This document is a summary of our collected research and knowledge of Informal Settlements. Here we will introduce multiple ways in which we have worked, and/or propose to work, within the intersection of informal and formal urban development.

The presentation begins with a short introductory **Background** to informal development in the world, its scale, possibilities and challenges.

We will then outline our shared **Methodology**; from data collection and social inclusion, through careful strategic planning, to architectural projects and interventions.

To give a brief introduction to how we, independently, have worked with informal development we will present **The Hub House Strategy** and **Wastescape Bhubaneswar & Cuttack**, our Master Diploma Projects from the School of Architecture and Built Environment at the Royal Institute of Technology, Stockholm.

**Principles of Informality** are some of the main underlaying principles spurring and organising the development of Informal Settlements. These form a theoretical foundation for understanding and entering specific processes and/or phenomena in Informal Development.

Three main categories we find of interest for any architectural practice in relation to informal development are: **Informal Actors**, **Informal Economy** and **Informal Built Environment**. We will sketch out how these processes take place and what architectural possibilities emerge in this field.

**Future Possibilities** concludes the document. Here we discuss concrete and/or theoretical approaches and projects to continue of this architectural research.

If you are interested in knowing more about our work or to start a collaboration with us, you can find our **Contact Information** at the last page of this document.
BACKGROUND

Today, informal settlements are spreading globally at an enormous pace. Approximately 2 billion people are living in slums (30% of world population) and the number is rapidly growing. Within 15 years half of the world population, around 4 billion people, is estimated to live in slums.

Informal settlements are not only expanding rapidly but even taking over cities, becoming the predominant part of, and thereby quickly changing, the urban tissue.

These “new types” of cities, with small formally planned urban cores and vast informal settlements, can be found throughout all of Africa, Asia and South America.

Informal settlements have an enormous impact on the world on various scales, from contemporary urban development and global environmental effects to human rights and land rights aspects.

In order for agencies (e.g. governments, urban planners, NGOs) to address these challenges new planning methods, tools and approaches; new construction techniques; new fields of science and new urban theory is of urgent need.

We have, since 2009, studied informal urban development and begun to develop guidelines for informal urban planning. These guidelines are based on processes, actors and phenomena intrinsic to the informal settlement.

Studies of informal environments must be non-judgmental, non-moralistic and critical. Informal settlements may, at a first glance, seem chaotic, uncontrolled or random. A critical study of informality will however reveal a set of “rules” similar (of the same magnitude as, but of different kind) to the laws and economies of formally planned cities. Only through understanding the core principles and processes of informal urban development can it be addressed and improved. This is how the two “urban worlds” of informality and formality can be interconnected.

Informal urban development can not be separated from nor forced into systems of formal urban planning. Dynamic strategies and toolsets, spanning from informal to formal, are needed to interconnect these two “urban worlds”.

Chisinau, informal grocery street market.

Bhubaneswar, Muslim Sahi, informal development.

Hong Kong, informally developed house, on private property.

Formal social housing, Baxada Fluminese. Photo: Márcia Foletto.
METHODOLOGY

Architecture must, if to be successful, be well informed and anchored in social, economic, environmental and built contexts. We base our work on a foundation of data collection, research, urban theory and social inclusion.

The collective knowledge formalise in overarching strategies for continued, and improved, informal urban development. Strategies is a generator for key approaches, principles, nodes and opportunities which will be focused upon and enhanced through the architectural practice.

When working with informal urban development it is of utmost importance to work within informal processes and frameworks, acknowledging principles of informality.
The Hub House Strategy is a developed by Frej Lind-Holm as his Master Diploma Thesis Project at the School of Architecture and Built Environment, Royal Institute of Technology, Stockholm.

Background and case studies were carried out in collaborations with: Faculdade de Arquitetura e Urbanismo in Rio de Janeiro (2009-2010, with grants from EUBRANEX and the Royal Swedish Academy of Fine Arts); MIKSER FESTIVAL in Belgrade (2012, invited by Ivan Kucina as tutor together with SIMKA); and the Urban Studio at Royal Institute of Technology (2012, study trips to Hong Kong (2 months) and Chisinau (2 weeks)).

