanism, 2009a

There are plenty of institutions which work with Smart Growth and New Urbanism concepts, aiming for contemporary land use development and urban planning strategies. In this context, the Design Centre for Sustainability (DCS) at the

[21] New Urbanism, 2009

University of British Columbia (UBC), Vancouver, Canada, carries out a project called 'Sustainability by Design' (SxD). We use this project to give an overview of how to connect Smart Growth and New Urbanism principles in planning processes in practice.

If we compare the Smart Growth guidelines (table 2) and New Urbanism principles (table 3) it is striking that both concepts share the same basic ideas using different wording.

4.2.2.1 Best Practice Project "Sustainability by Design"

With its project "Sustainability by Design" (SxD), the DCS (at the UBC School for Architecture and Landscape Architecture [SALA], Vancouver) intends to produce an impressive representation of what the Greater Vancouver region might look like in 2050 on a neighbourhood-, district-, and region-wide scale, thus responding to dramatic recent developments. Researchers assume that Greater Vancouver's population (currently about two million inhabitants) will increase to three million by 2025 and even to four million by 2050. This growth in population will require adequate policies and planning strategies to sustainably adapt to it.

Consequently, the meta target of SxD is to transform the Greater Vancouver region into a sustainable one and to sustainably cope with the impacts of population growth. (DCS 2007, p.1)

The Charrette Method

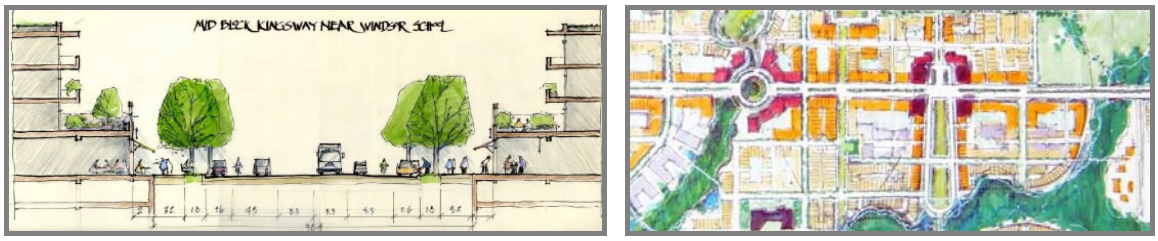
The main approach used in this five-year project is the charrette methodology. A design charrette "*is a time-limited, multiparty design event organized to generate a collaboratively produced plan for a sustainable community.*" (CONDON 2008, p.1)

According to Condon (2008), a sustainable urban design charrette aims at producing "*a design that embodies the higher-level empathy, understanding, intuition, and compassion of the design team in the form of a sustainable and implementable urban design plan.*" (CONDON 2008, p.12) Thus, he argues, holistic, sustainable design solutions are best produced in an open-ended atmosphere in which empathy, understanding, intuition and compassion can emerge. By bringing together stakeholders who may have held opposed positions in the past and putting them on the same team, a design charrette has the ability

to change the chemistry of the public review process. (CONDON 2008, p.18 et seqq.)

In Condon's (2008) view, design charrettes are more than so-called common "blob-on-a-map" (CONDON 2008, p.16) land use plans. Minimum requirements for sustainable community design charrettes are, for instance, drawings with ground-level perspectives, aerial views, and highly detailed illustrative plans. These requirements ensure a better communication on how a place might look like, function, or how it feels to be there. Moreover, he distinguishes between two kinds of charrettes: Visioning charrettes "*produce illustrations of what it would look like if a district, city or region were built sustainably*"; implementation charrettes "*produce implementable plans for an area subject to regulatory change.*" (CONDON 2008, p.17)

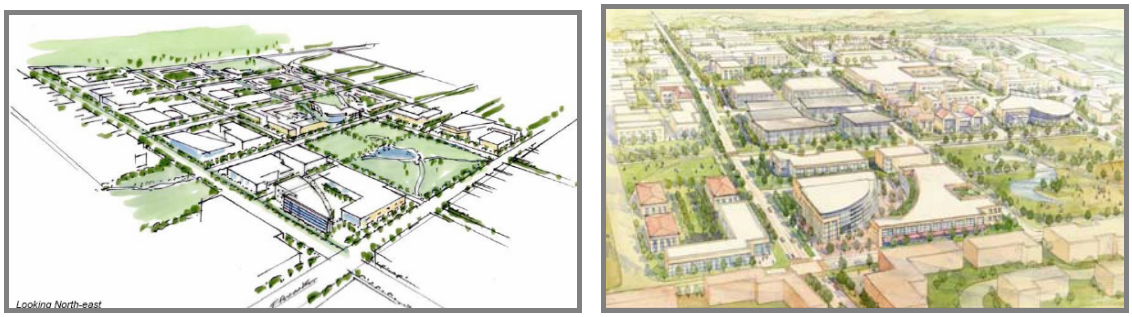
Figure 7: Detailed Drawings from Corridors and Nodes



Source: Sustainability by Design, 2009a and 2009b

Essential to each charrette is the so-called 'design brief', which provides a set of instructions for the design team. The design brief includes specific numerical requirements and performance targets for the site. The goal, objectives, and principles in the brief can have a profound influence on the outcome of the charrette as well as on the more enduring urban planning policies of the city and the region beyond. (CONDON 2008, p.35)

Figure 8: Areal Drawings as Part of the Outcomes of a Design Charrette (displaying edges)



Source: Sustainability by Design, 2009

The Course of the SxD Project

The DCS (2006) developed and published a set of six Guiding Principles and development targets which can be basically considered as a simplification, modification and blending of the aforementioned Smart Growth guidelines and New Urbanism principles:

1. *Good and plentiful jobs close to home:* Job sites located within communities reduce time spent travelling to work.
2. *Mixed use corridors accessible to all:* High-density commercial and residential corridors focus growth along transit routes.
3. *Five-minute walking distance:* Interconnected street systems link residents with the services they need.
4. *Access to natural areas and parks:* Green spaces provide recreation opportunities and connect people with natural systems.
5. *Lighter, greener, cheaper, smarter infrastructure:* The integration of natural systems reduces infrastructure cost and environmental impact.
6. *Different housing types:* A range of housing types allows residents of differing economic situations to live in the same neighbourhood and have access to the same services.

In the first phase of the project, these principles were tested in six workshops and in three municipal case study charrettes that generated sustainable development visions for edge, node and corridor sites.

The findings were then applied to the regional scale as part of the City Building Planners Group's 'Super Saturday', where over 120 participants worked to detail a practical vision for a sustainable region accommodating the expected population growth. The resulting 50 square meter map was displayed at the UN World Urban Forum. (DCS 2007, p.2 et seqq.)

As the first phase of the project was a big success, the DCS proposes a multi-year, iterative design-research-implementation process which should build on this success. The second phase of the SxD project consists of seven key components, such as further case study charrettes, or another regional charrette in 2010. (DCS 2007, p.3)

In addition to the aforementioned three municipal case study charrettes, one special case study charrette was carried out in the City of North Vancouver (CNV),

a municipality of the Greater Vancouver region. This case study charrette should also be briefly noted in this context: The DCS supported the CNV in their 100-year vision, "*… to become a vibrant, diverse, and highly livable community that provides for the social and economic needs of our community within a carbon neutral environment by the City's 200th Birthday in 2107*". (DCS 2008, p.1) This case study is mentioned to give the reader an idea of what can be done on a region- or city-wide scale if just regions or cities admit to plan for a carbon-free future.

5 Sustainable Happiness

This chapter gives an introduction to the concept of Sustainable Happiness (SH) according to Catherine O'Brien. As a first step, we should provide some fundamental background information about the origin and relevant approaches of this concept.

5.1 Background Information

At first, this section provides an overview of the origin of the Sustainable Happiness concept. Then, we will define the term 'happiness' and outline relevant concepts in this context. The final subsection of this chapter emphasizes how important transportation is in relation to health and happiness. This last point is a crucial aspect of the concept of Sustainable Happiness.

5.1.1 Origin: Quality of Life, Positive Psychology and Sustainability

The concept of Sustainable Happiness basically originates from Quality of Life, Positive Psychology and Sustainability research. Therefore, these three fields of research will be briefly explained and linked to one another in the following.

The term and area of research 'Quality of Life' denotes certain elements which account for general living conditions of a society or of an individual. It describes the extent of subjective well-being of a person or a group of people. In a conventional view[22], the term 'Quality of Life' mainly centers on material wealth and factors such as education, career opportunities, social status, health, etc. Recent research has shown that there is a correlation between life satisfaction and the aforementioned external factors. Thus, it seems to be possible to enhance one's subjectively perceived quality of life also in the long run by influencing the external factors.[23] (RAUSCHMAYER et al. 2008, p.13)

[22] Current Research is scrutinizing definitions and approaches of new ‚Quality of Life'-concepts which decouple quality of life and material wealth.
[23] Lebensqualität Wikipedia, 2009

'Positive Psychology' is a branch of psychology which has its roots in the humanistic psychology of the 20th century. The humanistic psychology focused primarily on happiness and self-fulfillment and was influenced by philosophical and religious sources.[24] It deals with the basic question "What makes life worth living?". Positive Psychology argues that happiness has to be actively aspired and is not the state of a person who is just 'not unhappy'. Positive Psychology aims at maintaining lust for life, attentiveness, creativity, curiosity, and self-confidence. This branch of psychology deals with the exploration of a person's positive emotions, positive characters and positive structures.[25] Another approach describes Positive Psychology as the research of the life of enjoyment, the life of engagement, and the life of affiliation.[25]

If we link Positive Psychology to Sustainability Science, we first have to consider the description of the common 'western' consumption patterns in developed countries. In our consumer society, the drive to acquire and consume more and more dominates many people's psyches, filling the space once occupied by religion, family, and community. In this society, happiness is inextricably linked to consumption and material wealth. Therefore, many people confuse the "path to the 'good life' as the 'goods' life'". (O'BRIEN 2008a, p.16 et seqq.) That is why we should strive for decoupling consumption and happiness, knowing that there is much more to a happy life than material wealth. More insight on this is provided in chapter 5.1.3.1, where the so-called *Happy Planet Index (HPI)* is explained.

5.1.2 Definition of Happiness

Being fully aware that there exists a wide range of definitions of happiness, we will use the definition according to Lyubomirsky et al. (2005) for the context of this thesis. It is important to understand what happiness means in order to better understand the concept of Sustainable Happiness. Happiness according to Lyubomirsky includes frequent positive affect, high life satisfaction, and infrequent negative affect. These are the three primary components of happiness, resp. subjective well-being, which is here used as a synonym for happiness. As it is assumed that happiness is primarily a subjective phenomenon, the synonymous use of the terms 'happiness' and 'subjective well-being' is warranted.

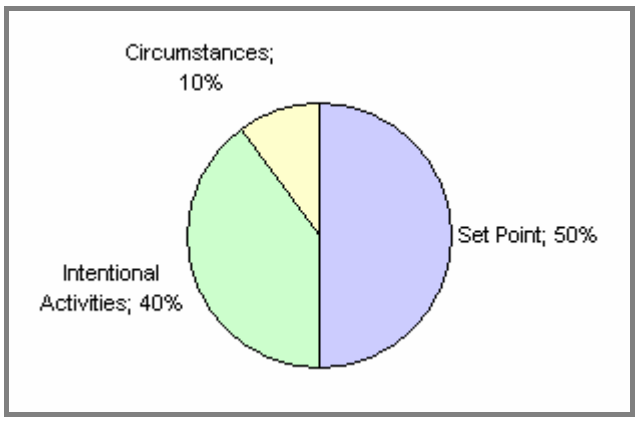
[24] Positive Psychology Wikipedia, 2009
[25] Glücksarchiv, 2009

We can distinguish between a state of momentary or daily happiness and a certain level of happiness during a particular and longer period of life. As this thesis centers on sustainability, it is obvious that we focus on the latter, on a person's characteristic level of happiness during a particular period in his or her life which we term the 'current' or 'chronic' happiness level. (SHELDON & LYUBOMIRSKY 2004, p.7)

Focussing on this particular definition and going into more detail, Sonja Lyubomirsky and many other researchers asked "How can happiness be reliably increased?". To answer this question, Lyubomirsky and her colleagues carried out a lot of research questioning a sustainable enhancement of happiness. Now they do believe that a sustainable increase in happiness is possible through the practice of intentional cognitive, motivational, and behavioural activities that require daily and concerted effort and commitment.[26] They refer to this integrative model of happiness as 'architecture of sustainable happiness' or 'sustainable happiness model' (see below). (LYUBOMIRSKY et al. 2005, p.114)

According to Lyubomirsky et al. (2005), there are three determinants which influence a person's current happiness level, as displayed in figure 9: the set point, intentional activities, and life circumstances. The set point accounts for approximately 50%, intentional activity for 40% and life circumstances for only about 10% of individual differences in current happiness.

Figure 9: Determinants of the Current Happiness Level



Source: Lyubomirsky et al. 2005

[26] Sonja Lyubomirsky, 2009

Set point

A person's individual current happiness level is partly influenced by his or her set point, which is genetically determined and is assumed to be fixed, stable over time, and immune to influence or control. The individual set point reflects intrapersonal, temperamental, and affective personality traits, such as extraversion, and negative affectivity, that are rooted in neurobiology. Those traits are highly heritable and only change little in one's life. (LYUBOMIRSKY et al. 2005, p.116-117)

Intentional activities

This term refers to intentional and effortful actions or practices in which a person is engaged. Thus, intentional activities are ways that people '(re)act' on their circumstances, as opposed to the category 'circumstances' itself, where circumstances 'happen' to people. Intentional activities may be cognitive, behavioural, or volitional. As activities have intentional character, they are more resistant to effects of adaptation. Hence, if people vary their activities, they continually provide new experiences and results which may counter adaptation. Compared to the set point, intentional activities are dynamic and varying and have a capacity to produce a steady stream of positive and rich experiences. Thus, they can create sustained positive change. (SHELDON & LYUBOMIRSKY 2004, p.9 et seqq.)

