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Informal Settlements

The World's Invisible Communities

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Abstract

Since the beginning of the new millennium the world's population has increased exponentially fast. The majority of this growth has been accommodated for by urbanization of the developing world. This in turn has lead to a wide spread of informal settlements. Thus, areas of urban slums, that have risen illegally on the marginal lands within and at the periphery of the formal city. Informal settlements vary greatly in size, age and composition, between countries as well as within their cities. The one aspect that they share is that of unacceptable/ inhumane living conditions. In 2001 almost one billion people of the world's total urban population were living in slums and if no major actions are taken this will have increased to two billion by 2030.

Informal settlements are evaluated in relation to their surrounding landscape of poor sanitation, insecure housing, hazardous grounds etc. However modern day slum-upgrading programs mainly focus on improving their infrastructure, such as roads and houses, and in doing so ignoring the potential of public space as an important community value. Finding value in our surrounding landscape as well as working with the public spaces is a key factor in landscape architecture and could therefore be a helpful tool when upgrading these areas.

This thesis aims to investigate the question, if landscape architecture exists within the setting of informal settlements; as a concept of the importance of common space and as a profession, by looking at four different projects where landscape architects have been involved and taken on the role as mediator between government, private investors, NGOs and local communities of developing countries.

Sammandrag

Sedan början av det nya årtusendet har världens befolkning ökat osannolikt snabbt. Den största delen av denna ökning har skett genom urbanisering av världens utvecklingsländer. Detta i sin tur har lett till en bred spridning av informella bosättningar. Informella bosättningar är urbana slumområden, som uppkommer olagligt på den formella stadens överblivna marker. De varierar i storlek, ålder och sammansättning, såväl mellan länder som inom deras städer. Dock har de gemensamt att levnadsvillkoren inom dessa bosättningar är oacceptabla. År 2001 levde nästan en miljard människor av världens totala urbana befolkning i slumområden, och om inga större åtgärder vidtas kommer detta att ha ökat till två miljarder år 2030.

Informella bosättningar utvärderas i förhållande till deras omgivande landskap i form av dåliga sanitära förhållanden, dåligt konstruerade hus, hälsofarlig mark och så vidare. Emellertid så fokuserar moderna slum-uppgraderings projekt främst på att förbättra infrastrukturen så som vägar och hus utan att uppmärksamma det offentliga rummet som en viktig aspekt för att binda samman det lokala samhället. Att se potentialen i vårt kringliggande landskap och att utveckla offentliga miljöer är en huvudpunkt inom landskapsarkitektur och skulle därför kunna vara ett användbart verktyg för slum-uppgraderingsprojekt.

Denna avhandling syftar till att undersöka frågan, om landskapsarkitektur existerar inom informella bosättningar som ett koncept berörande vikten av allmänna ytor och som ett yrke, genom att analysera fyra olika slum-uppgraderingsprojekt utförda i utvecklingsländer. I dessa projekt har landskapsarkitekter varit inblandade och tagit på sig rollen som medlare mellan regering, privata investerare, icke-statliga organisationer och den lokala befolkningen.

Introduction

While brainstorming topics for my Bachelor's thesis I stumbled upon an article describing mapping and publishing methods for landscape architectural analysis in a slum-upgrading program (Paar & Rekittke 2011). As a landscape architect student I found this article intriguing. The fact that large areas of the developing world's bigger cities remain barren and nonexistent on official maps, because they have arisen informally is hard for me to grasp. During my three years within the landscape architecture master program I have acquired a wide knowledgebase regarding the problems of landscape architecture and planning in the western world. However as the article portrays, today's urbanization is mainly taken place in the developing world at such a fast rate that the city planners are left behind and instead the city's are growing through informal unplanned settlements (Davis 2007, p1). I believe that this is an important issue that in the end will affect everybody regardless of where you live in the world. Consequently, with this thesis I attempt to investigate if our knowledge as landscape architects can be applied in a useful way in communities where the streets have no names and the laws of the formal city don't apply?

Background

Since the beginning of the new millennium the world's population has increased exponentially fast with urbanization being the majority of this growth (Davis 2007, p1). In 1950 there were only 86 cities in the world with a population of over one million. Today there are 400 and it is estimated that this will increase to at least 550 by 2015. We are therefore facing a future where the urban settlements will eventually outnumber the rural (Davis 2007, pp1-2). Furthermore this urbanization is mainly taking place in the developing world. In countries such as Mexico and India megacities with more than 8 million inhabitants and hypercities with more than 20 million inhabitants have arisen (Davis 2007, pp2-5). This in turn has led to high proportions of informal settlements, also referred to as slums, shantytowns, barrios and favelas, in the marginal, leftover land of these cities. Slum areas vary greatly in size, age and composition, between countries as well as within their cities (Beardsley & Werthmann 2008). However, they all share several common characteristics. For example; inadequate access to clean water, lack of proper sanitation facilities, poor structural quality of housing, housing situated on hazardous land which might be destroyed during climate extremes and a lack of secure tenure. Furthermore informal settlements are often the epicenters of urban poverty (UN-HABITAT 2005, p7). In 2001 almost one billion people of the world's total urban population were living in slums and if no major actions are taken this will have increased to two billion by 2030 (UN-HABITAT 2003, pv).

    In the past the main strategy of local governments has been to simply ignore or clear and eradicate the slum areas, forcing their inhabitants to move (Beardsley & Werthmann 2008). However this only shifts the problem elsewhere. Other strategies have focused on either upgrading the informal settlements on site or relocating all the residents to a 'greenfield' area, where housing and services are provided (Del Mistro & Hensher 2009, Kostner & Nuijten 2011). These strate-

gies main obstacle is trying to implement and transform slum areas according to the structure of the formal city ignoring the social structure that already exists (Kostner & Nuijten 2011). In 1978 The United Nations agency for human settlements (UN-HABITAT), was established with the mission to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all (UN-HABITAT 2012). In 2003 they published the report *The challenge of slums,* which is a global step forward in acknowledging the rights of people living in slum areas. It also stresses that the main focus should lie on creating human sustainable solutions, best reached by bottom-up approaches (UN-HABITAT 2003).

