FINDING THE SOCIAL CONDITIONS FOR THE SUSTAINABLE IMPROVEMENT OF SLUM-LIVELIHOODS:

CASE STUDY OF SCAVENGERS IN LIMA, PERU

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This work is dedicated to the **1.000.000.000** slum dwellers around the world who must live like that so I can live like this.

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Without my JEMES family this dissertation perhaps would not have existed and I thank them and my friends in Barcelona, Hamburg and Aalborg for listening to my ideas, agreeing and differing. I hope to see you working to make things better from wherever you are.

Laptop- thank you for not dying on me since 2007.

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Acronyms

A: Scavenger association

CS: Ciudad Saludable

DFID: Department for International Development

HDI: Human development index

HPI: Human poverty index

INEI: Instituto Nacional de Estadistica e Informatica (National Institute of Statistics and Informatics, Peru)

IS: Involved scavenger

LWMA: Local waste management authority

MDG: Millennium development goal

MSW: Municipal solid waste

NGO: Non-governmental organization

NIS: Non-involved scavenger

PD: Project developer

SJM: San Juan de Miraflores

SLA: Sustainable livelihoods approach

UBN: Unsatisfied basic needs

UBT: Urban bias thesis

UN: United Nations Organization

UN HABITAT: United Nations Human Settlements Programme

Section		Questions to answer	Perspective
Preparatory information			
1	Introduction and Research Objectives	What is this project about? Why is it important?	Part I Project design
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Chapter 1: Introduction and Research Objectives

This chapter introduces the problem of the rapid urbanization of poverty, and slums as a tangible symptom of this phenomenon. The chapter continues by laying the concern regarding urban poverty and how slums-dwellers can improve their livelihood to generate sustainable development for the entire city. The research objectives and guiding questions are presented and the scope of the study, including limitations end the chapter.

Introduction

Poverty is an intrinsically human experience. Even though it is not unusual to find expressions such as “poor ecosystem” “poor whales” or even “poor soils” the meaning when applied to human populations is entirely different and can acquire a more intense emotional undertone. The definition of poverty is extraordinarily difficult, with several dimensions and criteria. Its identification is relative to the culture and to each person, but exists throughout the world. One thing in common though, is the fact that poverty is an undesirable state of human being. So much so, that when in September 2000, world leaders through the United Nations General Assembly gathered to establish a global mission and vision for the future, the eradication of poverty and hunger was the first target. This goal, in addition to seven more, later became known as the Millennium Development Goals (MDGs).

The effects of poverty are many. Most visible are the physical effects: poor human health, unsafe living conditions, little or no access to basic needs such as energy, water, food or land. However, there are other dimensions and effects beyond the physical which perpetuate poverty itself and make it so hard to eliminate: lack of influence on decision-making that directly concerns the livelihood, lack of space, time and knowledge resources to organize into positive development strategies, and perhaps, most pervasive of all, lack of dignity and respect. Poverty has often been referred to as the plague of humanity and it is estimated to affect 1,4 billion people in the world, who live at or below the World Bank’s revised $1.25 USD/day international poverty line (Chen and Ravaillon 2009).

Where is poverty? Following the above train of thought, poverty is where people are. 2008 marked the first time in history where the urban population outnumbered the rural. It is estimated that on a global level 50,46% of the population lives in cities with clearly marked regional differences: while in the developed countries the urban proportion is a great majority at 75,16%, developing countries are approximately 45,08% urban. However, out of the 30 largest cities in the world, 21 are in developing countries, including 4 out of the 5 most populated cities[1] (UN Population Division 2010).

[1] The five most populous cities are Tokyo, Delhi, Sao Paulo, Mumbai and Mexico City