Circumstances

Circumstances include various settings and facts of a person's life. They refer to demographic variables (age, marital status, employment status, income, etc.) and geographical and cultural variables (the home and region in which one lives, the conveniences one enjoys, etc.). Also, circumstances include a person's individual history, his or her life events, such as having experienced a childhood trauma or having been involved in an automobile accident, etc. Sheldon & Lyubomirsky (2004) assume that people adapt to positive circumstantial changes relatively quickly because of their static character. (SHELDON & LYUBOMIRSKY 2004, p.8 et seqq.)

According to these three determinants of chronic happiness, it is indeed possible to raise one's happiness level, although we cannot influence our set point which is defined by our genes. However, we can increase our personal level of happiness

by consciously altering the circumstances in which we live as well as our intentional activities. This is a crucial point of the discussed concept of Sustainable Happiness. But one problem arises: adaptation. If we, for instance, undergo changes in our 'circumstances', such as moving to a new apartment, our momentary level of happiness will temporarily rise as we are excited about moving to a new place and living in a bigger or brighter apartment. But after a little while, we will get accustomed to our new way of housing and will take it for granted. Then, the excitement will vanish and not contribute to the enhancement of our subjective well-being anymore. Kurtz and Lyubomirsky (2008) refer to this phenomenon as 'hedonic adaptation'. (KURTZ & LYUBOMIRSKY 2008, p.24) Thus, intentional activities are the most promising means to alter a person's happiness.

Yet, even though a large percentage of our happiness level is determined by our individual set point, it can momentarily be raised by changing our life circumstances and even sustainably increased by consciously taking advantage of effortful intentional activities.

5.1.3 Relevant Concepts

After having clarified the backgrounds and definitions of happiness, now let us turn to relevant concepts which already relate happiness to sustainability. First we want to take a closer look at the *Happy Planet Index (HPI)* which indicates the ecological efficiency with which human well-being is delivered around the world. Then we take a look at the kingdom of Bhutan, where *Gross National Happiness (GNH)* was implemented as an attempt to define quality of life in a more holistic and psychological way than the common Gross National Product (GNP) does. Both concepts are considered essential for a deeper understanding of the relation between happiness and sustainability, as they both aim at measuring success far beyond the borders of the Gross Domestic Product (GDP).

5.1.3.1 Happy Planet Index (HPI)

Launched in 2006, the HPI implies that "*a successful society is one that can support good lives that don't cost the Earth.*" (NEF 2009, p.3) The HPI measures progress towards this target.

The main difference between the HPI and well-established economic indices, such as the Human Development Index (HDI) or the Gross Domestic Product (GDP), is

that the HPI incorporates sustainability into the calculation. Thus, the HPI is defined as an index which combines environmental impact with well-being in order to measure the environmental efficiency with which, country by country, people live long and happy lives.[27] It is essential that the countries that top the HPI are not necessarily the happiest places in the world, but in these nations it is possible to lead long and happy lives without overstretching the planet's resources.[27]
Hence, the HPI comprises the following components: life expectancy, life satisfaction, and the ecological footprint, resulting in the basic equation

$$HPI = \frac{HappyLifeYears}{Ecological Footprint}$$ [28]

In this way, every country can calculate its HPI, ranging somewhere between 0 (worst) and 100 (best). According to the NEF[29], every nation should accomplish an HPI of 89 by the year 2050. The table below (table 4) shows the countries ranking 1 to 30 with regard to the HPI. Not only is it striking that there is not a single 'westernized' country amongst the top ranks on this global list, it also becomes clear that there is still a long way ahead of most nations to achieve an index of 89 by 2050. The full list is provided in the appendix of this thesis.

[27] HPI, 2009
[28] Happy Life Years = Life Satisfaction x Life Expectancy. According to the latest "Happy Planet Index 2.0" Report (NEF 2009), the most current development refines this equation that way: $HPI = \frac{HappyLifeYears}{Ecological Footprint + \alpha} \times \beta$, adding constants α (coefficient of variance) and β (incorporating a country's global fair share of resources). To keep it simple, the 'old' version of the equation is used in the text.
[29] HPI, 2009a

Table 4: HPI Top 30 countries

	Countries in HPI rank	Sub-region	Life Exp	Life Sat	Footprint	HPI
	2050 target		87.0	8.0	1.7	89.0
1.	Costa Rica	1a	78.5	8.5	2.3	76.1
2.	Dominican Republic	1a	71.5	7.6	1.5	71.8
3.	Jamaica	1a	72.2	6.7	1.1	70.1
4.	Guatemala	1a	69.7	7.4	1.5	68.4
5.	Vietnam	6c	73.7	6.5	1.3	66.5
6.	Colombia	1b	72.3	7.3	1.8	66.1
7.	Cuba	1a	77.7	6.7	1.8	65.7
8.	El Salvador	1a	71.3	6.7	1.6	61.5
9.	Brazil	1b	71.7	7.6	2.4	61.0
10.	Honduras	1a	69.4	7.0	1.8	61.0
11.	Nicaragua	1a	71.9	7.1	2.0	60.5
12.	Egypt	3a	70.7	6.7	1.7	60.3
13.	Saudi Arabia	3b	72.2	7.7	2.6	59.7
14.	Philippines	6c	71.0	5.5	0.9	59.0
15.	Argentina	1b	74.8	7.1	2.5	59.0
16.	Indonesia	6c	69.7	5.7	0.9	58.9
17.	Bhutan	5a	64.7	6.1	1.0	58.5
18.	Panama	1a	75.1	7.8	3.2	57.4
19.	Laos	6c	63.2	6.2	1.1	57.3
20.	China	6a	72.5	6.7	2.1	57.1
21.	Morocco	3a	70.4	5.6	1.1	56.8
22.	Sri Lanka	5a	71.6	5.4	1.0	56.5
23.	Mexico	1a	75.6	7.7	3.4	55.6
24.	Pakistan	5a	64.6	5.6	0.8	55.6
25.	Ecuador	1b	74.7	6.4	2.2	55.5
26.	Jordan	3b	71.9	6.0	1.7	54.6
27.	Belize	1a	75.9	6.6	2.6	54.5
28.	Peru	1b	70.7	5.9	1.6	54.4
29.	Tunisia	3a	73.5	5.9	1.8	54.3
30.	Trinidad and Tobago	1a	69.2	6.7	2.1	54.2

All 3 components good

2 components good, 1 middling

1 component good and 2 middling

3 components middling

Any with 1 component poor

2 components poor, or 'blood red' footprint

Source: NEF 2009, p.61

5.1.3.2 Gross National Happiness (GNH)

> *"Bhutan believes that this happiness cannot come from purely material development, economic development, but that it must be very carefully balanced with spiritual health, with the environment and generally the quality of life."* (Gross National Happiness - Bhutan Film, 2009)

There is a broad range of indicators which focus on aspects such as market transactions, monetary exchange rates, stock market, growth, etc. and which generally relate to the Gross Domestic Product (GDP). Thus, they solely reflect the amount of physical output of a society.[30]

King Jigme Singye Wangchuck started to rethink this focus on production and consumption, stating that "Gross National Happiness is more important than Gross National Product". (GRIMM 2006, p.23) Therefore, since the beginning of his reign in 1972, happiness, instead of materialistic gains, has been the guiding goal in Bhutan's development. Rooted in the traditions of Mahayana Buddhism, the concept of GNH focuses upon limiting human needs in accordance to the resources available and the conditionalities. The concept assumes that it is possible to attain happiness by combining material gains with spirituality. (UPRETI 2005, p.5)

[30] GNH Methodology, 2009

Needless to say, that it is quite difficult to implement 'happiness' in a nation's policy. Adequate political, cultural, and economic framework is required to allow residents to pursue individual happiness. Aiming at the implementation of this vision of happiness, Bhutan's government developed four pillars forming the basis for the concept of GNH:[31]

1) *Economic development:* accelerate Bhutan's independence from foreign countries, allow for social development, amplify options for every person, guarantee safety and ubiquitous access to educational and health facilities;
2) *Conservation of culture:* aim for a society without wars and aggression, avoid inequity, strengthen cultural values, strive for a happy society with aspirations and ambitions, aim for a caring society with a strong we-spirit and sympathy, freedom for all individuals, no oppression;
3) *Conservation of nature:* avoid pollution and protect natural habitats, protect biodiversity;
4) *Good governance:* all employees of civil service have to internalize GNH principles, continue decentralization, provide participatory development.

As the GNH index was developed to reflect the happiness and general well-being of Bhutan's population more profoundly than a monetary measure, it includes nine core dimensions which are equally weighted and consist of robust and informative indicators. According to this concept, 'happiness' is attained if a person achieves certain levels in each of the nine dimensions, namely psychological well-being, time use, community vitality, cultural diversity and resilience, health, education, environmental diversity and resilience, living standard, good governance. The table below (table 5) displays the specific indicators of which each of the dimensions comprises.[32]

[31] Caspari, 2007
[32] GNH Methodology, 2009

Table 5: Dimensions and Indicators of GNH

Dimension	Indicators
Psychological well-being	general psychological distress indicators, emotional balance indicators, spirituality indicators
Time use	benchmark indicators of sleeping hours and of total working hours
Community vitality	family vitality indicator, safety indicator, reciprocity indicator, trust indicator, social support indicator, socialization indicator, kinship density indicator
Cultural diversity and resilience	dialect use indicator, traditional sports indicator, community festival indicator, artisan skill indicator, value transmission indicator, basic precept indicator
Health	health status indicator, health knowledge indicator, barrier to health indicator
Education	education attainment indicator, dzongkha language indicator, folk and historical literacy indicator
Ecological diversity and resilience	ecological degradation indicator, ecological knowledge indicator, afforestation indicator
Living standard	income indicator, housing indicator, food security indicator, hardship indicator
Good governance	government performance indicator, freedom indicator, institutional trust indicator

Source: GNH Methodology, 2009

5.1.4 The Importance of Transportation in Relation to Health and Happiness

We now dealt with definitions of happiness and the introduction to two concepts regarding happiness and sustainability. Now, to slowly approach the relation between sustainability and urban planning, we put more thought into how transportation, health and happiness relate to each other.

First, we will study the relations between health and happiness. For this purpose we want to state that according to Veenhoven, happiness is considered as "the overall appreciation of one's life-as-a-whole, in short, how much one likes the life

one lives". (O'BRIEN 2008a, p.18) Steptoe, Wardle, and Marmot (2005) found that a person's subjective experience of happiness corresponds with numerous positive health outcomes. That is, happy people generally have better health habits, lower blood pressure, and a feistier immune system. From this we can draw the conclusion that we can make people healthier by making them happier, which in turn might have profound implications for transport policy and practice. If we start creating environments that contribute to individual and public happiness, such as walkable and livable communities, we are likely to achieve positive outcomes for public health. (O'BRIEN 2008a, p.18)

Before we actually turn towards the relations between health, happiness and transport, we need to be clear about the conventional definition of the term 'transportation'. Up until now the focus of transportation planning mostly was on how to move people and goods as quickly as possible. Also, transportation planning prioritized adults and motorized traffic, assuming that if the transport needs of adults are met, the transportation system can be considered 'successful'. Now, as the impact of transport on a population's health and the environment is more widely acknowledged, the time has come to rethink this conventional view of transportation planning. To support this process of rethinking, a series of studies was carried out focussing on the relations between human health, well-being and transportation. In recent discussions on transport planning, researchers emphasized the importance of pedestrians and cyclists, the benefits of transit, the opportunities for daily physical activity through transport, the relationship between land use and transport planning, and the need to mitigate harmful environmental and health impacts of motorized transport. In these discussions children and their particular needs were especially taken into consideration. (O'BRIEN 2005, p.3 et seqq.)

Many studies (cf. O'BRIEN 2005) concentrate on physical facts such as children's vulnerability to air pollution, the impact of transportation on obesity levels, the health risks when living near high traffic areas, the effect of noise on reading levels and stress hormones, and the fact that traffic is the leading cause of injury death for children in many developed countries. In addition, these studies consider the role of transportation in relation to children's emotional development and well-being, stating that heavy traffic may for instance reduce the opportunities for spontaneous play and the range of children's play activities, and limit independent mobility. (O'BRIEN 2005, p.4)

According to O'Brien (2008a), it is essential to consider the needs and views of children concerning transportation. Hence, we should loosen our conventional definition from 'moving people and goods as quickly as possible' to 'transportation is not only about moving people and goods, it is about wonder, discovery, joy and happiness'. (O'BRIEN 2008a, p.15 et seqq.) In this way, we can raise the awareness in so far that there is much more to 'mobility' than cars and motorized traffic.

There is clear evidence that active transportation contributes to children's (physical) well-being. Mackett and Paskins (2004) found that the calories burned over the course of a week's school trip can be equivalent to two physical education classes. Thayer et al. (2003) detected that the very activity of walking can elevate one's mood and contribute to emotional and physical well-being. (O'BRIEN 2008a, p.16) Moreover, walking trips entail a certain playful sense of adventure. The Ontario Walkability Study (O'BRIEN 2001) underlined this fact, detecting that 75% of 6,000 Canadian children surveyed would prefer to walk or cycle to school on a regular basis. Children who walk to school are very engaged in the journey and they live in the moment. They can chat with their friends and explore things on their way to school, which makes their daily 'commute' to school a way full of pleasure and joy. Adults have actually lost this joy. (O'BRIEN 2005, p.6)

Though, the severity of aforementioned health impacts caused by conventional transport practices and the sense of pleasure children experience when walking or cycling to school, provide significant reasons to accelerate strategies towards more sustainable transport and land use planning, including more child-friendly planning. (O'BRIEN 2005, p.5) Moreover, O'Brien (2005) argues that we should aim to consolidate physical, emotional and spiritual well-being[33] to transportation planning in order to provide a holistic view of the implications of transport planning decisions.

If we now add sustainability to these reflections, this finally leads us to the concept of Sustainable Happiness by Catherine O'Brien which will be explained in the following chapter.

[33] 'Spiritual well-being' is defined as "the experience of mutually rewarding encounters between people, a sense of communication with the environment, access to heritage and cultural integrity." (O'BRIEN 2005, p.7 et seqq.)