The project aims to develop strategies (for informal urban development) derived from analysis of impact and consequences of earlier projects in informal built environment. The strategies combine knowledge from Urban Planning and Informal Systems, focusing investments on specific key points such as Water, Waste and Energy. The project follows a methodology of Knowledge > Theory > Strategy > Architecture, creating an urban core in Favela Complexo Alemão in Rio de Janeiro, Brazil.

The basis, here signified by knowledge, consists of case studies of projects in informal settlements (in Belgrade; Chisinau; Hong Kong; Rio de Janeiro; Tirana) and reading of contemporary urban theory.

From this data collection, principles for and a foundation to new informal urban theory was written. This theory was further developed into a strategy focusing on combining formal urban planning and informal processes to create positive synergy effects and focus investments on these key nodes (e.g. decentralised informal waste and water management and formal building and foundation construction).
THE HUB HOUSE STRATEGY

The architecture thus gives: a construction that strengthens its surroundings as much as itself -synergy-; a construction enabling elevated buildings with the smallest ground area footprint possible, allowing the informal environment to continuously grow -tolerance, to accommodate change-; a project not only informed by the fact that informal areas are growing but rather how they are growing. _foundation, water systems, waste to energy_; an urban node whose construction can hold and facilitate functions the informal do not create on its own.
**WASTESCAPE**

Existing Wastescape. Mapping of wastescape through key node sections, showing spatial processes, networks and consequences.

Detail from Existing Wastescape, showing Muslim Sahi.

**Wastescape Bhubaneswar & Cuttack** is the Master Diploma Thesis Project of Oskar Gudèhn and Linda Ringqvist at the School of Architecture and Built Environment, Royal Institute of Technology, Stockholm.

The project is a study of the wastescape of Bhubaneswar and Cuttack in Odisha, India, and its major implications. Drawing from the studies, multiple interventions within the wastescape are proposed for improvement of the economic, ecologic and social situation.

An important aspect of the project is the development of an approach for how we, as architects, can work with big, complex, contingent networks; how we map and understand such a system and how to determine where to intervene.

The first phase of the project consisted of a two-month, on-site, field study in Odisha. The study, including field observations; interviews with city officials, informal waste workers and NGOs; identification of key nodes in the Wastescape etc., was carried out in collaboration with Mahila Milan (a network of poor womens collectives) and UDRC (an NGO focused on slum upgrading and supporting Mahila Milan).

The collected data is refined in a “Wastescape Documentation”, which in turn is used to formulate key concepts and focal points for architectural interventions.

A major part of the theoretical framework is the discussion concerning concept such as waste, wastescape, waste phases, informal waste management, informal and formal economy and actor networks.

The project’s design approach aims to be holistic, diverse and open-ended.

50 conceptual sketches, based on the documentation, provide both practical as well as conceptual, thought provoking, ideas of how to address specific (and generic) issues of the wastescape. All interventions must be profoundly anchored in the local social context before they can be fully developed to a stage of actual implementation.

Proposed interventions are designed to build on existing systems of livelihoods, informal commerce and waste management.

As the design proposals derive from (our study and reading of) the existing wastescape network of waste management, and not only isolated problems, they will by default create synergies throughout the system.

In Bhubaneswar and Cuttack there are crude, but effective, systems for retrieval of recyclable waste from the mixed waste stream. These are wholly managed by the informal sector.
WASTESCAPE

Currently there is no trade in biodegradable waste. Incentives for local stakeholders to promote informal systems for biodegradable waste should therefore be prioritised. Consequently, a majority of the proposed interventions address biodegradable waste.

All projects aiming to improve conditions for urban poor and informal communities should be developed in collaboration with the communities. Interventions must be anchored in the social context, otherwise they risk quickly falling into decline.

The formal waste management should better incorporate the informal sector, functioning as a supportive instance of the latter. In this way the waste flows of Bhubaneswar and Cuttack could be more streamlined, simultaneously improving the conditions of people working in the lowest segments of the informal waste sector.

Recycling through informal waste sector, Dharavi, Mumbai. India.

Spatial mapping of the wastescape, informal and formal sector.
PRINCIPLES OF INFORMALITY

Informal (Urban) Development, like Formal Development, follows a clear set of premisses, mechanisms and processes. These informal processes are heavily shaped by a dynamic network of interdependent “Principles of Informality” (comparable to the laws, regulations and economies of formal development). Informal processes and networks are all affected by these principles to a varying magnitude and in different combinations.