Landscape architects learn to look at our common surroundings in a different way. By analysing a space's strengths and weaknesses, it is possible to find potential where other professions might just find problems. Landscape architects can perhaps be regarded as a link between the community and the government. That is, they are daily faced with difficult problems, working at the community level evaluating what is there, what is needed, and what the inhabitants would like, but at the same time listening to the client ordering the project and having to abide by the rules and regulations of our society. For the most part the client of slum-upgrading projects is the government or local municipality which makes the landscape architect an important mediator between the different social groups. In Latin America several designer-initiated projects and university based projects have been implemented to help improve and connect informal settlements to the rest of the city. These kinds of projects are increasing around the world (Beardsley & Werthmann 2008, Paar & Rekittke 2011, Leguía 2011).

Key Definitions

Bottom up design- Strategies where the main focus is at the community and humanity level.
Formal city- The traditionally planned city, following a certain structure, laws and boundaries.
Informal city- Areas within and at the periphery of the formal city where informal settlements have arisen.
Slum- It is hard to give a general definition of slum, a complexity that will be discussed further. In this thesis synonyms of slum such as favelas and villa emergencia will be used, however always in the context of informality.
Slum-upgrading- Strategies designed to improve the living conditions of informal settlements and to integrate them with the formal city.
Top down design- Strategies where the main focus is on the larger scale of the formal city.
Urbanization- The physical growth of urban areas.

Aim

This thesis aims to investigate the question; if landscape architecture exists within the setting of informal settlements; as a concept of the importance of common space and as a profession?

The thesis is written from the perspective of a landscape architect used to the formal city's laws and structure, through the investigation of four specific slum-

upgrading projects where landscape architects have been involved and taken on the role as mediator between government, private investors, NGOs and local communities. Within the framework of this question and in relation to the different projects the thesis also aims to portray how an informal settlement may arise, what the general situation looks like today and if landscape architecture has the potential to improve these environments.

Delimitations

The focus of the thesis lies on the community aspects of informal settlements. This means that housing politics or governmental aspects regarding slum upgrading programs are only briefly discussed in order to understand their major problems. Furthermore these issues are mainly mentioned in regards to the specific cities investigated in the thesis. This was done because housing politics is an incredibly large topic in itself and varies greatly between countries as well as over time.

   The thesis question is of a very broad nature and can be investigated in a numerous of ways. However I have chosen to focus on the importance of common space as a concept. Primarily because I believe that space is a key component of landscape architecture and I wanted to investigate the difference between the formal and informal city revolving this concept, in order to analyse if it might have any implications for slum-upgrading programs. The question was further limited by only being applied to a few specific cities and projects in Asia and Latin America. Latin America was chosen because their change in policies revolving these issues has changed over time and in the last couple of years led to a wide range of landscape interventions. Asia is home to some of the largest urban agglomerations in the world. Therefore choosing projects from these two continents displayed examples with varying conditions and outcomes. Finally the fact that I as an author have been brought up in Sweden, a relatively rich country and have never been involved in a slum upgrading project or stayed in an informal settlement, can be viewed as a limiting aspect. Since, this might colour the way the subject has been portrayed.

Methods

This bachelor's thesis was investigated through a literature survey. The search procedure can be described as a cycle of three interconnected steps.

» The search was conducted through the SLU-library online catalogues and databases. The main sources used were, *LIBRIS, Web of Knowledge*, *Google Scholar* , *Scopus* and *Taylor & Francis*. To get as wide range of results as possible different word combinations and synonyms associated with the thesis question were used. For example: Slum, upgrading, informal settlements, Landscape architecture, urban planning and developing countries.

» The next step in the process was sorting through the gathered literature. This was done by reading the abstracts and discussion of all the articles and looking at the contents page and skimming through the introduction of the books.

» Any new relevant information or interesting references from the articles and books were noted and another search based on this information was conducted.

After going through this search cycle a number of times the range of relevant literature narrowed, which in turn made it possible to more thoroughly read and evaluate the information. Since the project was carried out during ten weeks the amount of time that was spent gathering literature had to be limited in order to sufficiently be able to evaluate it. This in turn could create a possible bias if search combinations and databases that could hold important information have been missed.

Results

According to the UN report, *The challenge of slums,* one of the major obstacles revolving the issue of informal settlements, is outsiders prejudice slums (UN-HABITAT 2003). Areas of slum are often simplified solely to haphazard environments dominated by poverty and misery, prejudice that could stem from the differences between the informal and the formal city's perception of space and structure. However the truth is far more complex and it is debatable if the informal settlements can even be regarded as a separate entity from the formal city?

The word slum first appeared as part of the London cant, meaning room in the beginning of the 19th century. A couple of years later it was commonly used slang to identify the poorest areas of the city. As described in the UN report *The challenge of slums* (2003), these were areas, which had bad quality housing, poor sanitation, that were refuge for criminality and most likely the source of epidemics. Furthermore the report discusses, that traditionally slums are associated with degraded parts of the city that once were respectable and desirable. When the original inhabitants moved away to newer better city areas, the condition of the housing gradually declined as they were subdivided and rented out to poorer and poorer income groups. However, today the term slum has also come to include the vast expanse of informal settlements (UN-HABITAT 2003, p9). Arising as a result of today's rapid urbanization that is mainly taking place in developing countries. The main difference from the traditional slum is that they are not formally planned by a governmental housing strategy and therefore often classified illegal (Davis 2007, pp2-5). The UN-HABITAT (2005, p19) has identified three major causes why these settlements arise and persist. Here they are interpreted in the following way:

» Changes in urban land use. For example the location of industries or changes as a consequence of city growth. Slum areas that used to be at the periphery become central, raising the land value.

» Rural immigrants entering the city cannot afford proper housing. Slums act as a gateway into the formal city. A place to adjust to the urban mentality.

» Slum inhabitants have easy access to the rest of the town at the same time as they are physically separated from the formal city's laws and structure. This makes it easier to succeed within the boundaries of the slum and might cause the inhabitants to stay even though they have the means to move out.

For the purpose of measuring the spread of these areas there have been many attempts to try and generalize the concept of slum. At the United Nations Expert Group meeting in Nairobi 2002 the operational definition of slum was recommended according to five main factors. Inadequate access to safe water, inade-

quate access to sanitation and other infrastructure, poor structural quality of housing, overcrowding and insecure residential status (UN-HABITAT 2005, p12). However these criteria are very broad and can exist within a wide range of circumstances. Circumstances which reflects, the local culture, politics, demographics and natural conditions (UN-HABITAT 2005, p17).