5.2 The Concept of Sustainable Happiness According to Catherine O'Brien

Developed by Ph.D. Catherine O'Brien in 2005 (School of Education, Health, and Wellness, Cape Breton University, Sydney, Nova Scotia, Canada), the relatively new concept of Sustainable Happiness (SH) draws attention to the positive and negative consequences of the way individuals, communities, and nations pursue happiness. (O'BRIEN 2008) Sustainable Happiness is defined as happiness that contributes to individual, community or global well-being "*[…] and that does not exploit other people, the environment or future generations.*" (O'BRIEN 2008, p.289)
The concept of Sustainable Happiness "*is intended to strengthen the relationship between happiness and sustainability and to stimulate discussion in various domains. Another aim is to emphasise the interconnections across time and space that our policies and practices are having, as well as the potential for more extensive positive impacts.*" (O'BRIEN 2008a, p.18 et seqq.)

O'Brien argues that, at heart, every person longs for sustained happiness. She points out that happiness in general "*… is possibly the ultimate thing we want while other things are wanted only as a means to its increase*". (O'BRIEN 2005, p.18) It is integral to Sustainable Happiness to learn how to live from our hearts, to let the spirit lead, and to understand our mutual interdependence.
At first glance it might appear that this has little to do with transportation and urban planning. But if we take a closer look at O'Brien's understanding of happiness and sustainable happiness, it becomes clear how this concept is connected to transportation and urban planning. In her opinion, also planning disciplines have to adopt a new way of thinking. All efforts to create sustainable communities, sustainable cities and sustainable societies will make little significant headway until planning disciplines mature towards a new understanding of happiness. (O'BRIEN 2005)

Therefore, SH is a concept which goes far beyond conventional transportation and urban planning concepts and strategies. As already mentioned before, it postulates that transportation planning is more than moving people and goods, it's also about wonder, discovery, joy and happiness. (O'BRIEN 2008a) These

considerations lead us to explore the relationship between individual happiness and public happiness and to give greater attention to psychosocial factors.

If we aspire to create a sustainable city, transportation and spatial planning are the crucial elements. Until now, when debating about questions of transportation and infrastructure planning, the priority has always been given to the needs and demands of motorists and cars. Given the prioritization of motorized traffic, there has always been a marginalized sector: non-motorists, children and youth in particular. If we apply Sustainable Happiness to transportation and urban planning, we have to consider how our ways of transportation and planning would change if we gave greater attention to the needs and aspirations of aforementioned marginalized groups.
One main element of the concept of Sustainable Happiness is, therefore, to raise the awareness of how our inner world influences our external behaviour and of how the relation between our inner world and our external behaviour consequently impacts the external environment we are creating. (O'BRIEN 2005, p.15 et seqq.)

Based on sustainability principles, positive psychology and quality of life research, SH additionally emphasizes the importance to consider the needs and aspirations of children and youth and to incorporate and respect these needs in urban planning. Thus, the concept of SH can be considered as a very special kind of urban planning and transport planning strategy which basically focuses on the needs and aspirations of children and youth, aiming to create livable cities and communities and 'cities of joy'. (O'BRIEN 2005, p.10) For the following reason, SH assumes that we should strive to make our cities joyful and livable places for children and youth: In a city where children and youth feel comfortable, adults will feel comfortable as well. Thus, it is crucial to involve children and youth in city planning processes as they usually have a more innocent and natural sense for their specific needs (compared to adults) and for what would make city-life fun and comfortable.
Hence, the aforementioned example of children walking or cycling to school can be seen as an example of Sustainable Happiness, as these children are living in the moment, experiencing a playful sense of adventure and are conducting their daily commute by 'environmentally friendly means' - walking and cycling.

After having examined the background, origin, relevant concepts, determinants and a definition of happiness and Sustainable Happiness in particular, the next section will provide a series of best practice examples and initiatives of applied Sustainable Happiness. It has to be stated that most of the examples provided are not consciously using SH as the underlying concept. Their actions, however, are consistent with the idea of SH.

6 Sustainable Happiness and Urban Planning: Children's Participation and Planning for Happiness

As already mentioned before, SH is a very special kind of urban planning and transport planning strategy which basically focuses on the needs and aspirations of children and youth. Thus, this chapter provides a range of best practice examples, including various children's participation projects, in order to link SH and urban planning.

At first, this chapter provides a brief description of the seven realms of children's participation in city design and planning, developed by Francis & Lorenzo (2002). This classification will be used as a framework for the best practice examples presented. For the purpose of this thesis, we chose the following three topics as best practice examples:

- the Child Friendly Cities Initiative (chapter 6.1)
- children's participation in a city plan (Empoli, Italy) (chapter 6.2), and
- the example of Enrique Peñalosa, former mayor of Bogotá (Colombia), who intended to "plan for happiness" (chapter 6.3)

Needless to say, that there are many more initiatives which address the topic of children's participation in urban planning. Providing detailed information on all of these initiatives would definitely go far beyond the scope of this thesis. Therefore, chapter 6.4 provides a brief summary of some of these initiatives and approaches, which would be worth investigating in another context.

The participation of children in city design and planning has become increasingly popular in recent years. Though, children's participation is not a very new phenomenon. According to Francis & Lorenzo (2002) there are more than 30 years of history of children's participation in design and planning. The participation history can, however, be categorized in various stages or realms, as the focal points of participation varied throughout those three decades. Thus, Francis & Lorenzo (2002) defined seven realms of children's participation in city design and planning. The following section provides a brief overview of the basic concepts and limitations of each realm.

1. Romantic realm (1960s and early 1970s): children as planners and as futurists

Basic concept: The romantic realm sees children as active planners and designers. Moreover, it assumes that the environments would be more successful if only kids were the planners because they had different and better ideas than adults. The basic concept is that children would be the best designers and builders of environments for themselves. Another approach of the romantic realm is the idea of 'children as futurists': young people were asked to image future cities and environments. This was a trend-setting idea for the children's rights movement, emphasizing individual and institutional benefits of participation. Typically, methods such as involving children as planners of playgrounds, community gardens, schools, and other places or environmental autobiography[34] were used in this realm.

Limitations: This approach often ignores adult input as part of the participatory process, which leads adult decision makers to overrule children's ideas. (FRANCIS & LORENZO 2002, p.160)

2. Advocacy realm (resulted from planning projects in the 1960s): planners for children

Basic concept: This realm largely overlaps with the romantic period and resulted from planning projects where citizens were not allowed to have a say in projects that affected their lives. Thus, planners became advocates for the needs of the marginalized groups, the poor and powerless.

Limitations: The advocacy realm is not a holistic approach as it often creates separate plans and places. It also ignores the official decision-making process. Besides, children were advocated for and not directly involved in the design process. (FRANCIS & LORENZO 2002, p.160)

3. Needs realm (as from 1970s): social scientists for children

Basic concept: The needs realm seeks to use environmental psychology research to improve the understanding of children's environments. This realm has resulted from the work of geographers, psychologists, landscape architects, planners, and non-profit organizations. It emphasizes that children have unique needs which should be considered when designing environments.

[34] Adults are asked to remember and draw their favourite childhood places.

Limitations: This realm presumes that good social science alone can identify children's spatial needs and that it is not necessary to directly involve children in the design process. (FRANCIS & LORENZO 2002, p.160 et seqq.)

4. Learning realm (as from 1980s, 1990s): children as learners

Basic concept: The learning realm involves environmental learning and education as a central focus of participatory processes, because at that time researchers recognized that learning is an important outcome of planning and childhood experience. Thus, planners put this idea into practice by incorporating children into the process.

Limitations: This approach often only leads to learning and social change but does not improve or change environments. Moreover, children mostly are not directly involved in the decision-making process. (FRANCIS & LORENZO 2002, p.163 et seqq.)

5. Rights realm (as from 1990s): children as citizens

Basic concept: This realm seeks to guarantee children's rights in urban environments. It was an important period for the evolution of children's participation. From then on, children are seen as fully empowered participants. An important document from this realm is the United Nations Convention on Child Rights (1989). The Child Friendly Cities Initiative (supported by UNICEF), which will be explained in more detail in chapter 6.1, is one example of projects which involve principles of democracy, rights, and empowerment of children.

Limitations: This realm tends to focus more on children's rights than on their environmental needs. (FRANCIS & LORENZO 2002, p.164)

6. Institutional realm (as from 2000): children as adults

Basic concept: In this realm, children are often treated as if they were adults, assuming that they have the same knowledge and power in the process. Planning is carried out 'by' children but within institutional boundaries set by adults, authorities, and clients.

Limitations: The institutional realm often ignores the importance of more spontaneous and child-centered participation and thus often results in limited environmental change. Besides, phenomena such as 'NIMBYism' ('Not In My

Back Yard') or cultural separation are likely to occur in this realm. (FRANCIS & LORENZO 2002, p.164)

7. Proactive realm (late 1990s): participation with vision

Basic concept: In this realm our current thinking and practice of participation are reflected as a communicative and visionary process. As this realm recognizes children as children, it incorporates the idea of a more child-centered or naturalistic childhood and attempts to find ways to use planning and design to recreate childhood. This realm moves beyond traditional forms of children's participation and therefore intends to plan 'with' children.

Limitations: Possibly, this approach is not applicable in every project. Moreover, planners and designers need special training and skills to work in this field. (FRANCIS & LORENZO 2002, p.164)

After having clarified the realms of of children's participation in city design and planning we want to give some examples of children's participation and allocate them to aforementioned realms. However, one example (chapter 6.3) will be called "holistic realm" which has not been explained above. As there is no adequate realm according to Francis & Lorenzo (2002), we will introduce this new realm to which we will refer to in the last section of this thesis (chapter 7.2).

6.1 Rights Realm: The Child Friendly Cities Initiative (CFC)

The overall principle of the Child Friendly Cities (short: CFC) Initiative is: *"A city friendly to children is friendly to all."*[35]

The CFC Initiative was founded in 1996 in response to new trends, such as the rapid transformation and urbanization of global societies, the growing responsibilities of municipal and community authorities for their populations in the context of decentralization, and the increasing importance of urban agglomerations within national political and economic systems. (UNICEF Innocenti Research Centre 2004)

As our planet is becoming increasingly urban and as most of that growth is and will be taking place in developing countries (most of the growth is associated with poverty), about 60% of the children in the developing world will live in cities by

[35] CFC, 2009

2025 – and half of them will be poor. Trends like this require strategies about how cities can equip themselves to serve this growing number of children, families, and communities and to help them find solutions to poverty. (CFC 2009) The CFC approach is a means to cope with the aforementioned trends and problems.

The CFC Initiative is grounded in the resolution passed during the second UN Conference on Human Settlements which declares that cities should be made livable places for all and for children first. Moreover, the conference proclaimed the well-being of children as the ultimate indicator of a healthy habitat, a democratic society and of good governance.[36]
Thus, a Child Friendly City can be defined as "*… a city, or any local system of governance committed to fulfilling children's rights. It is a city where the voices, needs, priorities and rights of children are an integral part of public policies, programs and decisions. It is, as a result, a city that is fit for all.*"[36]
Besides, a CFC has to guarantee a set of rights for every young citizen: Every young person has the right to

- influence decisions about their city;
- express their opinion on the city they want;
- participate in family, community and social life;
- receive basic services (health care, education);
- drink safe water and have access to proper sanitation;
- be protected from exploitation, violence and abuse;
- walk safely in the streets on their own;
- meet friends and play;
- have green spaces for plants and animals;
- live in an unpolluted environment;
- participate in cultural and social events;
- be an equal citizen of their city with access to every service, regardless of ethnic origin, religion, income, gender or disability. (UNICEF Innocenti Research Centre 2004, p.1)

As a CFC is committed to the full implementation of these rights of children, there are various instruments to involve children in planning processes and governance. Hence, planning processes cannot be carried out by planners and the

[36] CFC, 2009

governments alone. Adequate planning processes entail strategic cooperation with children, families and all people who affect children's lives. Thus, building a CFC means to actively involve children in planning processes and to take their thoughts, opinions, and aspirations seriously.

6.1.1 How to Build a CFC

There is not one 'ideal' or 'standard' model of how to build a CFC – in fact, there are different ways: bottom up, top down, or mixed approaches. A framework provided by the CFC Initiative and grounded in the *UN Convention on the Rights of the Child (1989)*[37], however, serves as a guideline for the building process. It comprises nine elements which ensure that children's perspectives are involved in relevant decision-making processes. The following nine elements, also called "building blocks", lay the foundation for a CFC and are necessary to guarantee children's active involvement, to ensure a perspective which considers children's rights in relevant decision-making processes and to secure equal rights to basic services:

1. *Children's participation:* This is the most fundamental element of the entire process. Children should be informed and involved, their views respected and taken seriously.
2. *A child friendly legal framework:* All aspects of the legal framework of local authorities have to promote and protect children's rights. Local authorities and local governments are responsible for that.
3. *A city-wide Children's Rights strategy:* States are encouraged to develop detailed and comprehensive strategies or agendas for building a CFC based on the UN Convention on the Rights of the Child. These strategies can serve as a bridge between national planning actions and city-wide processes.
4. *A Children's Rights Unit or coordinating mechanism:* A unit or coordinating mechanism should be set up to ensure a children's perspective and appropriate priority for children right across government.
5. *Child impact assessment and evaluation:* Governments have to implement a systematic process to assess the impact of law, policy and practice on children before, during, and after implementation.

[37] UN Convention on the Rights of the Child, 2009

6. *A children's budget:* A budget analysis is an important factor to assess the impacts on children. Governments are required to ensure adequate resource commitment for children.
7. *A regular State of the City's Children Report:* A fundamental element of child-centered policy is sufficient monitoring, data collection, and general checks on the state of children and their rights.
8. *Making children's rights known:* It is essential for city governments, non-governmental organizations and the media to promote the awareness of, understanding and respect for children's human rights.
9. *Independent advocacy for children:* Children's ombudspeople or commissioners for children are required to promote children's rights. (UNICEF Innocenti Research Centre 2004, p.8-17)

Cities can be rough places for children to live. Especially children in developing countries, who live in poverty, are often affected by discrimination. As a consequence, they drop out of schools that are poorly managed, they become victims of exploitive child labour, they lack access to safe water and sanitation facilities, live in informal settlements and on city streets with little opportunity, etc. The rush of migration to cities leads to large numbers of people who live in neighbourhoods and communities where cohesion is weak or divisive.
On the other hand, cities are also places with opportunities. As cities usually are places of high population density, citizens can meet easily and mobilize to claim their rights and promote solutions to their problems. Moreover, higher density also means lower per-capita costs for basic amenities, which is an important opportunity to improve the life of the poor in cities.