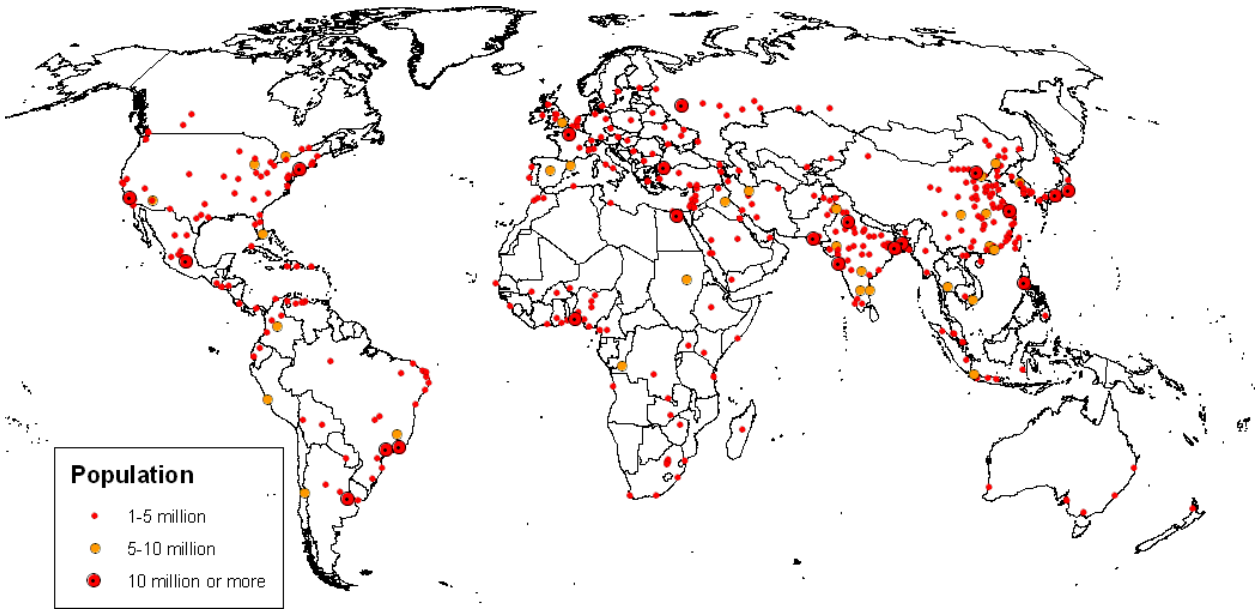

Figure 1. Aglommeration areas in the world. (UN Population Division, 2010)

Figure 1 shows the location of the largest urban centres. There are 21 cities of over 10 million people (16 in developing countries).

As more people concentrate in the cities, poverty follows, making a home, as much of the population, in slums. In this research paper the term slum is used to denote those urban areas where the poorest people live, that generally have little access to public services such as potable water, sanitation, energy provision, communications and transport, have high density, and whose tenure may be informal or even illegal. The term slum or marginal urban area will be used indistinctly throughout this paper and an in-depth revision of this term is found in Chapter 3.

The countryside is different from the urban space, and poverty in the latter context is different too. Some authors point out three general differences between urban and rural life: commoditization, environmental hazard and social fragmentation (Moser 1998). High levels of commoditization mean that the urban poor must rely on labour to generate income in terms of monetary streams in either wage employment or in the informal economy; it implies as well that households pay for food and shelter rather than rely on self-production. Environmental hazards refer to the poor quality housing, inadequate water supply, sanitation, solid waste disposal and industrial and vehicular air and water pollution that can have serious impacts upon the urban poor. Finally social fragmentation arises in urban areas by greater social and economic heterogeneity, and the constant mobility of people within communities (Moser 1998). “Chronic poverty in urban areas is much more complex than the visible problems of acute need in inner cities. It is likely that urban poor live in diverse economic and political situations, facing different livelihood opportunities and different physical conditions” (Mitlin and Centre 2003).

The concern

This work is aligned with new trends of development work, where a traditionally marked emphasis in rural areas is lessened and more attention is given to the urban context (Beall and Fox 2007) (Mitlin and Centre 2003), (UN HABITAT 2003). The author of this research project was born and raised in Puebla, a city of approximately 2.5 million people in Mexico, whose daily reality included some of the problems on the environmental and social base of cities.

Cities are an unequal place. Sadly, most of the environmental negative effects of urbanization disproportionately affect the poor who live in the cities. The highest air pollution, ambient noise and light, little or absent green tranquil areas, bad smell, low quality access to water, driest or most polluted soils are where the poor people live. Often the poor live in high-risk areas subject to periodical 'natural disasters'. It is in the marginalized urban areas, or slums, where trash accumulates, people agglomerate, the infrastructure is markedly un-maintained and where the general population recommends avoiding: "that is a shady part of town" "very dangerous" "troublesome people" "fierce neighbourhood" "the places that make our city look bad". The perception that slums constitute a threat to the security, resources and aesthetics of the entire city is prevalent. In the experience of my city, Puebla Mexico, when the municipal government removed street vendors (perceived as poor people who often dwell in slums) from the historical centre in the mid 1990s, it was considered liberation from "invaders who bring filth, violence and decay". Indeed, this author perceived this displacement as desirable and now the city centre is marketed, most ironically, 'for all the citizens'.

The largest amount of developing literature concerns rural areas and social theories of poverty in developing countries seek to understand the rural circumstances. It is more or less recent that attention has been given to the amelioration of the urban poor for general sustainable development. As an Oxfam report on urban poverty notes: "Over much of the second half of the 20th century, policies to reduce urban poverty focused on investment in the rural sector[…] The era of structural adjustment explicitly favoured rural development by encouraging agricultural exports and discouraging domestic industrial development" (Beall and Fox 2007). The United Nations Human Settlements Programme (UN HABITAT) was established in 1979, and created two programs for slum improvement that only began in 2004 and 2008 respectively. The World Bank, the United Nations, European Union (EU), 16 national governments and some non-governmental organizations formed 'Cities Alliance', a coalition to finance projects for city improvements and urban poverty alleviation that was launched in 1999. Recent efforts to "urbanize" rural development tools (for example the sustainable livelihoods approach) show the increasing importance of the poor urban area as demanding a sustained development as well.