This chapter will introduce a couple of these principles and how they affect the informal urban environment.

NECESSITY

Necessity can be described as the driving (and complex) force of urban fruition or even survival.

It is a key principle to understanding informality, correlating to all process within Informal Development.

A clear difference from formal development can here be pinpointed, where necessity arguably plays a part but is often subsided or non-influential (e.g. economic models, laws, politics, building regulations).

Necessity manifests itself, for example, in how buildings within informal settlements utilise most suitable conditions for expansion (e.g. existing foundation, stabilisation of construction, proximity to water, sewage and power infrastructure etc).

The impact of necessity is also clearly visible in informal market economies, where necessity forcefully drives stakeholders to prime businesses and location.
PRINCIPLES OF INFORMALITY

EXPANSION

As informal settlements grow they consume space in all three dimensions, building into and on top of itself; creating all kinds of formations; in varying dense and loose urban fabric.

The expansion of informal settlements is not a linear or phased process, it is dynamic in nature, both in the scale of singular buildings as well as in the settlement as a whole.

This process is not haphazard or erratic but should rather be understood as a long-term process of flexible solutions, tolerant to fluctuations in the social, economic and urban context.
PRINCIPLES OF INFORMALITY

DREAM
You can not build what you can not imagine.
In informal settlements, where formal regulations, speculation economies and laws are of little significance, the vision becomes more directly linked to the building process as well as to the outcome.
The concept of dream catalyses (individual or communal) dreams of specific qualities into built reality, simultaneously it limits the informal development to what presently can be imagined.

The modernist dream of urbanity. Plan Voisin by Le Corbusier.

“Minha Casa, Minha Vida” in Eunápolis. Photo by Manu Dias.

Water cycles and local waste management as possible qualities.

Creating new Dreams; Visualising high-quality mud housing.

Introducing new Dreams of informal/formal urbanity.

Floating Agriculture Rafts in Monsoon and Dry Season.

New ways of imagining communal production spaces.

1. Water Storage / Livelihood
2. Rammed Earth (Low Embodied Energy)
3. Ventilation of Cooking Fumes
4. Rainwater Harvesting
5. Fire Cell
6. Water/ Water Reuse
7. Excrement Collection for Bio-Gas
8. Well Drained Gerad Foundation
Informal Actors are here categorised as all parties and stakeholders existing within the informal community and partaking in its processes.

These actors can be of formal and informal kind, e.g. residents, local communities and business networks, formal governments and administrative authorities, land owners, local informal power structures etc.

This also includes most processes where formal actors try to intervene in or regulate informal settlements, e.g. through models (such as bottom-up and top-down planning models), economics and/or politics (such as the Brazilian building law).
Informal economy is in definition all non-regulated economy and labour. But when discussing informal urban development it is important to include all economies taking place in, or in relation to, informal settlements in the term. The concept is thus widened to understand the whole spectrum, and the complex relations, between formal and informal economies.

It is also important to understand how economies and economic activity in informal settlements (e.g. informal markets, economic networks, independent street hawkers) are affected by the principles of informality, such as necessity.
Informal street trade, Chisinau. Informal market built around (and using) power station, Delhi. Night time street-side restaurant and stores, Hong Kong. Small market in informal settlement, Hong Kong.

Diagram of synergies between informal and formal economies (e.g. housing and trade markets), effected by Expansion and Necessity.

"with a diminishing tax base, the city will not be able to financially support areas that do not directly contribute to the formal market. Instead of focusing on housing policy, needs to transform the informal markets into an active and contributing part of the city."

"even where considerable investments in planned settlements occur, there is a frequent mismatch between what is built and what people need and want."

The informal market
the informal market exists besides the formal one without selling and renting lots. In 1999 a rental unit had an equal price as those in Cospecabana and a higher compared to most of Rio. City words in this market is freedom, flexibility of construction access to social networks. 60% of Latin America's workforce is informal, 4 out of 5 jobs.

Highest known building informal market is 13 stories (but has 14 stories). The favelas association with extreme poverty and substandard living conditions has overshadowed a dynamic community that has continuously demonstrated its resourcefulness and ability to self-organize.
The informal built environment is the physical places and buildings, and their integral relationship, relating to any informal settlement. Informal built environment here categorises and describes many of the factors, processes and actors that determine how the informal urban development is built.