Thus, the CFC Initiative aims to systematically address disparities and forms of discrimination by implementing full rights for all children. CFC Initiatives provide mechanisms to involve children, their families, schools, neighbourhoods, communities, towns and cities. Hence, children and youth are viewed not as part of the problem, but as part of the solution. This may be a good reason for spreading CFC around the world. In summary, it has to be stated that the process of building CFC primarily demands fundamental political commitment, as well as concerted action throughout government.

6.1.2 Ensuring Participation of Children and Youth

> " *… young people have insight, creativity and thoughts to contribute to the shaping of their cities and towns.*" (CHWALA 2002, p.19)

> " *… children and youth are not only a population with special needs but also with special energies and insights that they can bring to the process of human settlements development.*" (Bartlett 2002, p.3)

This chapter provides insight into how the participation of children and youth can be ensured in public authorities. Two different approaches with various focal points are introduced.

Both approaches argue that it is indispensable to involve children and youth in planning processes. Young people's participation, however, requires the cooperation and support of adults. Processes and mechanisms are required in order to institutionalize children's and youth's inclusion as part of a routine practice. There are a number of steps municipal governments, development agencies, and community organizations can take if they intend to create opportunities for authentic participation. Hence, participation becomes not only an objective in its own right but also a practical instrument for creating better cities. (cf. BARTLETT 2002, p.3) The table below (table 6) displays a set of steps which can be taken by governments or community organizations.

Table 6: Steps to be taken in order to provide authentic participation in planning processes

Steps	Significance
Invest in people who can facilitate participation	Successful participatory projects require a team of people who are skilled at working with community and government leaders on the one hand and young people and their families on the other.
Train people who work with children	Principles of children's rights, including the right to participation, need to be incorporated into the education of everyone who works with children (e.g. parents, teachers, child-care workers, etc.)
Institutionalize children's inclusion	The ultimate goal for participatory initiatives is to set up a range of mechanisms (such as the creation of certificate courses in children's rights and participation, fixed budget lines to support participatory initiatives, the inclusion of child representatives on community development committees and other decision-making bodies, etc.) which assure the inclusion of children and youth and make it "practice as usual".
Use qualitative as well as quantitative standards and indicators	It is the combination of both, qualitative (e.g. quality of life) and quantitative (e.g. health, income) indicators which gives best evidence in terms of effective planning strategies.
Recognize participatory research as a significant contribution to agency planning and academic prestige	Awareness raising in government offices, development agencies and universities is another goal to promote the significance of community based and applied participatory research in order to break the circle of disinvestment and disincentive and thus contribute to collaborations and further, community revitalization.
Invest in communities	Authorities have to recognize that investments in communities are worthwhile, as well functioning communities can serve proactively in order to prevent children and their families from falling into homelessness and other non-desirable circumstances.
Strengthen municipal authority and budgets	It is crucial that support for participatory community development also includes support for government at the levels closest to citizens, including groups of children.
Create community-based curricula	Setting up in-school and out-of-school programmes to evaluate and improve the local environment have the potential to create alliances among teachers, youth workers, universities, community organizations and many other authorities.

Source: Chwala 2002, p.19-21

The presented table outlines one possibility of how to ensure young people's participation in planning processes. Finally, a short example should provide insight into participative child and youth involvement in practice:

> "*Groups of children aged 10–14 from four low-income neighbourhoods in Johannesburg worked together during a school break to evaluate their settlements and develop recommendations for city authorities. The children drew images of their daily routines and of themselves in various settings (home, school, neighbourhood). They used green stickers to show favoured places and red ones to indicate problem areas. Following transect walks, the children located their homes on a formal map. Boys and girls met separately to identify and prioritize problem areas and came together to share findings. Children worked in pairs to draw proposed solutions to problems on cards that were then stuck on the map. They then prioritized area improvements by voting with stickers.*
> *The children felt seriously restricted by their threatening surroundings. They are harassed on public transport and frightened by drunks on the street. They take their chances on busy streets with no working traffic signals or proper sidewalks, and in parks filled with drug users. Open space is commonly taken over by adults engaged in illicit activities. All the children speak of their anxiety about using public space and the girls stress their fear of rape. Even when there is adequate provision of the kind of green open space children enjoy, this does not necessarily mean they will feel safe enough to use it. These children make it clear that they cherish informally "found" places in their local neighbourhoods rather than the purpose-built settings provided by adults. In a Soweto neighbourhood, for instance, they love to gather and play on a stretch of green lawn by a garage near a busy intersection. When asked for their recommendations, these children talked about improving and protecting existing areas where they played, removing litter, slowing traffic with speed bumps, policing public areas and installing street lights – rather than creating special separate facilities for play and recreation."* (BARTLETT 2002, p.3)

6.2 Proactive Realm: Children Participating In a City Plan

In Italy, there are currently hundreds of cities with children participating in transforming the urban landscape. This also changes the perception of children's needs and rights in planning. The City of Empoli (about 46,000 inhabitants[38]) near Florence is one of them. (FRANCIS & LORENZO 2002)

City officials intended to develop a new city plan by investing in children and youth participation. For the purpose of planning two peripheral 'problem neighbourhoods', city-wide surveys were carried out in high schools and two neighbourhood workshops with four elementary and four middle school classes

[38] Empoli Wikipedia, 2009

were organized. These investigations resulted in numerous changes in the city's original general plan, namely:

- reduction of development proposals in some areas to allow for increased pedestrian areas and greenways for children;
- conversion of several streets into child-friendly streets;
- preservation of a historic farmhouse and renovation of this house serving as a children's urban farm and environmental education center
- construction of new buildings with innovative mixed uses around two new piazzas.

Pursuing the involvement of children in planning processes, the city of Empoli was awarded the first prize for "Sustainable Cities" in the category of small cities in 1999. The element of children's participation in the plan was recognized as an effective vehicle towards city-wide acceptance of sustainable principles and practices. (FRANCIS & LORENZO 2002, p.166)

6.3 Holistic Realm: Planning for Happiness in Bogotá - Proposing a Different City Model

According to the former mayor of Bogotá, Colombia, Enrique Peñalosa, "*the way cities are built affects to a large degree how people will live for hundreds of years to come*". (PEÑALOSA 2005, p.5) In his opinion, urban planning does not only mean creating a city that functions efficiently. More than that, it is also about creating environments where the majority of people will be as happy as possible. To his mind, transport is at the core of a different and more appropriate model that should be implemented by developing cities in Third World countries. Thus, a true commitment to social justice, environmental sustainability and economic growth needs to support a city model different from the one the world has pursued over the last century and up to now. (PEÑALOSA 2005, p.5)

Against this backdrop, this chapter provides an overview of how the city of Bogotá changed within the last decade, going from a 'city for traffic' to a 'city for people'. First, chapter 6.3.1 provides some basic information about Bogotá, followed by a section which briefly describes the evolution of the transformation in Bogotá. Chapter 6.3.3 deals with what was actually done during Enrique Peñalosa's

administration. Finally, chapter 6.3.4 gives a short overview of the impacts and effects of the transformation that took place in Bogotá.

6.3.1 Facts about Bogotá

The city of Bogotá is the capital of Colombia (figure 10), which counts 6.8 million inhabitants within the city and approximately 7.9 million inhabitants (data from 2005) in its agglomeration. It is one of the fastest growing metropolitan areas in Latin America.[39] As Latin America is one of the most highly urbanized regions of the world, rural-to-urban population shifts and the associated changes in lifestyle are especially relevant in cities such as Bogotá. (PARRA et al. 2007, p.344)

Figure 10: Bogotá, Colombia

Source: Google Maps, Bogotá 2009

Thus, Bogotá faces the same problems as almost every city in a developing country: spread of slums with poor infrastructure along the city's fringes, high poverty rates, noise and air pollution, to only mention some of them. Facing problems like these, politicians admitted to changes - changes that would make people happier and that would help bridging the gap between rich and poor. In this respect, mayors such as Enrique Peñalosa intended to plan and build a city for people. Some key elements of this purpose are:

[39] Bogotá Wikipedia, 2009

- providing at least as much public pedestrian space as road space;
- providing physically protected bicycle paths, large exclusively pedestrian avenues and greenways across the city;
- providing parks every three blocks;
- providing cross-country pedestrian and bicycle paths through the adjacent countryside in order to permit all citizens a contact with nature;
- providing public access to all waterfronts with the basic infrastructure. (PEÑALOSA 2005, p.2)

Having implemented various strategies and programs to enhance people's lives in the city, Bogotá has gained special recognition in the last decade as a Latin American leader in both, public transportation systems and in the promotion of physical activity – elements which are crucial to build a city for happy people and to create a more activity-friendly environment. (PARRA et al. 2007, p.345)

6.3.2 Evolution of the Transformation

It was not only mayor Enrique Peñalosa who contributed to the urban transformation of Bogotá and who is now on the tip of everyone's tongue.

It is important to be clear about the political situation in Bogotá which made a transformation of that kind possible. During the last decade, the city began a decentralization process to achieve more autonomy in its political, financial, and administrative functions. Then, strategies and programs were implemented focussing on the improvement of social and urban environments. (PARRA et al. 2007, p.345)

Hence, Bogotá's transformation process already started prior to Peñalosa's administration, under mayor Jaime Castro (1992 – 1994) and mayor Antanas Mockus (1995 – 1997) who promoted a 'culture of citizenship'. His Plan of District Development (named "Formar Ciudad") emphasized the culture of citizenship, public space, environment, social progress, urban productivity, and institutional legitimacy.

According to Antanas Mockus, a 'culture of citizenship' is "*the sum of habits, behaviours, actions and minimum common rules that generate a sense of belonging, facilitate harmony among citizens, and lead to respect for shared property and heritage and the recognition of citizens' rights and duties.*" (MONTEZUMA 2005, p.3)

Thus, Mockus intended to coin a new urban culture based on mutual respect between citizens. He developed educational programs using symbolic, proactive, and humorous activities in order to teach citizens to reflect on the consequences of their behaviour on urban life in Bogotá. For this purpose he often used rather unconventional methods (such as mimes in the streets teaching automobile drivers to respect pedestrian crossings, to use seatbelts, and to minimize the honking of horns) to set up a culture of conscious urban citizenship. Besides, he also innovated the 'Observatory of Urban Culture', a body whose mission it was to analyze and evaluate municipal institutions and programs applying a multi-disciplinary approach. Its aim was to allow the administration to make better informed decisions. (MONTEZUMA 2005, p.2-4)

Even though Mockus brought new impulses to Bogotá's urban life, his reputation suffered when he resigned to run for President of Colombia, as residents felt betrayed by this political decision. Though, Bogotá and its residents have benefited from leaders such as Mockus who pursued a rather progressive policy as to the importance of urban space, which produced benefits in the quality of life of the city residents. (MONTEZUMA 2005, p.4)

6.3.3 Measures Taken During Peñalosa's Administration

Enrique Peñalosa was 43 years old when he became mayor of Bogotá in 1997. In his Plan of District Development for 1998-2000, called "Por la Bogotá que Queremos" (For the Bogotá We Want), the following topics were prioritized: de-marginalization, social integration, city on a human scale, mobility, urbanism and services, security and harmony among citizens, and institutional efficiency. The main priorities of Peñalosa's administration were public space and transport. (MONTEZUMA 2005, p.4-5)

Apart from this rather conventional fields of planning, Peñalosa also chose to "plan for happiness", focusing on the needs of children. His emphasis on children and happiness made him create an "infrastructure of well-being". (O'BRIEN 2008a, p.19)

Peñalosa aimed to create "Cities of Joy" where people are important not because they are rich or because they have a Ph.D, but because they are human. He believes that if you treat people in a special way, they will also behave in that way, which creates a different kind of society. (O'BRIEN 2005, p.9)

According to Peñalosa, a city is successful not when it is rich, but when its people are happy. Thus, he states that

> *"If we in the Third World measure our success or failure as a society in terms of income, we would have to classify ourselves as losers until the end of time. Given our limited resources, we have to invent other ways to measure success, and that could be in terms of happiness. It may be in how much time children spend with their grandparents, or the ways in which we are able to enjoy our friendships, or how many times people smile during a week. A city is successful not when it's rich but when its people are happy."* (O'BRIEN 2005, p.10)

Although the former mayor of Bogotá refers to cities of the Third World in this statement, it can also be applied to any other city, also to cities in 'developed' countries.

Another measure of a "good" city according to Peñalosa is when a child on a tricycle or bicycle can safely go anywhere. He is convinced that if a city is good for children, it will also be good for everybody else. (WALLJASPER 2006, p.4)

During his tenure, Enrique Peñalosa simultaneously addressed topics such as reclamation of public space, improvement of public transport, promotion of non-motorized transport, and implementation of car restriction measures. Thus, Bogotá achieved significant synergies, which will be described in the following. (WRIGHT & MONTEZUMA 2004, p.3)

6.3.3.1 Reclamation of Public Space

The general problem in Bogotá was that public space had mostly been lost to informal traders or parked vehicles. (WRIGHT & MONTEZUMA 2004, p.4) Thus, the city initiated the recovery of public spaces that pedestrians had lost to street vendors, cars parked on the sidewalks, and community fences which restricted the access to public parks. The city, for instance, placed bollards along the sidewalks to prevent cars from parking there and relocated street vendors to special plazas. Strategies like these were rather uncommon in developing countries and led to an improvement of the pedestrian's mobility and increased the perception of safety. Another challenge Bogotá is facing is the need to expand the number of square meters of green area per inhabitant in order to increase the quality of life. Various strategies resulted in an increase of green area per inhabitant from 2.5 to 4.12 m² from 2001 to 2003 as well as in a network of 1,000 parks covering the city. Strategies which generate a culture of personal accountability for parks, such as the 'adopt a park' program which allows private industries or community members

to volunteer for the maintenance and improvement of public parks, are prioritized. Yet another strategy focuses on creating a network of 'volunteer park watchers' formed mainly by adolescents who work to increase the safety of parks. (PARRA et al. 2007, p.346)

Figure 11 shows one example of how public space was reclaimed, displaying the revitalization of Avenue Jimenez in Bogotá which has helped to create a more dynamic public space.