Jan Nijman's (2010) description and analysis of Dharavi, a nearly two square kilometer large slum area in Mumbai, India, gives a picture of the complexity. Nijman (2010) suggests that one of the main differences between the informal and the formal city is the use of space. In most western (formal) cities functions and services are spatially segregated, whereas in the slum they are functionally and socially integrated. Mumbai's wide gap between rich and poor in combination with the high cultural mix has generated a complicated structural mosaic inside Dharavi (Nijman 2010). Nijman (2010) describes Dharavi as being extremely busy at the borders with big roads connected to the outside city and the presence of numerous retailers, food stands, kiosks etc. A visitor might not even realize that he is inside a slum area. However when entering the core of Dharavi where the residential areas dominate the structure changes. The streets become narrower, more intimate with less traffic and noise. Nijman (2010) found it harder to separate interior from exterior, public from private and accessible from inaccessible. To an outsider this might seem like a haphazard structure. However, the locals know who belongs where, what belongs to whom, what is private, and what is public. Due to the high competition of land, place has an overwhelming significance for the slum dwellers and every bit of space is allocated (Nijman 2010).

Another aspect adding to the complexity of informal settlements is their economic function (Nijman 2010). Pandit (2010) a geographer who grew up in the better parts of Mumbai in the 1960's realized this complexity even as a little boy, only passing the slums by car. Pandit (2010) remembered the people living in shacks and the area smelling like garbage and human waste, yet many of the thin thatched roofs of the dwellings had TV antennae mounted on top and the children walking along the alleys could be neatly groomed and wearing school uniforms. Nijman (2010), means that the economic function is an essential part of the informal settlement's rationale setting it apart from the traditional city slums. Regardless of this, poverty is still closely linked to informal settlements. Discussed in the UN report, *Situation Analysis of Informal Settlements in Kisumu* (2005) a relationship, that is mutually reinforcing however, it is far from simple or direct. Hence there are people with relatively good income that choose to live in slums. Furthermore, even though most slum-dwellers work within the informal-market, it is not unusual for them to have higher incomes than people working in the formal sector. In many cities there might actually be higher proportion of poor living outside the slum areas than within them (UN-HABITAT 2005, p28). Thus even though the informal and formal city are spatially and often physically separated, they are economically connected (Karanja 2010, Nijman 2010). In the case of Dharavi there is a high level of entrepreneurship. It has been estimated that seventy percent of its residents work inside Dharavi (Gruber *et al.* 2005, p31 se Nijman 2010). Nijman (2010) means that Mumbai and Dharavi share a symbiotic relationship, thus in some ways they exist in virtue of one another. Enumerations carried out within informal settlements of Nairobi also support the economic connection between the informal and formal city. They have been used as defence against evictions since they demonstrate that a high propor-

tion of the people living within these settlements have been working in the formal city for years and play an important role for the local economy (Karanja 2010).

The importance of public space

Space is the physical entity surrounding us. Public space can be described as the outdoor space in-between the physical structures open for all to use. This is a very simple definition and there is a danger that the social aspect of public space is overlooked when other structural factors such as poor housing and sanitation are present (Janches 2011). The Argentinean landscape architect, Janches (2011), claims that the public-policies of today have forgotten the real meaning of public space. For example, the UN's definition of slum emphasizes the importance of housing and living conditions, disregarding the non-residential functions and the surrounding public spaces (Nijman 2009). Janches (2011), stresses that public space is not the same as mere space, rather it is a place where social life reflects the values of the community. A street should not simply be perceived as a transit area or a park as an urban oxygenation centre, they have the power to become integrating and cohesive elements of the city (Janches 2011).

From Nijman's (2010) description of Dharavis structure, discussed in the previous section, one might assume that in general public space as seen in the formal city rarely exists in the context of informal settlements. This results from the high competition and value of free open space. However feeling connected to the public space in a community, even if it only constitutes a road can mean the difference between success and failure of a slum-upgrading project (World Urban Forum 2010). An example of this can be found in a study investigating flood risk perception in Dar el Salaam, Tanzania (Fintling 2006). The investigation is based on interviews with the inhabitants of two informal settlements Mzimuni and Hanna Nassif along the Msimbazi river valley (Fintling 2006, p23). Fintling found a difference in attitude of these two communities regarding the actions to be taken against flooding (Fintling 2006, p30). In Mzimuni the people felt that it was their own responsibility, leading to the founding of a community based organization to prevent and relieve the effects of flooding. Whereas in Hanna Nassif the community felt no local responsibility, the problem was somebody else's and should be taken care of by the government. Furthermore, Hanna Nassif has been part of a world famous slum-upgrading project in the 1990's due to the strong sense of community that it had at the time (Fintling 2006, p30). Fintling (2006) proposes that the change in attitude might be a result of false expectations regarding the outcome from this project as well as failure to build and develop the strong community feeling that was present (Fintling 2006, p31). Janches (2011) believes that slum-upgrading projects main focus should be creating places that can be connected to the community inhabitants, places which build and strengthen the sociocultural structure that already exists. In conclusion a project should aim to generate a process viable to future evolution instead of a forced definitive design (Janches 2011).

The profession and projects

From being a completely invisible profession landscape architecture has during the last couple of years started to root and spread in the developing world. James Taylor, of the University of Guelph Landscape Architecture Programme, has through his work with The International Federation of Landscape Architects (IFLA), noticed a doubling of professional educational programmes over the last decade in the developing world (Taylor 2011). IFLA was founded in 1948 and is the body representing Landscape Architects worldwide. Its purpose is to coordinate the activities of member associations when dealing with global issues, and to ensure that the profession of landscape architecture continues to prosper as it continues to effect the design and management of our environment (IFLA 2012). However, it should be noted that China is a major contributor to their statistics. Through a conference held by IFLA in Malaysia 2011, the Chinese delegation reported that they have over 300 professional university programmes in landscape architecture. Furthermore, the landscape architects in China are focused on the traditional urban development of the formal city, disregarding the wide expanse of their informal settlements (Taylor 2011). The increase in Africa and Latin America is more modest, nevertheless should it not be overlooked as a potential tool for the informal city (Taylor 2011).