The informal built environment has a variety of flexible solutions of infrastructural distribution systems, e.g. for water, electricity. These systems are extremely efficient in the numbers of persons or households they connect in relation to cost.

When studying them we can better understand how to connect to and become a part of the informal system. Developed solutions, that creates synergy between the informal and formal, can target problems which these systems do not solve on their own, e.g. graywater handling, water quality and fire hazards.
INFORMAL BUILT ENVIRONMENT

A key step when working with informal development is to formulate diagrams, schemes, drawings and strategies from knowledge of the informal built environment.

Here is some of our own work in comparison to existing building methods.

By elevating buildings and stabilising loose ground it is possible to build in informal contexts with high density, urban pressure and difficult soil conditions. Synergetic infrastructural systems increase the building’s tolerance and adaptability to the informal environment.

This allows to build inside informal settlements instead of getting pushed to the outskirts.

Possibilities of merging uses through multi-functional architecture.

Relations between construction, architecture, space, water.

Existing method for foundation in Rocina, Rio de Janeiro.

Construction principles and details in section and plan.

Construction to develop spaces in the formal/informal intersection.
Development of an Urban Theory of Informality
We are interested in research that would further develop principles, terminology and urban theory for informal urban development. The research includes various forms of on-site mapping (e.g. spatial, typo-morphologic and actor network mapping), interviews, seminars and academic collaborations.

The project aims to fill the academic hole concerning informality. The paper will help architects, planners and policymakers to understand and interact with informal settlements.

The Mini-Hub House
We propose the design and construction of a prototype mini-hub house. The hub will be a small scale test, lying in to the existing fabric of the informal settlement. The architecture aims to use and strengthen existing uses, activities and networks (e.g. water distribution, waste flows, energy production).

A mini-hub house will be a powerful demonstration, creating a case-study for future, synergetic architecture practice in informal development.

Pavilion of the Stateless in Venice
We want to bring informal development deeper into the architectural discourse. Through exhibitions and workshops, using formal scenes for art and discussion, we can give voice to the underrepresented.

We propose the curation of a Stateless Pavilion, focusing on the informal architecture and urbanity in unrecognised states (e.g. Filastin, Kurdistan, Pridnestrovie) in the Swedish Pavillion in Venice.

Art / Film / Animation Projects
How we describe and discuss informality is important. Through film and animation, stories from within the informal can be told and heard.

We want to merge real stories from life in informal settlements with visions of possible futures.

Through such projects we want to include more people in the discussion of our shared dreams, ideas and thoughts around informal development.
Contact Us
We are very eager to put our knowledge of informal settlements into practise. In Future Possibilities we have outlined some of the projects we have initiated.

If you find our research attractive, would like to meet us, want to join us in (or can recommend partners for) collaboration or have other project ideas, please feel free to contact us.

Summery
In this paper we have given a background to informal urban development and how it grows. Through key principles and concepts (such as informal actors, economy and built environment) we have begun a mapping and a theoretical framework of informality and informal settlements.

All practise relating to informal environments must be steadily grounded in study and research of the existing informal urban tissue and its determining factors and parameters.

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Short About Us
We have both graduated as Masters of Architecture from the Royal Institute of Technology in Stockholm.

During our studies we have studied and performed studies abroad.

Frej did his master thesis at the Urban Studio at KTH. He has lived and worked in Brazil periodically between 2004 and 2010 (amounting to about five years in total). Between 2009 and 2010 he was studying at the Faculdade de Arquitetura e Urbanismo in Rio de Janeiro, with grants from EUBRANEX and the Royal Swedish Academy of Fine Arts.

Frej was invited together with SIMKA for two weeks of tutoring at MIKSER festival, Belgrade, Serbia, working with urban phenomena.

Oskar did his master thesis at the Critical Studio at KTH. He has studied one year at the Urban Studies at Eestikunstiakadeemia in Tallinn, Estonia, funded through ERASMUS, and have performed studies in Bhubaneswar, India, with grants from Sida's Minor Field Studies program.

Our work experience includes working for a number of Swedish architects and artist, eg, SIMKA, Stuart Wrede, Stadion Arkitekter, Marco Cueva, Roger Andersson.

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