Figure 11: Revitalization of Avenue Jimenez, Bogotá

Source: Wright & Montezuma 2004, p.4

Figure 12 shows an example of how parking and the use of public space improved in Bogotá.

Figure 12: Public Space Improvements, Bogotá

Source: Peñalosa 2005, p.4

6.3.3.2 Improvement of Public Transport

Probably the most important project planned, developed, and implemented during the administration of Enrique Peñalosa was the bus rapid transit (BRT[40]) system called TransMilenio. The public transit system was introduced in 2000 in order to solve problems such as traffic congestion, high pollution levels, or long duration of trips due to traffic jams. The purpose of the system was to enhance the resident's quality of life. Another goal of the TransMilenio was to provide an alternative to the chaotic, independently operated bus service that dominated the city. Under his administration, Peñalosa pursued an Integrated System of Mass Transport, including both, rigid (subway) and flexible (TransMilenio) elements. The TransMilenio now covers the entire city, linking with the subway and bicycle paths. (MONTEZUMA 2005, p.6)

Featuring 58 kilometers of busways and 309 kilometers of feeder routes, the TransMilenio moves more than 800,000 passengers per day. (WRIGHT & MONTEZUMA 2004, p.5)

Following the model of Curitiba, Brazil, the TransMilenio operates local and express busses that run in the middle of the avenues so that vehicles entering and exiting driveways, or delivery vehicles, do not obstruct the traffic. Hence, only one station is required in each place, instead of one in each direction. The term 'BRT' already suggests that the system is bus-based, though its operation is similar to a rail-based system. Passengers are allowed to board and exit only in the stations, which are approximately 500 meters apart. The bus floor is at the same level as the station which makes boarding and exiting the bus safe and rapid. Moreover, buses are easily accessible to handicapped passengers. (PARRA et al. 2007, p.345 et seqq.) Figure 13 shows a typical bus station, where station and bus doors are elevated.

[40] BRT is a bus-based mass transit option that mimics the quality, capacity, and speed of rail options but at a fraction of the cost. (WRIGHT & MONTEZUMA 2004, p.5)

Figure 13: TransMilenio Bus Station

Source: Peñalosa 2005, p.11

Today, the TransMilenio is the fastest means to move around in Bogotá. Though, it could be made even faster by building underpasses for the TransMilenio at busy intersections, which could easily be done if required. (Peñalosa 2005, p.11)

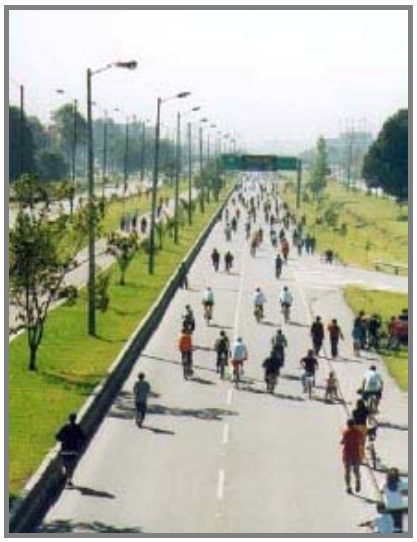
6.3.3.3 Promotion of Non-Motorised Transport

The city of Bogotá was very active in promoting the use of bicycles, stating that

> "*Bicycle paths are a symbol of respect for human dignity and of a more egalitarian city, as are high quality walkways. Both show that a city is for its people, and not for the motor vehicles of its upper classes as is so often the case.*" (PEÑALOSA 2005, p.10)

Enrique Peñalosa introduced the first official "Ciclovía", which is a closing of certain streets to motorized vehicles for 7 hours every Sunday and on holidays in order to allow for recreational activities, such as walking and bicycling. Though, its origin is in 1974, when more than 5,000 cyclists protested against the lack of recreational opportunities, pollution and traffic congestion. Ever since, this bicycle Sunday and holiday event has expanded to the closing of 120 kilometers of roadway and to approximately 1.5 million residents participating in the Ciclovía. Figure 14 shows cyclists in the Ciclovía, covering the streets of Bogotá.

Figure 14: Ciclovía



Source: Wright & Montezuma 2004, p.6

Bogotá is a great place for cyclists because of its flat terrain and moderate climate. That is why the municipality also constructed an immense bicycle network: the Cicloruta Transportation System. Originally created to reduce vehicular congestion, to protect the natural environment, to increase the health of citizens, to improve the city's aesthetics, and to conserve money, this network currently covers 300 kilometers of bicycle paths. It is expected to reach a total length of 376 kilometers after its completion in 2010. Providing access to occupational, educational, and recreational facilities in the city, the paths also connect the network with other public transportation systems, such as the TransMilenio.

Besides, Bogotá is home to the world's longest pedestrian corridor, a 17-kilometer stretch of pedestrian and bicycle paths connecting several lower-income communities to shops, employment, and public services. This pedestrian corridor is called "Alameda Provenir". (PARRA et al. 2007, p.345; WRIGHT & MONTEZUMA 2004, p.6)

6.3.3.4 Restriction of Automobile Use

As private automobiles were considered as "*the worst threat to quality of life of a city*" (MONTEZUMA 2005, p.6) during the Peñalosa administration, one of Peñalosa's main objectives was to convince automobile drivers and riders to use public transportation. Not only did he improve the city's public transport system and promote bicycles as a means of non-motorized public transport, as already

mentioned above. In addition, he initiated several strategies in order to eliminate cars from the streets.

Peñalosa institutionalized a so-called "Car Free Day" as an annual event. On Car Free Day almost 1 million private cars are not allowed to circulate for 13 hours, from 6:30 am to 7:30 pm. (PARRA et al. 2007, p.346; PEÑALOSA 2005, p.10)
In February 2000, Bogotá held its first and the world's largest Car Free Day, covering the entire expanse of the city's 28,153 hectares. (MONTEZUMA 2005, p.6; WRIGHT & MONTEZUMA 2004, p.6) The first Car Free Day was a big success, as 98% of the people went to work or school leaving the cars at home and using bicycles, public transport or taxis instead. On Car Free Day in 2002 still 83% of the population supported this annual event, according to a poll. Apart from its positive effect on the environment, events such as Car Free Days also have a large impact on social integration as they bring together people from all socio-economic conditions, meeting as equals on their bicycles or in public transport. (PEÑALOSA 2005, p.10)

In addition to the Car Free Day, the "pico y plata" program was initiated as another scheme to reduce car use. Through the implementation of a tag number system, 40% of all cars have to be off the streets during peak hours (6:00 am to 9:00 am and 4:30 pm to 5:30 pm) each weekday. The reduction is achieved by banning cars with license plates that end with certain numbers to enter the city on a particular day (table 7). Thus, each car cannot enter the city during peak hours two days every week.

Table 7: License plate numbers restricted from use

Day of week	License plates ending with these numbers are restricted from use
Monday	1, 2, 3, 4
Tuesday	5, 6, 7, 8
Wednesday	9, 0, 1, 2
Thursday	3, 4, 5, 6
Friday	7, 8, 9, 0

Source: Wright & Montezuma 2004, p.7

Emergency vehicles, diplomatic and presidential vehicles, and public utility vehicles are excepted from this regulation. According to an official report, the

implementation of the "pico y plata" program reduced the daily average commute time significantly and lowered pollution levels. Besides, fuel consumption decreased by 10.3%. (PARRA et al. 2007, p.346; PEÑALOSA 2005 , p.9)
The "pico y plata" program does not only have economic and environmental effects as already mentioned, it also has social impacts: The program frees immense resources originally devoted to the maintenance of roads (mainly for high-income citizens) that can now be used to invest in the needs of the poor. Also, it gets all citizens together as equals, regardless of their income or social standing in public spaces, public transport or on bicycle paths. (PEÑALOSA 2005, p.1)

6.3.4 Impacts and Effects of Bogotá's Transformation

Wright & Montezuma (2004) identify a series of impacts of Bogotá's transformation under the administration of Enrique Peñalosa which will be briefly summarized in the following section.

6.3.4.1 Social Impacts

Concerning social impacts, we want to take a closer look at traffic accidents along the TransMilenio corridor as well as at crime levels and distributional effects.
As can be seen in the table below (table 8), the TransMilenio succeeded in reducing accidents, especially in reducing pedestrian accidents along the corridor, which is due to the use of improved zebra crossings and pedestrian overpasses. It is likely that the separation of public transport vehicles (which drive on dedicated busways) from private cars largely contributed to eliminating conflicts that previously resulted in congestion and accidents.

Table 8: Changes of accidents along the TransMilenio corridor 2000-2001

	2000	2001
Traffic accidents	1,352	238
Pedestrian accidents	832	4
Total serious injuries	936	190
Total traffic-related deaths	67	4

Source: Wright & Montezuma 2004, p.14

If we take a closer look at Bogotá's crime levels, we can ascertain a constant decline, which of course cannot only be ascribed to the improvements in public

space and public transport. Nevertheless, it has to be noted, that a bad quality of the urban environment can definitely influence the levels of crime and insecurity in a city. There are various key linkages which suggest that the physical urban environment is closely related to how behaviours are influenced. Thus, research provides indications that, for instance, improved physical attributes such as vegetation, street furniture, and cleanliness create a psychological barrier to committing crimes and that greater community pride means that delinquent behaviour is less tolerated. (WRIGHT & MONTEZUMA 2004, p.14)

Table 9 provides some key data that should give an example of how crime rates declined in Bogotá between 1997 and 2002. It is striking that the number of personal assaults dropped by more than 50%.

Table 9: Changes in crime rates 1997-2002

	1997	2002
Number of robberies on commercial establishments	2,614	1,370
Number of personal assaults	12,309	5,959
Number of homicides	2,814	2,017

Source: Wright & Montezuma 2004, p.15 et seqq.

The weekly Ciclovía is a significant generator of employment in terms of the private selling of goods and services and of the public management of the road closings. Based upon their place of domicile, the residents of Bogotá are categorized into six different economic groups. Approximately 96% of the 2,000 persons recorded working in Ciclovía kiosks are from the three lowest economic strata in the city. One third of the kiosk workers stated that the Ciclovía represented their only current form of employment. Hence, the Ciclovía is a good example of how transport-oriented measures can cause powerful effects on small-scale employment and generate social benefits. (WRIGHT & MONTEZUMA 2004, p.13-16)

6.3.4.2 Environmental Impacts

The city's environmental agency (DAMA[41]) is responsible for maintaining the air quality monitoring equipment in 14 different locations in the city. Aiming at the collection of basic data regarding air quality, these values also indicate the overall impact of various measures taken in the city, such as changes resulting from the

[41] Departamento Técnico Administrativo del Medio Ambiente

TransMilenio, cycle paths, pedestrian improvements, and car restriction measures. The most important sources of emission reductions resulting from the urban improvements in Bogotá are mode shifting (shifting travel to less polluting options), distance travelled (reducing the number of trips or reducing the distance travelled), and fuel efficiency (improving the technical efficiency of the vehicles). The table below (table 10) displays an extract of air quality levels both before (2000) and after (2001) the implementation of the TransMilenio system, stating a decrease of all emissions in a one-year period. (WRIGHT & MONTEZUMA 2004, p.12 et seqq.)

Table 10: Changes in air quality 2000-2001

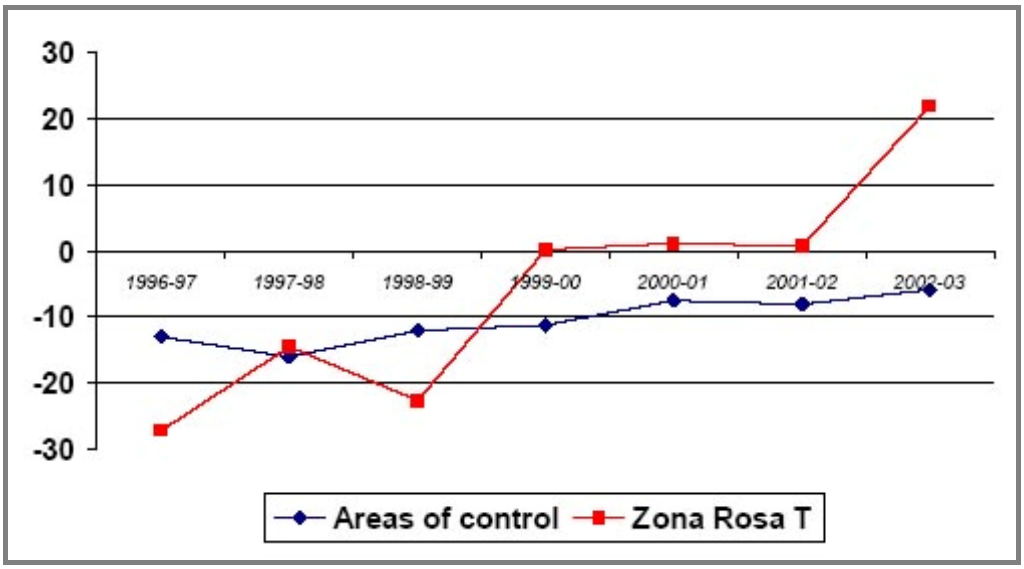
	2000	2001
Sulphur dioxide (SO2)	6.8%	3.8%
Particulate matter (PM-10)	50.8%	38.6%
Nitrogen dioxide (NO2)	24.0%	22.4%

Source: Wright & Montezuma 2004, p.13

6.3.4.3 Economic Impacts

There are several measures to examine the economic impacts of certain actions. For the purpose of this thesis we want to take a closer look at possible changes in property values in relation to changes in the quality of public space. Thus, a comparison between sites with urban improvements (3 sites) and 'control' sites without urban improvements in terms of urban infrastructure (8 sites) but with similar economic and usage patterns as the areas of interest was carried out, using data from 1989 to 2003. As an example, we will examine the annual changes in property values in the Zona Rosa, a region where improvements regarding urban infrastructure took place from 1996 to 2003. The figure below (figure 15) shows the development of property values in this zone compared to the areas of control, indicating the percentage of gain or loss of property value along the ordinate.