Dirty Work is a research initiative founded by Christian Werthmann and John Beardsley of the Harvard graduate school of design. They investigate and develop strategies of how landscape architecture/design can improve the life in informal settlements (Beardsley & Werthmann 2008, World Urban Forum 2010). The majority of Dirty Works investigated projects have been carried out in Latin America. A positive consequence of the 1980's Brazilian officials change in attitude, moving away from slum-eradication and recognizing cheaper and more humane slum-upgrading strategies (Bueno & Sedeh 2010). In 2001 this policy was strengthened by the federal enactment of a 'City statue', requiring cities to make their own master plans. The enhancement also made it possible for the municipalities to control land and seek to assure legal tenure to illegal tenants (Bueno & Sedeh 2010). This is a critical tool when trying to incorporate informal settlements into the formal city structure. Furthermore, the recent boost in national economy has provided more money for these types of programmes. Though Latin America has some of the highest rates of urbanization in the world in many parts the poverty and slum growth is slowing (Beardsley & Werthmann 2008, UN-HABITAT 2008). This policy has given rise to a wide range of landscape interventions, Beardsley and Werthmann argue that Latin America represents a laboratory for slum upgrading that might provide a model for others (Beardsley & Werthmann 2008).

The different types of design mediated projects that were identified during the literature search can be divided into four broad categories. The first one being, small scale slum-upgrading projects initiated and carried out by students. For example; foreign students writing their master thesis through collaboration with locals and charity organizations situated in the country (Nielsen 2007, Bratel & Hellqvist 2011). The second category are projects were universities act as mediators between government, private investors, NGOs and local communities (Paar & Rekittke 2011, Leguía 2011). Finally the third and fourth are, private landscape architect firms acting without a client or governmental funding and governmental driven projects where architects are consulted (Beardsley &

Werthmann 2008). In the next section two projects from Asia will be reviewed. The first one is located in Metro Manila, Philippines and the second in Khulna, Bangladesh. Both projects are initiated by universities in collaboration with the local community and charity organizations. Following this are two examples from Latin America. One project from São Paulo, Brazil initiated by the municipality and a project from Buenos Aires, Argentina initiated and led by a private landscape architect firm. The project summaries include: type of project, project area- brief history, methods and outcome.

Metro Manila, Philippines, Asia

Metro Manila is the capitol region of the Philippines. It holds the national capital Manila, as well as four districts with twelve cities and five municipalities (Ragragio 2003, p1). Metro Manila is a typical example of an Asian megacity with a population of around twenty-one million people, which makes it the fifth largest urban agglomeration in the world (World Agglomerations 2011, p15). Similar to other megacities, vast parts of Metro Manila consists of urban informal settlements. In 2010 it was estimated that thirty-seven percent of Metro Manilas population lived in slums and the average yearly slum population growth rate is eight percent (Ballesteros 2010, p2).

A slum-upgrading project was recently carried out by the National University of Singapore in Metro Manila, as part of a studio course for the university's master of landscape architecture program (Paar & Rekittke 2010, Paar & Rekittke 2011). The foundation of the project was based on the collaboration with the Philippine grassroots movement Gawad Kalinga (GK 2011). Gawad Kalinga Means to 'give care' in Filipino and the organization was founded in 1995 during a Christian youth camp in one of Metro Manilas largest slum areas Bagong Silang, Caloocan City. Their main mission is 'Building communities to end poverty'. Today GK has evolved into a nation-building movement and in The Phillipines they have built 2,000 GK communities in varying stages of maturity (GK 2011).The study sites for this project were located in the villages of GK Baseco, GK Espiritu Santo, GK Telus and GK Conception (Paar & Rekittke 2011).

Baseco gives an example of how trends in land use can give rise to informal settlements. It is Metro Manila's most central harbour front, situated at the estuary of Pasig River (Paar & Rekittke 2011). Baseco used to consist of natural Mangrove, however today islands of informal housing stretch out into the bay built upon garbage, mud, and other waste materials accumulated from nearby industries (Gehander & Mörnhed 2006, p27). In 2002 the city of Manila estimated Baseco to house 6,060 families (unescap 2012). Originally fishermen started building their home on stilts in the swampy area (COSCA 2006). However when it became the main location for the Bataan Shipyard and Engineering Company, formerly known as NASSCO (National Shipyard and Steel Corporation), the areas popularity increased among other groups as well (unescap 2012). Not until 1982 was Baseco officially declared a proper district. Between the years of 1990 and 1993 Baseco became the government's official relocation site for evicted slum-dwellers from other parts of the city, leading to an accelerated growth of the area. The location of the district means that it is frequently subject to hazards such as flooding and fires (COSCA 2006). In 2001 Baseco was given a high priority status for urban renewal by the Asian Development Bank (ADB)

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and Pasig River Rehabilitation Commission (PRRC). Furthermore in 2002 the land was officially proclaimed housing area and awarded to its inhabitants (unescap 2012). Unfortunately since then Baseco has been struck by a series of fires. In 2004 the Manila government sought help from NGO's such as GK, which since then have been involved in up-grading projects in the district (Gehander & Mörnhed 2006, p27).

The main aim that Paar and Rektikke wanted to accomplish with this project was to erase the former status of non-consideration revolving these settlements by documenting and placing them on the map (Paar & Rekittke 2010, Paar & Rekittke 2011). Furthermore, engaging their students to propose design interventions within these settlements, based on the new reliable geographical data. A common obstacle in slum-upgrading projects is the lack of proper funding. Therefore the authors set out to come up with innovative low-cost methods. This is also relevant due to the fact that carrying around expensive, big technical equipment is very conspicuous and can be dangerous in these areas. As a result the fieldwork was carried out with the help of a few simple devices; pen, paper, a low cost GPS-device, digital camera and an iphone 4, programmed with approximately 10 free or low-cost relevant geographical/photo applications. All accessible streets, lanes and pathways within the study sites were documented and the spatial information was then uploaded and published on to *OpenStreet-Map,*(OSM), which is an open source project to create an online free editable map of the world (Paar & Rekittke 2011). During the fieldwork all relevant facades, front gardens and public spaces were also photographed and documented. These pictures where transferred into *Google SketchUp* to produce simple working models for the different neighbourhoods. The working models where then used by the master students to visualize and come up with different design interventions. Due to the lack of common space in the narrow streets and lanes of the villages the students were asked by the GK officials to focus on productive forms of gardens and livelihood ideas that could be implemented on the small spaces around and in-between houses. Following the termination of the project, various streets of GK village Espiritu Santo, had been assigned names that could be updated into OSM.