Figure 15: Evolution of Property Values



Source: Wright & Montezuma 2004, p.9

As can be seen, a year before the Zona Rosa upgrades (2001), its property values begin to diverge significantly from the control areas which coincides with the date of the project's announcement. It is worth noting that during the period from 1999 to 2003 the average annual change in property values for the Zona Rosa was 6% while the value for the control areas was -8.1%. Even though, caution should be exercised in assuming that those changes are exclusively due to the pedestrianization upgrades. Further analyses would be required to be able to clearly examine all key variables affecting property valuation. (WRIGHT & MONTEZUMA 2004, p.7-12)

6.4 Other Initiatives

In addition to the CFC Initiative and to the Best Practice Examples of Empoli and Bogotá, there obviously exists a broad range of other initiatives and programs regarding different ways of "planning for happiness" or of engaging children and youth in urban planning. It would, however, go beyond the scope of this thesis, to delve into each of these programs equally ambitious and detailed as has been done with the aforementioned examples in chapters 6.1, 6.2 and 6.3. Nevertheless, a brief overview of relevant programs and initiatives is provided in the following to demonstrate the amplitude of different concepts. Of course, this list must be understood as an excerpt which is not exhaustive.

A program of activities called *Growing Up in Cities* focuses on bringing together planners and environmental professionals with teachers and local leaders in schools and community centers. In this program, urban planners intend to give marginalized populations a voice. In this respect, a variety of methods, such as drawings, interviews, photographs, mapping, model-building, child-led tours through the community, role play or visioning and ranking exercises, is used to engage young people in evaluating their communities. In addition, the Growing Up in Cities program aims at creating a network of committed people who share the ambition for more child-friendly policies. (CHAWLA 2002, p.18 et seqq.)

The network of *children's clubs*, which is very common in Nepal, is a program which supports children in managing their own clubs and planning and carrying out activities of their particular interest. (CHAWLA 2002, p.18 et seqq.)

The initiative *Urbanthinkers – child and youth engagement in Sustainable Transportation* aims at 'educating' child and youth leaders who promote walking and cycling to school. For this purpose, resources, training, support and inspiration is offered by this initiative.[42]

Likewise, the *Active & Safe Routes To School program (ASRTS)* intends to encourage the use of active modes of transportation[43] on the way to and home from school, emphasizing the resulting benefits, such as increased physical activity for young people, a healthier lifestyle for the whole family, safer and calmer streets and neighbourhoods, reduced greenhouse gas emissions, etc. To this end, a walking/cycling school bus was invented. This walking/cycling school bus is led by volunteers (parents and caregivers) who take turns at walking or cycling to and home from school with kids on a designated safe route.[44]

Totnes, a town in the United Kingdom, is the UK's first *Transition Initiative*. A Transition Town is defined as a community in a process of imagining and creating a future that addresses the challenges of climate change and creates the kind of community that everyone would like to be part of. The main idea of a Transition Town is that only by involving *everyone*, that is residents, businesses, public bodies, community organizations and schools, one will come up with the most

[42] Urbanthinkers, 2009
[43] According to ASRTS active transportation means any non-motorized mode such as walking, cycling, in-line skating, skateboarding, scootering, wheelchairing, cross-country skiing, canoeing, etc.
[44] ASRTS, 2009 and Safe Routes, 2009

innovative, effective and practical ideas and have the energy and skills to implement them.[45]

The organization *Ecocity Builders* is a non-profit organization which intends to reshape cities, towns and villages in order to guarantee the long-term health of human and natural systems. Some of the objectives are to return healthy biodiversity to the heart of our cities, agriculture to gardens and the streets, and convenience and pleasure when walking, bicycling and in transit in general. It also aims at building cities which are based on human needs.[46]

[45] Transition Town Totnes, 2009
[46] Ecocity Builders, 2009

7 Synthesis of Findings

In this chapter all information collected in the course of this thesis is summarized in order to bridge theory and practice. In addition, for the first time ever the findings of SH are merged with the theoretical findings concerning planning theory. Consequently it will be possible to answer the research questions.

7.1 Sustainable Happiness as a Planning Approach According to Bunge?

In order to scrutinize and answer the research questions "Is SH a promising contribution to effective sustainable urban planning?" (RQ1) and "Can the concept of SH serve as an independent planning approach?" (RQ2), we first need to go back to the definitions of a planning approach according to Bunge (SCHÖNWANDT & VOIGT 2005, p.771-776), which is provided in chapter 3. In order to evaluate if the concept of SH can serve as an independent planning approach, we have to bring to mind the characteristics of the four planning approach elements in order to apply these elements to the concept of SH (see table 11).

Table 11: Characteristics of a Planning Approach

Elements of a planning approach (Bunge)	General characteristics	SH characteristics
Problems	Problems are defined as unsolved tasks. There are two possible starting points: either a negatively rated actual situation, which ought to be improved or a positively rated actual situation, which ought to be sustained. What is actually seen as a problem depends on objectives, methods and background knowledge.	→ lack of involvement of ‚needs' in urban planning discussions and strategies → lack of child and youth inclusion in participative urban planning processes → general overemphasis of cars and motorized transport in urban planning strategies → lack of awareness for the benefits of non motorized transport and active transportation related to human health and well-being → lack of respect for non motorists - especially children and youth - and their needs for safety and well-being in cities
Objectives	Objectives are considered either as positively rated target situations, to which negatively rated actual situations ought to be transformed, or as the aspired conservation of actual situations, which are perceived as advantageous.	→ transform cities into places of high subjective well-being, into 'to-be-places' → create 'cities of joy' → 'true' democracy in urban planning – not only planning for the wealthy ones → make cities a safe place for children, so that they become safe places for everyone
Methods	Methods are defined as approaches and techniques that are applied to solve problems. Depending on the specific planning approach, only a specific set of methods is available.	→ specific child and youth participation techniques → commitment from political leaders to include 'happiness'/'subjective well-being' in urban planning policies → awareness-raising for the essential inclusion of 'needs' in urban planning strategies and discussions → seriousness, inclusion and emphasis of 'happiness'/'subjective well-being' in official planning documents and the political discussion → more methods to be developed …
Background Knowledge	Background knowledge is a combination of both, discipline specific and philosophical background knowledge.	→ see chapter 2 (Theoretical Framework)

Source: Author's own work, modified from SCHÖNWANDT & VOIGT 2005, p.771-776

If we now apply this general structure of a planning approach to SH-related problems, objectives, methods and background knowledge, we obtain the results which are displayed in the right column of the table above (table 11).

Problems

Indeed, there is a series of problems which push for a new approach, a new way of thinking in relation to urban planning strategies.

Recent research already recognized the urge and importance of including sustainability in urban planning strategies. Initiatives such as *One Planet Living* proclaim that if everyone in the world would live like an average European, we would need three planets to live on; if everyone in the world would live like an average North American, we would even need five planets to live on as we currently are using far more resources than one planet would be able to renew.[47] 'Sustainable Transportation' is one of the ten guiding principles *One Planet Living* works with to provide knowledge and recommendations for how to create lifestyles that get along with only one planet. Another principle is called 'Health and Happiness' which is described in more detail as follows: "*Increase health and quality of life of community members and others. Promote healthy lifestyles and physical, mental & spiritual well-being through well-designed structures and community engagement measures, as well as by delivering on social and environmental targets.*"[48]

Thus, there is indeed a cognition, a sense for the importance of happiness in this context, but up to now 'happiness' is rather a loose strategy on papers than an ambitious implementation in real life. This might be due to the fact that 'happiness' is hard to tackle. It seems that people are frightened to touch on terms and concepts such as 'happiness' as it has a smack of inaccuracy and esotericism.

Related to urban planning it appears that planners tend to work with tools they are used to in fields they already know. Thus, cars and motorized transport are still overemphasized in regard to sustainable urban planning. This doesn't mean that motorized transport should be avoided, but more emphasis should be given to *how* motorized transport more or less affects *people* who are living in the cities. Up until now it seems that the focus is mostly on how modified transport strategies affect the natural environment and the local or regional economy and

[47] One Planet Living, 2009
[48] One Planet Living, 2009a

infrastructure – not how those modifications alter or influence people's physical, mental and spiritual well-being and health.

Also, it has to be stated that there exists a broad variety of different participatory approaches in urban planning, involving local stakeholders, planners and the general public. However, it seems to be neglected, *who* the cities are built for. They are built for our future generations, namely for our children and for their children. Building on this, wouldn't it be worth considering to better involve children and youth in city planning? To give them the possibilities to have their voices heard and to also bring *their* ideas of livable cities into the discussions?

Sustainable urban planning often claims to be 'holistic and overarching', as it builds on the 'triangle of sustainability' comprising environmental, economical and social components. In fact, there is not very much emphasis on the fulfillment of needs or the warranty of high subjective well-being in recent sustainable urban planning discussions, which would be part of the social component of the triangle. Those discussions mainly focus on the "energy-efficiency" of the built environment related to the natural environment and resources but not so much on the "well-being-efficiency" of the built environment related to the people. This missing link is seen as a big gap in recent sustainable urban planning strategies as it doesn't fulfill the claim to be overarching and holistic. To be truly overarching and holistic, people's needs would have to be better incorporated and more emphasized in sustainable urban planning discussions.

Objectives

In order to define the so called 'positively rated target situations' or 'the aspired conservation of actual situations, which are perceived as advantageous', it has to be stated that there are in fact two essential objectives of SH; firstly, to make cities a safe place for children and thus a safe place for everyone; the other objective aims at creating so called 'cities of joy'. Thus, it is intended to transform cities into places of high subjective well-being. In order to get a sense of the meaning of 'cities of joy', Bogotá's former mayor Enrique Peñalosa made a few statements about what has been done in Bogotá and about how living in a city of joy would feel like. 'True democracy' in urban planning in general, transport planning rather for children, youth and adults than for cars as well as adequate planning and use of public space are the main issues in order to create a city of joy. The following quotations should serve as examples to get a sense of cities of joy.

"Public space is for living, doing business, kissing, and playing. Its value can't be measured with economics or mathematics; it must be felt with the soul."[49]

"The importance of pedestrian public spaces cannot be measured, but most other important things in life cannot be measured either: Friendship, beauty, love and loyalty are examples. Parks an other pedestrian places are essential to a city's happiness."[49]

"The world's environmental sustainability and quality of life depends to a large extent on what is done during the next five years in the Third World's 22 mega-cities. There is still time to think different … there could be cities with as much public space for children as for cars, with a backbone of pedestrian streets, sidewalks and parks, supported by public transport." [49]

"Higher income groups always have access to nature at beach houses, lake cabins, mountain chalets, on vacations – or in urban settings at golf courses or large gardens. Parks allow the rest of the society that contact as well." [49]

"For the poor, the only alternative to television for their leisure time is the public space. For this reason, high-quality public pedestrian space, and parks in particular, are evidence of a true democracy at work." [49]

"Do we dare create a transport system giving priority to the needs of the poor? Or are we really trying to solve the traffic jams of the upper income people? That is really the true issue that exists …" [49]

"A premise of the new city is that we want a society to be as egalitarian as possible. For this purpose, quality of life-distribution is more important than income distribution. [And quality of life includes] a living environment as free of motor vehicles as possible." [46]

"We had to build a city not for businesses or automobiles, but for children and thus for people. Instead of building highways, we restricted car use. … We invested in high-quality sidewalks, pedestrian streets, parks, bicycle paths, libraries; we got rid of thousands of cluttering commercial signs and planted trees. … All our everyday efforts have one objective: Happiness." [49]

"Over the past 40 years, environmentalism has created a culture of respect for the environment, but there's much less clarity about the kind of environment that creates a happy child." [49]

[49] Project for Public Spaces, 2009

Methods

Apart from familiar child and youth participation techniques explained in chapter 6.1 and 6.2, and chapter 6.4, the emphasis has to be put even more on the seriousness and inclusion of 'happiness' or 'subjective well-being' in official planning documents and the political discussion. Also, awareness has to be raised for the essential inclusion of children's and adult's needs in urban planning strategies and discussions. This can be achieved by encouraging research in this field in order to better investigate the relations between city shape, subjective well-being and need satisfaction of *all* people living in the city. If there are significant results proving that relation political leaders will more likely commit to include the rather unfamiliar concepts 'happiness'/'subjective well-being' and 'needs' with more passion in their urban planning policies. In addition, there are even more methods to develop which are probably unknown yet.

Background Knowledge

According to Bunge, background knowledge is considered as a combination of both, discipline specific and philosophical background knowledge. As this thesis mainly focuses on research related to SH and as SH requires widespread background knowledge, it is referred back to all relevant background knowledge which is provided in detail in chapters 2 (Theoretical Framework), 4 (Sustainable Urban Development) and 5.1 (Background of SH).

As can be seen, there are enough well-founded facts which allow SH to be seen as a planning approach; all four elements of a planning approach according to Bunge are achieved. Whether SH is a promising approach for effective sustainable urban planning and could even serve as an independent planning approach will be clarified by answering the research questions in the next chapter.

7.2 Responding the Research Questions: Sustainable Happiness as a Promising and/or Independent Planning Approach?

With all this assembled information we should now be able to answer the research questions raised in chapter 1.

RQ1: Is SH a promising contribution to effective sustainable urban planning?

This question can definitely be answered with "yes". SH can definitely serve as a promising contribution to effective sustainable urban planning as it comprises many elements which have not been fully included in recent urban planning discussions so far. If we understand 'effective sustainable urban planning' as the most holistic and most inclusive comprehension of sustainability then SH is indeed a promising contribution in order to holistically plan a sustainable city.

RQ2: Can SH serve as an independent *planning approach?*

Research question 2 is by far more difficult to answer. Due to the collected information, this question cannot unambiguously be affirmed. In this context, SH is rather seen as an essential and inevitable supplement of existing planning strategies and approaches. There are several reasons which led to this conclusion.

Reason 1: There is no necessity for SH to be seen as an independent planning approach. Recent sustainable planning approaches are thoroughly appropriate regarding certain sustainability principles in order to implement sustainability in urban planning strategies. Though, recent approaches are often not as holistic as they seem to be. At this point, SH should be included in the discussions.