Some of the students design interventions such as green walls were also implemented. While working in the village of GK Telus, Quezon City, two local volunteers joined their team. Manila Emannuel Sambale, a professional geographer/GIS expert and Rally de Leon, a local businessman, irritated by Manilas lacking spatial information. Moreover, after their work with Paar and Rektikke, Emanuel Sambale and de Leon took the initiative to continue mapping the nearest GK village and involving the local GK officials themselves.

Khulna, Bangladesh, Asia

Rekittke (2009) was 2008 involved in a similar project carried out in the city of Khulna, Bangladesh. The project was a collaboration between the Master of Landscape Architecture program at Wageningen University, Netherlands and the Catholic University of Leuven, Belgium, Master of Human Settlements program.

Khulna is the third largest city of Bangladesh with a population of about one point four million. It was chosen because it is a relatively unknown city but it follows a typical urbanization development seen in many Asian cities (Rekittke 2009). Rektikke (2009) gives a brief description of Khulnas history and problems; the core of the city has developed along the west bank of the rivers Rupsa

and Bairab. An area that is located on a natural levee to the west, preventing regular devastating floods. During the British colonial era, Khulna developed into an important river trading port and administrative center. Today shrimp cultivation plays an important role, though historically the jute industry was the main key to their urban development. A significant number of large prosperous jute mills had been established at the waterfronts and serviced by an extensive and effective railway network. In 1971 Bangladesh became independent and the jute mills were converted into state enterprises. This led to a downward spiral of economic neglect and finally the end of the jute mills. At present a new bypass highway is changing the dynamics and land use in Khulna to the west away from the river front focusing around the university established in 1991. Khulna still has a high immigration rate from the surrounding rural areas. This in combination with the changes in structural dynamics has given rise to informal settlements along the river, where the formerly important railroad and administrative structures have now been abandoned.

During the pre-field trip phase of the project it became evident that Khulna lacks adequate spatial information. When searching on Google earth only a small part of the city was documented in sufficient detail. Not even The Bangladesh military's aerial photos could provide more thorough information. However by analyzing this scarce information a structural pattern was distinguished. Khulna is built up around thousands of man-made ponds surrounded by lush vegetation, creating oasis-like structures within the slum-districts. The ponds have been created because of the elevated position of housing, and ranged in quality from complete dumping grounds to well preserved water reservoirs. After this discovery extra focus was aimed towards these ponds due to their immense potential as urban building blocks and their important ecological and economical values.

Just as in the Manila project, the field work was performed with the simple means of pencil, plan, pocketbook and camera. Four days were spent on water and three days on land to get the best possible overview of the chosen study sites. With the help of 3d-models and the information gained from the field-work the students were able to propose design interventions (Rekittke 2009). Tomas Dagenaar, a student at Wageningen won second prize in the IFLA student competition 2008 for his project located at the site of the heavily neglected Khulna railway (Dagenaar 2008). Dagenaar (2008) describes the complicated situation of the surrounding settlements. Thus, the low situated ground threatens the area with severe flooding. On the project site about 800 families 'legalize' their housing by paying bribes to the railway company that own the site. However the railway company is planning to build a leisure park and will not hesitate to evict the squatters. Dagenaar (2008) proposes an alternative solution through some basic landscape architectural interventions. The intervention includes transforming the unused railways to central pathways and concrete water channels following these will transport water to the surrounding wilderness and river, in order to prevent flooding. Planting of palm trees will define the surrounding space and direct future slum development. Unused wastelands are transformed into temporal plantations. These are meant to prevent squatting, serve as parkland and save the space for future development. Dagenaar's design intervention not only saves the lives of these families but suggests a more sustainable long-term solution for precious land that can be used for investment and development in the future.

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São Paulo, Brazil, South America

São Paulo is the seventh-largest city in the world with an urban population of just under twenty million inhabitants (James 2011). It can be referred to as the tale of two cities (UN-HABITAT 2010, pix). On one hand it is the richest state in Brazil, historically being the industrial and financial heart of the country. On the other hand, it has the highest number of favelas/informal settlements, thus poverty in Latin America (Chiodelli 2011). According to the UN-HABITAT (2010, p76) approximately two million of São Paulo's inhabitants live in informal settlements. The rise of informal settlements mainly took place in the 1980s when the economic crises struck São Paulo, causing rapid growth of unemployment and poverty. From only housing merely one percent of the city's population in the seventies the informal settlements housed twenty percent of the population just two decades later (Chiodelli 2011). However since 2003 São Paulo has seen a drastic decline of urban poverty, with a decrease of more than twenty percent in five years. A combined result of local and demographic factors, improved economy, and the more active fight against poverty by the municipality of São Paulo no longer focused on eradication but different requalification programs of the favelas (UN-HABITAT 2008, p40, Chiodelli 2011).

In 2005 the Municipal Housing Secretariat-SEHAB of São Paulo launched a new slum-upgrading program *Upgrading Slum System* (USS). It seeks to provide the people within these communities with the right to the city. Not only working for social functions but the well being of the population, as established by the Federal constitution (World Urban Forum 2010). Thus the main aim of these programs is to diminish the boundaries between the informal settlements and the formal city by improving the conditions of these areas and minimizing the amount of clearing. This is done through work on primary infrastructures such as roads, sewage system, water drainage, new housing, as well as with public interventions such as parks and sport centers. Furthermore, legalizing buildings, that were illegally constructed on public land (Chiodelli 2011).