Reason 2: SH should rather be implemented in the discussion on a meta-level than as a planning approach. It is seen as essential to keep concepts such as 'happiness'/'subjective well-being' and 'needs' ostensibly in mind when working on sustainable urban planning strategies. Thus, SH goes far beyond the boundaries of a planning approach as planners shouldn't consider taking SH or another sustainable urban planning approach to solve a relevant planning issue. Instead they should generally keep SH in mind when pursuing various sustainable urban planning approaches.

Reason 3: If SH ought to serve as an independent planning approach, there would have to be a more exact differentiation between problems, methods and

objectives. There is indeed an assignment of facts to those categories (as can be seen in chapter 7.1) but this allocation is a little too vague to really account for an independent planning approach.

Even though there are some limitations of planning approaches, such as a limited potential of problem solving or the time-dependent nature of planning approaches according to the alteration of our knowledge and our moral concept which would opt for a 'yes' of SH as an independent planning approach, we opt against it.

This decision against SH as an independent planning approach leads us back to Kuhn and his views of paradigms. As already explained above (chapter 3.2), the term 'paradigm shift' (according to Kuhn) characterizes a scientific revolution and fundamental change of perspective which follows the crisis of paradigm. If we define recent sustainable urban planning approaches and strategies as a recent paradigm, SH could be denoted as the start of a paradigm shift.

As the key elements of a paradigm shift according to Kuhn are defined as 'scientific revolution' and 'fundamental change of perspective' SH could obviously be considered as the start of a paradigm shift as it emphasizes the needs and arguments of children and youth related to urban space, takes them seriously and intends to implement them in urban planning processes ('fundamental change of perspective'). Consequently, this would definitely lead to a 'scientific revolution'.

The new paradigm would of course not be as profound as the shift from the geocentric to the heliocentric system but could nevertheless serve as an essential, far-reaching and sustainable modification of recent sustainable urban planning strategies.

Apart from seeing SH as the starting point of a new paradigm shift, according to Francis & Lorenzo (2002) SH could also be seen as a new realm of participation in urban planning. As explained in chapter 6, they distinguished various realms of children's participation in history. SH could be denoted as "Integrated realm" and would unite parts of the seven historic realms (romantic realm, advocacy realm, needs realm, learning realm, rights realm, institutional realm, and proactive realm as explained in chapter 6). The most essential base, however, of this newly developed "Integrated realm" would definitely be the needs realm, which already sought to use environmental psychology research to advance thinking about children's environments in the 1970s.

8 Recommendations for Planning Policies

Having said all this, one final question arises: "What can we do now?" Stakeholders and people who are engaged with planning policies will ask themselves how SH can actually be applied and included in sustainable urban planning practices.

First of all we have to be clear about the key messages of SH according to Catherine O'Brien, as already mentioned earlier in this thesis:

- SH is "*happiness that contributes to individual, community or global well-being without exploiting other people, the environment or future generations*." (O'BRIEN 2008, p.289)
- SH claims for living from our hearts and for understanding our mutual interdependence.
- SH postulates that transportation planning is about wonder, discovery, joy and happiness (and not only about moving people and goods). (O'BRIEN 2008a)
- SH pays greater attention to psychosocial factors.
- SH prompts us to rethink how our ways of transportation and planning would change in general if we gave greater attention to the needs and aspirations of marginalized groups (e.g. children and youth).
- SH leads us to recognize that our inner world influences our external behaviour.
- SH focuses on the needs and aspirations of children and youth.
- SH aims to create livable cities and communities – so-called 'cities of joy'.

There are two ways of approaching and answering the "What can we do?"-question and of recommending follow-up actions for planning policies.

One way is to provide immediate recommendations on which actions to take by implementing small elements of SH in order to improve the current situation in many cities with respect to maintaining or enhancing the happiness of people (especially children and youth). Small changes can have great impacts – here are some examples of actions that could be taken:

- *Plan and provide safe streets:* Although this is not a new strategy, there are new ideas to apply this strategy. 'Shared Space', for instance, is an infrastructure and transport planning strategy which intends to make streets and public spaces safer and more livable. Moreover, it aims at improving the traffic flow. The main idea of the concept is to revalue public spaces for people by not clearly dedicating specific spaces to specific groups (e.g. drivers, cyclists, pedestrians). By eliminating regulations from public spaces such as traffic signs or other bans, 'Shared Space' aims at reconstructing public space and hence providing a new sense of place with enhanced safety for all 'user groups'.[50] The pictures below (figure 16) show some examples of 'shared spaces'.

Figure 16: Shared Space

Sources: Wikimedia New Road Brighton, 2009 and Laweiplein Drachten, 2009

- *Strengthen communities:* People should feel safe and secure in their communities and they should identify with their community. In this way, living in a community can contribute to people's happiness. That is why policies are established to strengthen small communities in the cities by organizing local events (when possible in collaboration with people from the neighbourhood) or days of action related to special topics (e.g. "Being happy in the sustainable city – What do we want and what do we need?") for example. There is a broad range of projects and initiatives (e.g. Ecocitybuilders, Transition Towns)[51] which provide a great sample of actions supporting the transition towards more sustainable cities. To only mention one of them, the "Heart of the City and Strawberry Creek Plaza Project" (Berkeley, California) demonstrates "*practical and sustainable solutions to the environmental and related social*

[50] Shared Space Wikipedia, 2009
[51] Ecocitybuilders, 2009 and Transition Towns, 2009

challenges"[52] which urban communities face. Such projects could easily be complemented by happiness aspects (e.g. workshops which actually deal with what makes people happy and what do people desire to feel comfortable, happy and secure in their neighbourhoods) in order to strengthen local communities.

- *Awareness raising:* In order to achieve greater attention for happiness- and sustainability-related subjects and actions, it is important to raise the awareness for such topics. Thus, it is essential to spread the awareness concerning sustainability, climate change and the necessary transition towards more sustainable and happy communities. These messages have to be communicated to organizations, businesses and the general public in different ways: by giving presentations to groups and organizations in the city, by producing relevant literature (such as magazines, flyers, booklets, etc.), by organizing events and film showings in communities or by working together with local schools, colleges and universities in order to raise children's awareness for these topics.[53] It is essential that the ideas of a sustainable and happy city are communicated adequately in order to achieve great attention and - as a result - great impact.
- *Adjusting general political conditions:* Policies should strive for making cities as inconvenient as possible for automobiles if they aim at increasing the inhabitant's well-being and happiness. Various actions could be taken, such as road pricing and congestion charges, increased parking fees in the cities, more speed limits or systems such as the "pico y plata" system in Bogotá [54], to only mention some of them. Also, politics should consider taxes to reduce the cars in a city (e.g. high taxes on fuel).
- *Better handling of recreational areas:* Recreational areas in a city should be adapted to the needs of children, youth and the city's population in general. Applying participative methods, politics should learn from all groups which live in a city how and where recreational areas are required.

Apart from these immediate action-recommendations the second way to take action is to invest money in research on the needs, happiness, psychosocial factors of well-being and on how these factors are specifically related and linked to

[52] HofC Project, 2009
[53] cf. Transition Town Leicester, 2009
[54] see chapter 6.3.3.4

'urban behaviour' and 'urban well-being' and above all: to the built urban environment. Only in this way will it be possible to gain greater insight into this matter and to plan for sustainable cities with happy people on the long term. However, it has to be mentioned that this does not necessarily mean that we have to develop a series of new technologies. The mission statement is to keep it simple. As already mentioned earlier in this thesis, the simple action of a child walking or cycling to school is an example of SH as this child is living in the moment, he or she experiences a playful sense of adventure and conducts his or her daily commute by 'environmentally friendly means'. But a child walking or cycling to school by himself or herself will not be safe until the basic conditions in a city are established – as explained above.

Moreover, it is crucial to include the key elements of SH - and thus children and youth participation - when developing new urban planning projects and strategies. It is also important to give *everyone* a voice to express his or her specific needs which would contribute to an increase in his or her subjective well-being in the city. The crucial part on this is to not only give people the possibility to express their needs but also to take their requests seriously and include them in urban planning strategies.

The table below summarises the recommended actions.

Table 12: Recommended Actions

Time frame	Recommended actions
Short term	→ Plan and provide safe streets → Strengthen communities → Awareness raising → Adjusting general political conditions → Better handling of recreational areas
Long term	→ Invest money in research on needs, happiness, psychosocial factors of well-being and on how these factors are specifically related and linked to 'urban behaviour' and 'urban well-being' and above all: to the built urban environment

Source: Author's own work

As a conclusion, we want to put it in the words of Curitiba's[55] mayor Jaime Lerner, who held a speech during the TED (Technology, Environment and Design) conference and who is convinced that *"… if we want to have a sustainable world, we have to work with everything [that has been said so far] … but don't forget the cities and the children!"*[56]

[55] Curitiba (Brazil) acted as a role model for Bogotá concerning the implementation of a new BRT system.
[56] Jaime Lerner on TED talks, 2009

9 Summary and Lessons Learned

This thesis aimed at introducing and promoting the concept of Sustainable Happiness for urban planning practices. In so doing, a rather new and uncommon concept in relation to the very technical word of urban planning was presented.

On the micro level (individual level) we have found that a person's current happiness level can indeed be increased as it comprises the set point (50%), intentional activities (40%) and circumstances (10%). Based on this it becomes clear that a person can increase his or her individual happiness level by altering his or her intentional activities and circumstances. Unfortunately, we are not fully aware of this fact. If the general public were better informed on this, it would surely contribute to an individual rethinking of the life one is living. As most people either consciously or unconsciously strive to be happy, they would probably start to reform their personal ways of life in order to achieve a higher level of happiness. In this respect, we should not disregard the importance of education, as our individual and collective views of happiness are largely developed through informal learning from our parents and friends, the media, or spiritual leaders. (O'BRIEN 2005, p.14-15) Also, planning policies should be clear about this fact, as they can contribute a lot to altering people's 'circumstances' by providing adequate land use policies, transportation policies, etc.

On the macro level (urban planning level), a high level of political will and continuity is essential to assure the implementation of the SH concept. Thus, there exists a broad range of very simple tools to restrict private automobile use in a city, such as the "pico y plata" system in Bogotá. If political leaders were more committed to measures that enhance the livability of a city and hence increase subjective well-being, we would be able to create cities of joy with a high level of happiness and quality of life around the world. Wright & Montezuma (2004) referred to this as follows:

> *"However, Bogotá does seem to have made one very dramatic point: A large developing-nation city in difficult social and economic conditions can transform its urban space and the lives of its inhabitants within a matter of a few years. Bogotá's ultimate message is one of inspiration for city officials who believe in something better."* (WRIGHT & MONTEZUMA 2004, p.17)

Thus, if a city such as Bogotá is able to effect huge transformations of its urban space and therefore of its inhabitants' lives, any city in a 'developed' country should be able to achieve these transformations with ease – if only governments took the concept of SH seriously and supported this new way of thinking. Obviously, this topic also demands a rethinking of current political structures: turning from a rather party political ideology towards more issue-oriented governments would alleviate the introduction and implementation of the concept of SH.

We have also found that it is quite difficult to be clear about definitions and differentiations of the fundamental terminology. Hence, the semiotic triangle was introduced as a model of how linguistic symbols are related to the objects they represent. On this basis, theoretical background information in relation to paradigms and planning approaches was presented in order to later classify the concept of SH. Although we were able to answer the research questions, this classification does not make any claim to be incontrovertible as it was a very brave attempt to apply the practical concept of SH to the theoretical corset of planning theory.

However, the examples of Peñalosa's achievements and of the Child Friendly Cities initiative have shown that when we bring happiness together with sustainability we can create happier and healthier cities. (O'BRIEN 2007, p.13) Also, according to Catherine O'Brien, it is possible that once SH is fully integrated in local and regional politics, it creates such a powerful new worldview that it influences our personal values and behaviour. In her view, *"… one of the healthiest steps we could take as individuals and societies is to open ourselves to more provocative and penetrating discussions around happiness – examining and exploring how our current beliefs, values and actions about happiness are fostering or detracting from sustainability."* (O'BRIEN 2005, p.13 et seqq.)

In addition, we have also learned that the way a city pursues its transportation policy can largely contribute to the subjective well-being of its inhabitants. Thus, they will perceive a city that focuses ambitiously on public transit and the prioritization of non-motorists which will be very different from a city that concentrates on automobile traffic.

To sum up, we should ask ourselves the following two questions:

- Do we actually live in a successful society that can support good lives that don't cost the earth? (cf. HPI, 2009)
- Is our recent, modern development actually winnowing joy out of our lives? (O'BRIEN 2005, p.14)

Up until now we doubt that both questions can be answered with 'yes'. Yet, actions have to be taken in order to be able to soon affirm both questions. We believe that the concept of SH cannot be a universal remedy for aforementioned issues. However, urban planning and adequate transportation strategies combined with the concept of SH can surely contribute a lot to this undertaking.

10 Zusammenfassung

Ausgangspunkt dieser Arbeit war das Statement, dass das Nachhaltigkeitsdreieck (Ökonomie, Ökologie und Soziales) alleine nicht ausreicht, um *ganzheitlich* nachhaltige Raumplanung zu betreiben. Es bedarf neuer Sichtweisen und Ansätze mit einem umfassenderen, holistischeren Verständnis für Nachhaltigkeit, welche tiefer auf die individuellen Bedürfnisse der Menschen eingehen. In diesem Zusammenhang wurde das Konzept "Sustainable Happiness" ("Nachhaltiges Wohlbefinden") von Catherine O'Brien vorgestellt.

Ziel der Arbeit war die Analyse folgender Fragen: Kann das Konzept "Sustainable Happiness" in der Stadtplanung als viel versprechender Ansatz für eine nachhaltige Raumplanung Anwendung finden? Kann es als unabhängiger Planungsansatz in die Planungswelt eingehen?