Antonico creek urban project is an example of top-down slum upgrading. Initiated by the São Paulo municipality (SEHA), and in collaboration with the local architect Fernando de Mello Franco of MMBB (World Urban Forum 2010). The project site is located in Parasiópolis, the second largest favela in São Paulo. It consists of approximately 21000 buildings, home to 60000 people (Chiodelli 2011). Parasiópolis is situated close to the formal city however its irregular and steep topography makes it hard to control through formal housing strategies, thus giving rise to informal settlements (World Urban Forum 2010). Antonico creek cuts through a diagonal area of 1 km^2, within the urban grid of Parasiópolis (World Urban Forum 2010). The part of the river that is still located above ground is heavily polluted and used as a common dumping zone. Housing has risen adjacent to the creek even though this land is deemed hazardous (James 2011).

The aim of the project was to change these precarious conditions, by draining the basin, clearing the ground unsuitable for housing and reconfiguring this area to create a central and open public space. This central space would then operate as the key tool for promoting urbanity in the new city district and serve as a connecting-link to the surrounding city. Two main problems face this reconstruction, firstly the maintenance of public space, making the Parasiópolis inhabitants feel connected to this space and avoiding new irregular occupations on the cleared land (World Urban Forum 2010). Fernando de Mello Franco tackles this

problem by designing a type of "inland beach area", drawing associations to Brazil's long history of beach-culture. Hence, redefining water as a source of joy instead of misery, and creating a place for recreation that speaks to the inhabitants of Parasiópolis (James 2011).

To achieve this, the existing water channels will be transformed into a system that creates a double river, a system that will distinguish between water flows (James 2011). Storm water from heavy rainfalls or annual flooding will be sent to an underground overflow gallery. These galleries will also be incorporated into the municipals sewage system to include the favelas waste water discharges (World Urban Forum 2010). The additional water running above ground main purpose is to act as a pleasant attribute in the new central space. This water would also receive additional biological cleansing making it safe for contact and play by the community (World Urban Forum 2010, James 2011). The open area adjoining the canal will have a minimum width of ten meters and to achieve this, 698 buildings will have to be removed. Other than maintenance services the space will only be used for bikers and pedestrians. A bike path connected to the city network and the most recent subway line will run along the creek. The buildings bordering the creek will with time be turned into commercial and service establishments, promoting the local economy (World Urban Forum 2010). Antonico creek urban project was initiated 2008 and is still under development (MMBB 2012).

Buenos Aires, Argentina, South America

The greater Buenos Aires has a population of approximately thirteen million people (World Agglomerations 2011, p18). The informal settlements have been estimated to house thirty percent of the urban population, although this may vary between the city's different municipalities (iied 2011,piv).

In Argentina informal settlements have historically been referred to as *villas de emergencia* (Janches 2011). Following is a description of a project located in the villa de emergencia, *Villa Tranquila* , an example of a slum-upgrading project initiated without any governmental involvement (Beardsley & Werthmann 2008, Leguía 2011). *Villa Tranquila* was proposed by the Argentinian architect Flavio Janches and his office, Blinder Janches & Co architects together with his project partner Max Rohm, principal of Rohm-Ibarlucia | Landscape+Architecture firm (Leguía 2011, UTSOA 2012). The idea for the project started in 2000 and also involves students from the faculty of architecture and urbanism at the University of Buenos Aires, Harvard University and Amsterdam Architecture Academy (Beardsley & Werthmann 2008)

Villa Tranquila is a twenty-five hectare settlement located in the municipality of Avellaneda, south of downtown Buenos Aires (Beardsley & Werthmann 2008). It originated about 100 years ago and today it is home to approximately 7000 people of which the majority live in substandard, self-constructed and illegal housing (ASLA 2006). Villa Tranquila is situated next to the Riachuelo River, which acts like a barrier between the settlement and Buenos Aires (Beardsley & Werthmann 2008). The river is highly contaminated from local industry, industries which were originally the reason for many to move to this settlement. At present most industries have moved out leaving more than half of Villa Tranquilas inhabitant's unemployed (ASLA 2006). Furthermore creating a district of abandoned warehouses, isolating the area of Villa Tranquila from downtown Avellaneda (Beardsley & Werthmann 2008). Adding to the precarious

living situation is the fact that the Riachuelo's edge is higher in elevation than the Villa. Buenos Aires frequently receives heavy rainfall and every couple of years a special storm "sudestada" which sends a wall of water upriver. Thus the Villa is incredibly sensitive to flooding, though water is unable to run back into the river (ASLA 2006). The conditions of Villa Tranquila have not gone unnoticed by the municipality of Avellaneda. In 2003 the settlement was included in the slum-urbanization strategic plan and a specific program for the area started being implemented in 2005 (ELLA 2011). The main focus of the plan lies on infrastructure up-grading, thus removing insecure housing, filling up flood prone areas, constructing new housing and connecting the Villa to the formal city by including it into the city grid (new streets, sidewalks, new pipes for running water and sewers following the new streets) (ASLA 2006). Although, little or no attention has been given to the improvement of space, the public areas within the community (Beardsley & Werthmann 2008).

In relation to this Flavio Janches and Max Rohm's aim was to develop an up-grading strategy based on strengthening the social networks that already existed within the community through the reinforcement of public spaces. A bottom-up approach, that focuses on the community's 'Self-generating capacity' as the main force to reconnect with the formal city (Leguía 2011). The first step was therefore to reveal the social structure and to identify natural spaces within and at the periphery of the Villa able to break the isolating barriers (Leguía 2011). In addition to mapping the area, interviews and workshops were carried out with the residents and municipal technicians (Leguía 2011). Through this process a pattern of social structures such as, kitchens, cultural-organizations, after-school care etc, were revealed (Beardsley & Werthmann 2008). These structures were then analyzed in regards to their surrounding space in order to find potential focal points of new centrality and connections to the surrounding city. For example if they were situated near significant trajectories or adjacent to programmed (or not) open spaces (World Urban Forum 2010). Furthermore, the project team found that the Villas children and youths were especially neglected even though they build up the majority of the population (Beardsley & Werthmann 2008). As a result of this the youths became the main focus of the project. The idea was to develop a network of public spaces for kids, focusing on multifunctional programs revolving round all sorts of games (World Urban Forum 2010).

Participation and communication with Villas Tranquilas inhabitants was a key factor throughout the project. The project theme believed that the inhabitants must be involved in the upgrading process in order to understand the benefits of the changes. Before the final proposal was accepted it was discussed, prepared and defined in weekly meetings with future users of all age groups (World Urban Forum 2010). Even during the construction phase the locals were included in the building process (Leguía 2011). Janches was aware of the skepticism that slum-inhabitants often have towards these interventions due to a long history of projects being abandoned (ASLA 2006). In relation to this Janches was able to get additional financial support from a Dutch foundation 'Playspace', specially created to fund the building of at least three of these public spaces for children and adolescents (World Urban Forum 2010, PlaySpace Foundation 2012).

Today the first of these playspaces, 'Vicente Lopez Square', a playground with an adjacent library have been built. According to the playspace foundation inhabitants and children feel that the goals have been reached. The open space that used to be a dumping zone, dirty and unsafe have been transformed into a

clean, safe and fun space, inspiring hope for the communities future (PlaySpace Foundation 2012).

Discussion

The stigma surrounding slums remain largely unchanged since the word was used in the streets of London during the 19th century. The word slum has even been banned from the more sensitive and politically correct and academically rigorous lexicons. Furthermore some authorities have tried to popularize new terms for these areas in order to avoid the negative connotations (UN-HABITAT 2003, p9-10). As somebody brought up in a western formal city, reading descriptions of these areas such as Nijman's and Pandit's experience of Dharavi in Mumbai, however in-humane, it is also easy to understand the prejudice of outsiders against slums. Most humans are hard wired to feel uncomfortable in the presence of poverty and poor sanitation. Slums are generally a place where these conditions occur at a high density which might give a misrepresented picture in regards to similar problems within the formal city. In relation to this a natural instinct might be that these problems would be solved through slum-upgrading programs focusing on eradication and relocation of its inhabitants. Unfortunately, the situation is far more complex. The years of neglect by local authorities have allowed informal settlements to develop into areas of high productivity that play an important part in the local economy (Karanja 2010, Nijman 2010). The UN-HABITAT programme is fighting to change this perception and have now come to acknowledge that the informal settlements have become a quasi-permanent feature of today's urban structure and must therefore be integrated in any future strategies of urban development (UN-HABITAT 2005, p19).

While studying to become a landscape architect people constantly ask, "What it is that landscape architects do?" In the simplest definition the work of a landscape architect can be described as the design/planning of everything that lies in between the physical structures in a formal city. Through this work you start viewing the city and surrounding space in a different way; buildings and trees create mental walls, that together with the street becomes a city room. Once one begin viewing their surroundings in this way it is easy to forget that most people might not reflect over the mental effects created by the surrounding landscape. In the research initiative Dirty work, Beardsley and Werthmann point out that the main problems of informal settlements are viewed through their surrounding landscape. Thus, how they are occupying the left over marginal urban land. Including natural hazards such as flood plains and ravines but also close proximity to toxic sites, resulting from industries and sewage canals. Additionally how informal settlements are separated from the formal city by the lack of functioning infrastructure and public facilities but also through their severe environmental, public health and security problems (Beardsley & Werthmann 2008). Beardsley and Werthmann (2008) also believe that it is within this landscape that the main opportunity for intervention and improvement lies. In accordance with this, Janches (2011) refers to the city as a cultural object, meaning that public space is a central factor in the symbolic life of a city. It is in the streets that experiences and daily routines of the inhabitants converge and are physically represented. Even though they don't follow the same structure, both formal and informal areas

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of the city share the necessity of human activity. Thus, targeting the public space could possibly be the most straightforward way in which to erase the boundaries between the informal and the formal areas within a city. However, a careful review of literature on slum-upgrading projects reveals that, landscape is frequently regarded simply as a problem. Hence the solution is put on the physical structures placed in mere space. Perhaps this is a result of the global scale which frames this issue. A consequence of the search of an agreed definition of slum, in order to incorporate slums within mainstream monitoring instruments, such as national population censuses, demographic and health surveys etc (UN-HABITAT 2003, p10).

The projects from Manila, Philippines and Khulna, Bangladesh, illustrate the power of the surrounding landscape. Even though they share common factors of what constitutes a slum the local circumstances of the surrounding landscape give rise to different opportunities and requires innovative, specific solutions. For example, in the study site of GK Baseco, part of the slum-upgrading work carried out by Gawad Kalinga includes building secure houses. For the purpose of equality the houses are similarly constructed and blank walls can be found on either end of each row of houses. Between the houses the streets are narrow and there is hardly any public space. In relation to this the students proposed to turn these blank walls into productive end-walls were the villagers would have the ability to grow food (ASLA 2010). This proposal would make use of vertical space that might otherwise have been overlooked or deemed useless. Through the project carried out in Khulna it was discovered that the building of informal settlements had created thousands of man-made ponds. This is also a feature that could have tremendous values for the community. In addition to recreation, this provides opportunities for water retention, water supply and food production. In many cases these remain an unseen resource and are used as common dumping grounds instead (Rekittke 2009).

Official maps and planning material are key tools to getting around and understanding a foreign study site. Furthermore, spatial information is vital to be able to draw any kind of conclusion or propose changes to a site. However, due to the fact that most informal settlements have been deemed illegal, they have predominantly been ignored and left out of any national map material. In addition, they have also been blinded out from commercial cartography such as google maps (Nijman 2010, Paar & Rekittke 2011). This is another important aspect that is demonstrated in these two projects. The central aim of Rekittke and Paar's documentation of the Manila project was to contribute to the extrication of urban slums (Paar & Rekittke 2010, Paar & Rekittke 2011). Even though informal settlements are physically separated from the formal city they are frequently connected through technological media. Retikke and Paar show that with today's technology of smart phones, digital cameras and open source internet mapping, these areas can be documented with small means and at low cost. Although the time and effort this requires of the people involved have not been taken into account. Both these projects were initiated by universities located in foreign countries as part of a master's course. This in turn meant that apart from the field work, submitted projects only resulted in design proposals originating from a distant studio. One might discuss whether these projects can be viewed as actual slum-upgrading since they were mainly theoretical. Another question that arises is "Whether the short period of time spent in field is enough for the students to understand the incredibly foreign environment, and whether the students would

confuse the context of informal settlements with the local culture?" Rekittke (2009) argue that by subjecting students to these environments they learn that pitifulness or donation does not change the world-but one's own design action can. I agree with Rekittke, even a small period of time spent in this environment could inspire some of these students to get involved in similar projects later on. Such an experience cannot be taught or understood solely from a text book. It should be noted that the work initiated by Rekittke and Paar's in Manila did motivate local volunteers to carry on the mapping in nearby communities involving their local authorities. This suggests that small singular actions can evolve into larger-scale improvements. Thus, governmental involvement or sponsorship is not initially required to make a significant difference for communities of informal settlements.