Es hat sich gezeigt, dass "Sustainable Happiness" zwar ein viel versprechender Ansatz für eine effektive, ganzheitliche nachhaltige Raumplanung ist, jedoch nicht als unabhängiger Planungsansatz (im Sinne von Bunge) dienen kann. Stattdessen kann das „Sustainable Happiness"- Konzept als Ausgangspunkt für einen neuen Paradigmenwechsel (im Sinne von Kuhn) oder als neuer Bereich auf dem Gebiet Partizipation (im Sinne von Francis & Lorenzo) in der Raumplanung bezeichnet werden.

Recherchen auf der Mikroebene (der individuellen Ebene) haben zu der Erkenntnis geführt, dass sich das individuelle Wohlbefinden einer Person zu 50% aus der genetischen Bestimmung („set point"), zu 40% aus ihren bewussten Aktivitäten („intentional activities") und zu 10% aus den äußeren (Lebens-)Umständen („circumstances") zusammensetzt. Somit ist das „Maß", das ein Mensch an individuellem Wohlbefinden bzw. Glück erreichen kann, nur zu einem gewissen Grad (nämlich 50%) festgesetzt. Durch eine Veränderung ihrer bewussten Aktionen („intentional activities") einerseits und ihrer äußeren Umstände („circumstances") andererseits kann eine Person ihr individuelles Wohlbefinden steigern und ist somit im wahrsten Sinne des Wortes „ihres Glückes Schmid". Diese Information ist nicht nur für jeden Bürger/jede Bürgerin wichtig, auch die Planungspolitik sollte sich dieser Tatsache besser bewusst sein, da sie Einfluss auf

die äußeren (Lebens-)Umstände („circumstances") der Menschen hat und diese so gestalten kann, dass sie größtmöglich zu einer Steigerung des individuellen Wohlbefindens der Menschen beitragen.

Auf der Makroebene (der Planungsebene) ist wichtig, dass es klare politische Bekenntnisse gibt, Konzepte wie das „Sustainable Happiness"-Konzept in Planungsprozesse einzubinden und entsprechende Sachpolitik zu betreiben, um die Wichtigkeit bedürfnisorientierter Planungsansätze erkennen und fördern zu können. In diesem Zusammenhang bedarf es außerdem einer stärkeren Einbindung von Kindern und Jugendlichen in Stadtplanungsprozesse, da diese jungen Menschen meist ein besseres ‚ursprüngliches Gefühl' für ihre Bedürfnisse und Wünsche haben als Erwachsene. Nach dem Motto „Geht's den Kindern gut in der Stadt, geht's uns allen gut" ist die Einbeziehung dieser Bevölkerungsgruppen mit Sicherheit bereichernd.

Besonders durch Maßnahmen wie angemessene Verkehrsplanung, Stärkung von Gemeinden und lokalen Gemeinschaften (z.B. Grätzel), Bewusstseinsbildung auf verschiedenen Ebenen, Anpassung politischer Rahmenbedingungen oder durch die entsprechende Gestaltung von Freizeit- und Erholungsgebieten, kann Raumplanungspolitik zu einer enormen Steigerung des individuellen Wohlbefindens der Bevölkerung beitragen.

Nichtsdestotrotz sind die Schnittstellen zwischen Planungstheorie, Lebensqualitäts- bzw. Glücksforschung und Stadtplanung zum jetzigen Zeitpunkt noch weitgehend unerforscht. Hier besteht großer Forschungs- und Projektbedarf, um weitere Erkenntnisse auf diesem Gebiet zu erlangen. Mit diesem Wissen können in weiterer Folge ganzheitlich nachhaltige Lebensumwelten geplant und gestaltet werden, die zu einer Steigerung des individuellen Wohlbefindens der Bevölkerung beitragen.

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12 Appendix

NEF 2009, p.63: HPI results table

Countries in HPI rank		Sub-region	Life Exp	Life Sat	Footprint	HPI
	2050 target		87.0	8.0	1.7	89.0
1.	Costa Rica	1a	78.5	8.5	2.3	76.1
2.	Dominican Republic	1a	71.5	7.8	1.5	71.8
3.	Jamaica	1a	72.2	6.7	1.1	70.1
4.	Guatemala	1a	69.7	7.4	1.5	68.4
5.	Vietnam	6c	73.7	6.5	1.3	66.5
6.	Colombia	1b	72.3	7.3	1.8	66.1
7.	Cuba	1a	77.7	6.7	1.8	65.7
8.	El Salvador	1a	71.3	6.7	1.6	61.5
9.	Brazil	1b	71.7	7.6	2.4	61.0
10.	Honduras	1a	69.4	7.0	1.8	61.0
11.	Nicaragua	1a	71.9	7.1	2.0	60.5
12.	Egypt	3a	70.7	6.7	1.7	60.3
13.	Saudi Arabia	3b	72.2	7.7	2.6	59.7
14.	Philippines	6c	71.0	5.5	0.9	59.0
15.	Argentina	1b	74.8	7.1	2.5	59.0
16.	Indonesia	6c	69.7	5.7	0.9	58.9
17.	Bhutan	5a	64.7	6.1	1.0	58.5
18.	Panama	1a	75.1	7.8	3.2	57.4
19.	Laos	6c	63.2	6.2	1.1	57.3
20.	China	6a	72.5	6.7	2.1	57.1
21.	Morocco	3a	70.4	5.6	1.1	56.8
22.	Sri Lanka	5a	71.6	5.4	1.0	56.5
23.	Mexico	1a	75.6	7.7	3.4	55.6
24.	Pakistan	5a	64.6	5.6	0.8	55.6
25.	Ecuador	1b	74.7	6.4	2.2	55.5
26.	Jordan	3b	71.9	6.0	1.7	54.6
27.	Belize	1a	75.9	6.6	2.6	54.5
28.	Peru	1b	70.7	5.9	1.6	54.4
29.	Tunisia	3a	73.5	5.9	1.8	54.3
30.	Trinidad and Tobago	1a	69.2	6.7	2.1	54.2
31.	Bangladesh	5a	63.1	5.3	0.8	54.1
32.	Moldova	7b	68.4	5.7	1.2	54.1
33.	Malaysia	6c	73.7	6.6	2.4	54.0
34.	Tajikistan	7a	66.3	5.1	0.7	53.5
35.	India	5a	63.7	5.5	0.9	53.0
36.	Venezuela	1b	73.2	6.9	2.8	52.5
37.	Nepal	5a	62.6	5.3	0.8	51.9
38.	Syria	3b	73.6	5.9	2.1	51.3
39.	Burma	5a	60.8	5.9	1.1	51.2
40.	Algeria	3a	71.7	5.6	1.7	51.2
41.	Thailand	6c	69.6	6.3	2.1	50.9
42.	Haiti	1a	59.5	5.2	0.5	50.8
43.	Netherlands	2c	79.2	7.7	4.4	50.6
44.	Malta	2e	79.1	7.1	3.8	50.4
45.	Uzbekistan	7a	66.8	6.0	1.8	50.1
46.	Chile	1b	78.3	6.3	3.0	49.7
47.	Bolivia	1b	64.7	6.5	2.1	49.3
48.	Armenia	7a	71.7	5.0	1.4	48.3
49.	Singapore	6b	79.4	7.1	4.2	48.2
50.	Yemen	3b	61.5	5.2	0.9	48.1
51.	Germany	2c	79.1	7.2	4.2	48.1
52.	Switzerland	2c	81.3	7.7	5.0	48.1
53.	Sweden	2d	80.5	7.9	5.1	48.0
54.	Albania	7b	76.2	5.5	2.2	47.9
55.	Paraguay	1b	71.3	6.9	3.2	47.8
56.	Palestine	3b	72.9	5.0	1.5	47.7
57.	Austria	2c	79.4	7.8	5.0	47.7
58.	Serbia	7b	73.6	6.0	2.6	47.6
59.	Finland	2d	78.9	8.0	5.2	47.2
60.	Croatia	7b	75.3	6.4	3.2	47.2
61.	Kyrgyzstan	7a	65.6	5.0	1.1	47.1
62.	Cyprus	2e	79.0	7.2	4.5	46.2
63.	Guyana	1a	65.2	6.5	2.6	45.6
64.	Belgium	2c	78.8	7.6	5.1	45.4
65.	Bosnia and Herzegovina	7b	74.5	5.9	2.9	45.0
66.	Slovenia	7b	77.4	7.0	4.5	44.5
67.	Israel	3b	80.3	7.1	4.8	44.5
68.	Korea	6b	77.9	6.3	3.7	44.4
69.	Italy	2e	80.3	6.9	4.8	44.0
70.	Romania	7b	71.9	5.9	2.9	43.9
71.	France	2c	80.2	7.1	4.9	43.9
72.	Georgia	7a	70.7	4.3	1.1	43.6
73.	Slovakia	7b	74.2	6.1	3.3	43.5
74.	United Kingdom	2c	79.0	7.4	5.3	43.3
75.	Japan	6b	82.3	6.8	4.9	43.3
76.	Spain	2e	80.5	7.6	5.7	43.2
77.	Poland	7b	75.2	6.5	4.0	42.8
78.	Ireland	2c	78.4	8.1	6.3	42.6
79.	Iraq	3b	57.7	5.4	1.3	42.6
80.	Cambodia	6c	58.0	4.9	0.9	42.3
81.	Iran	3b	70.2	5.6	2.7	42.1
82.	Bulgaria	7b	72.7	5.5	2.7	42.0

Countries in HPI rank		Sub-region	Life Exp	Life Sat	Footprint	HPI
	2050 target		67.0	8.0	1.7	89.0
83.	Turkey	3b	71.4	5.5	2.7	41.7
84.	Hong Kong	6b	81.9	7.2	5.7	41.6
85.	Azerbaijan	7a	67.1	5.3	2.2	41.2
86.	Lithuania	7b	72.5	5.8	3.2	40.9
87.	Djibouti	4b	53.9	5.7	1.5	40.4
88.	Norway	2d	79.8	8.1	6.9	40.4
89.	Canada	2b	80.3	8.0	7.1	39.4
90.	Hungary	7b	72.9	5.7	3.5	38.9
91.	Kazakhstan	7a	65.9	6.1	3.4	38.5
92.	Czech Republic	7b	75.9	6.9	5.4	38.3
93.	Mauritania	4c	63.2	5.0	1.9	38.2
94.	Iceland	2d	81.5	7.8	7.4	38.1
95.	Ukraine	7c	67.7	5.3	2.7	38.1
96.	Senegal	4c	62.3	4.5	1.4	38.0
97.	Greece	2e	78.9	6.8	5.9	37.6
98.	Portugal	2e	77.7	5.9	4.4	37.5
99.	Uruguay	1c	75.9	6.8	5.5	37.2
100.	Ghana	4c	59.1	4.7	1.5	37.1
101.	Latvia	7b	72.0	5.4	3.5	36.7
102.	Australia	2a	80.9	7.9	7.8	36.6
103.	New Zealand	2a	79.8	7.8	7.7	36.2
104.	Belarus	7c	68.7	5.8	3.9	35.7
105.	Denmark	2d	77.9	8.1	8.0	35.5
106.	Mongolia	7a	65.9	5.7	3.5	35.0
107.	Malawi	4a	46.3	4.4	0.5	34.5
108.	Russia	7c	65.0	5.9	3.7	34.5
109.	Chad	4b	50.4	5.4	1.7	34.3
110.	Lebanon	3b	71.5	4.7	3.1	33.6
111.	Macedonia	7b	73.8	5.5	4.6	32.7
112.	Congo	4a	54.0	3.6	0.5	32.4
113.	Madagascar	4a	58.4	3.7	1.1	31.5
114.	United States of America	2b	77.9	7.9	9.4	30.7
115.	Nigeria	4c	46.5	4.8	1.3	30.3
116.	Guinea	4c	54.8	4.0	1.3	30.3
117.	Uganda	4b	49.7	4.5	1.4	30.2
118.	South Africa	4a	50.8	5.0	2.1	29.7
119.	Rwanda	4b	45.2	4.2	0.8	29.6
120.	Congo, Dem. Rep. of the	4a	45.8	3.9	0.6	29.0
121.	Sudan	4b	57.4	4.5	2.4	28.5
122.	Luxembourg	2c	78.4	7.7	10.2	28.5
123.	United Arab Emirates	3b	78.3	7.2	9.5	28.2
124.	Ethiopia	4b	51.8	4.0	1.4	28.1
125.	Kenya	4b	52.1	3.7	1.1	27.8
126.	Cameroon	4c	49.8	3.9	1.3	27.2
127.	Zambia	4a	40.5	4.3	0.8	27.2
128.	Kuwait	3b	77.3	6.7	8.9	27.0
129.	Niger	4c	55.8	3.8	1.6	26.9
130.	Angola	4a	41.7	4.3	0.9	26.8
131.	Estonia	7b	71.2	5.6	6.4	26.4
132.	Mali	4c	53.1	3.8	1.6	25.8
133.	Mozambique	4a	42.8	3.8	0.9	24.8
134.	Benin	4c	55.4	3.0	1.0	24.6
135.	Togo	4c	57.8	2.6	0.8	23.3
136.	Sierra Leone	4c	41.8	3.6	0.8	23.1
137.	Central African Republic	4a	43.7	4.0	1.6	22.9
138.	Burkina Faso	4c	51.4	3.6	2.0	22.4
139.	Burundi	4b	48.5	2.9	0.8	21.8
140.	Namibia	4a	51.6	4.5	3.7	21.1
141.	Botswana	4a	48.1	4.7	3.8	20.9
142.	Tanzania	4b	51.0	2.4	1.1	17.8
143.	Zimbabwe	4a	40.9	2.8	1.1	16.6

HPI colour key:

All 3 components good	
2 components good, 1 middling	
1 component good and 2 middling	
3 components middling	
Any with 1 component poor	
2 components poor, or 'blood red' footprint	

For colour key of HPI components see Table 1, page 25.

Sub-region codes:

1a Central America, Mexico & Caribbean
1b South America

2a Australia & NZ
2b North America
2c Western Europe
2d Nordic Europe
2e Southern Europe

3a North Africa
3b Middle East / South West Asia

4a Southern & Central Africa
4b East Africa
4c West Africa

5a South Asia

6a China
6b Wealthy East Asia
6c South East Asia

7a Central Asia & Caucuses
7b Central & Eastern Europe
7c Russia, Ukraine & Belarus