According to Christian Werthmann Latin America is where the most interesting landscape interventions in relation to slum-upgrading projects are taking place today (Beardsley & Werthmann 2008). Architect Mariana Legúia (2011), explains that in the past the movement focused on building grand projects but today it has matured into modeling possible worlds and small-scale utopias of everyday life. Both the Villa Tranquila and the Antonico creek project clearly embody this change. These projects focus on the importance of public space and ways in which to integrate the project within the community or most importantly with the community inhabitants. However, something that has to be taken into account concerning all four projects is that the architects involved are also the main authors of the papers describing these projects. That is, the problems and outcomes revolving these different areas are portrayed from the architect's perspective. Villa Tranquila was initiated by architect Flavio Janches without any government involvement. Nevertheless municipal slum-upgrading projects were also being carried out within the area. It is possible that this combination is what made the project successful in the end. In the case of Antonico creek, the project has not yet been carried out. Hence, no conclusion can be drawn. Ideally to be able to use these projects as a model of inspiration it would be helpful to know the inhabitants response, before during and after an upgrading project. Also, analysis of a project should be carried out a significant amount of time after completion to adequately determine both immediate and long term results. Janches (2011) philosophy can be compared to planting a seed within the community that will grow and evolve with time. The first implementations of Villa Tranquila was deemed successful but will this process continue and if not, why?

Regardless of the bias that may exist in the description of these projects they still portray that the landscape of informal settlements can be used as an asset and is not solely deemed to be hazardous waste sites. However, if the concept regarding the importance of common space exists within these settings depends on how you interpret what this concept really means. There is no doubt that the inhabitants of the communities investigated value space. Space is seemingly a rare resource, enough so that many choose to build houses in unsafe places, which for example might risk getting flooded several times a year. Although, the concept of space that is not private and can be used and valued by everybody as a common resource is something that at least not in the straight forward way initially exist in these examples. One might argue though that this is not unexpected. The people of these communities possibly cannot afford to think in this way. That is, space is a rarity of immense value if you don't claim it somebody else will. High criminality or unpleasant environments, may force people to stay away from the public

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areas. Furthermore the high turnover of people might discourage getting engaged in the local environment. Of course these are just hypothesis which may be true to different extents depending on the history and specific circumstances of the settlement. Conversely, investigating this question from a different perspective the answer might change. That is, without the connections and social interactions taking place in for example a park the importance of common space is lost. Thus, if the city square is always empty then there is really no difference to an over-crowded street filled with garbage. The prejudice against slums that they are only home to misery and poverty is that of an outsider's ignorance. The examples discussed in the thesis show that slum inhabitants are incredibly resourceful and innovative and social networks develop regardless of a seemingly haphazard structure. In conclusion it seems that the spirit or the core of the concept revolving the importance of common space exists but without the actual physical space that enables these networks to connect and evolve.

The second question of the thesis was to investigate if landscape architecture exists as a profession within the settings of informal settlements. It is true that according to statistics from IFLA, the profession of landscape architecture is increasing in the developing world. Although as discussed by Taylor (2011) this is mainly in regards to traditional city planning of the formal city. As long as informal settlements are not regarded as part of the city structure it is my belief that the profession cannot exist in these communities to any great extent. The main reason being, that at some level the authorities have to be engaged or at least acknowledge informal settlements to be able to make larger scale improvements. The greater cities in Latin America are perhaps the best modern examples where the boundaries between the informal and formal city are slowly starting to be erased and in doing so giving an opportunity for landscape architecture to develop there. In relation to this one might ask if landscape architects from western cities/foreign countries should get involved with slum-upgrading programs/projects in developing countries.With the knowledge acquired from this thesis I will argue that landscape architects from western cities should get involved for two main reasons. Firstly, the way in which we live and use our resources in the western world, does not only affect us locally but globally as well. For example, flying around the world is easily achieved for somebody with money. However, ait-travel releases a large amount of pollutants involved in the process of global warming. Secondly, as was pointed out through Nijman's (2010) description of one of Mumbai's bigger slum areas Dharavi, urban slums are already connected to the city mosaic, now measures need to be taken that acknowledge this. Often simple landscape interventions can provide alternative solutions to slum eradication and propose more economically sustainable and profitable long-term use of the land. Dagenaar's (2008) project proposal for the heavily neglected Khulna railway is a good example of this. These proposals would hopefully also make the authorities realize the potential of landscape architecture rooting the profession locally.

Alternatively one might argue that the environments of informal settlements are to foreign for landscape architects from the formal city. They are faced with new social rules, boundaries and obstacles that might be hard to understand as an outsider only staying for a limited amount of time. Though the work carried out by Paar and Rekittke (2011) have shown that it is possible to overcome a lot of these obstacles simply by relying on good communications with locals and help from our modern day technology. Perhaps the bigger obstacle facing these kinds

of project is how the profession is perceived. Rekittke (2009), discusses that contemporary landscape architecture is predominantly perceived to be a deluxe profession flourishing in times of peace and economical high. The views of the world renowned Dutch architect Rem Koolhas, weighs in on this subject. As part of a research program investigating changing urban conditions around the world at the Harvard graduate school of design, Koolhas spent several years observing the city of Lagos, Nigeria. From this Koolhas concludes that the rapid urbanization taking place in the developing world is outside the control of formal planning. It should mainly be perceived as a visual phenomenon. The architect can observe but have no means of influencing its development (Sharro 2006, Harvard University 2012). Architect Anders Wilhelmson professor at the Swedish Royal Institute of Technology stated 2009 in an interview that: it is often the young inexperienced architects that engage in these issues while the well established architects are involved in projects building flashy hotels in countries such as Dubai (Gunne 2009). However the work discussed in this thesis strongly suggests that this sense of helplessness is a poor excuse. Hypercities will most likely be the cities of the future and urban slums, a rule rather than an exception if no major action is taken. The formal city planner including the landscape architect profession needs to move away from generalizing slums as hopeless areas of misery.

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