Opportunities for sustainable development

In light of the growing number of projects and programs targeting the urban poor, this sector of society is slowly emerging as a partner for the sustainable development of the city as a whole. The urban poor often provide the "muscle" for city life and development; the construction workers, maids, recyclers, hard labourers, street sweepers, urban transport workers (in many developing cities) are mostly from the poorer sectors of the city. Particularly in the case of waste pickers (more technically referred to as scavengers), the urban poor contribute to the improvement of the environment by reducing the amount of waste that is disposed in landfills, decreasing the proportion

of virgin materials for industrial inputs and preventing some soil water and air pollution associated with these activities. In this case, if well managed public poor-people partnerships are formed that support the work of scavengers, sustainable development can occur both for this sector of urban poor and the city as a whole.

It is the scavenger sector in a large Latin American city that will serve as a case for the analysis of a development project targeting slum dwellers.

Case: Scavengers in San Juan de Miraflores, Lima, Peru

In order to analyze a specific development project involving the urban poor living in slums, a case was selected. Due to the qualitative aspects of this work, Latin America was chosen to avoid cultural and language obstacles and because the region is a leader in social advancement of the scavenger sector of slum dwellers (Medina, Scavenger Cooperatives in Asia and Latin America 2000).

San Juan de Miraflores is a district on the south of the city of Lima, Peru. It is describe by the Limeños (citizens from Lima) as a low and middle-low income area where large part of the population live in urban marginal areas locally called 'human settlements'. A local non-governmental, non-profit organization known as Ciudad Saludable, (Healthy City) began a development project in this district in August 2008 to promote social inclusion and work insertions into the formal market of informal scavengers who live and work there. This project, which finished in June 2009 saw Ciudad Saludable forming alliances with the San Juan de Miraflores district municipality and an association of scavengers known as Reciconsur. The project involved the strengthening of Reciconsur as an association, technical training for scavengers, negotiating with factories and companies to have their recyclable wastes picked up by the scavengers, the set up of a domestic collection route where households were encouraged to source separate their material and hand it in to the scavengers, micro-credits for Reciconsur and individual scavengers and the set-up of a self-owned waste transfer centre to eliminate the need for intermediaries between the scavengers and the recycling industry.

Lima is the capital city of Peru, the third largest country in South America by extension and was recently catalogued by the World Bank as an upper-middle income country (World Bank n.d.), with a high human development index (ranking 78 out or 182 countries) (UNDP 2009). Recent estimates on the number of poor urban areas (in different degrees of development or establishment) in Lima lack; the latest statistics, from 1993, indicate that there were 1153 very low income (often unregulated) neighbourhoods, housing 34,18% of the population. A study conducted in 2002 compiled a list of 2274 neighbourhoods in the Lima Metropolitan Area (SASE 2002).

Ciudad Saludable (CS) was founded in 2002 by Albina Ruiz, an industrial engineer concerned with the management of municipal solid wastes in Peru. The project began with a project for the integrated waste management plan including the social integration of scavengers in the city of Carhuaz on the northwest of Peru and by 2010 has grown to cover 22 cities across the country. Ciudad Saludable has replicated its model in several Latin American countries (Venezuela, Colombia, Mexico and Ecuador) and is currently working on doing so in India through partner organizations. The main activity of CS is the integration of street scavengers into the formal municipal waste management system by supporting the creation or strengthening of scavenger cooperatives, eliminating intermediaries between the scavengers and the industries that purchase waste materials for their recycling and

being a source of information regarding civil rights and duties (health and education access, taxation systems, etc.). CS works at the political level, participating in the creation of the Peruvian Scavenger Law issued in October 2009 (whose aim is to include scavengers into formal waste management systems and protecting them with specific rights) and sending forward a proposal for its Ruling. In the city of Lima, CS works in 21 different locations. The main offices of Ciudad Saludable are located in Lima, Peru and were visited from April 22 to May 3, 2010.

The criteria to choose the project developer were the strength and permanence of its projects, the focus on urban poverty, the solidness and reputation of the organization, the willingness to provide information and interviews and the feasibility to visit.

Research question

Condensing the background information, three main reasons motivate this study:

1. Increasingly, poverty is shifting towards urban areas.
2. More development work and efforts are aimed at rural areas rather than urban.
3. Slums form particular social relationships and dynamics that may make it more difficult to engage in sustainable autonomous development strategies.
4. By improving conditions in slums, cities improve as a whole (less violence, less environmental impact/footprint) enriching the life of large numbers of people.

As poverty gets concentrated in the cities' slums around the world, and these are increasingly being recognized by the largest development promoters as indispensable communities for the well being of all city residents in general, this research paper aims to identify the key social conditions that permit the sustainable improvement in the quality of livelihood of slum-dwellers.

Seeking to address this objective, the main research question is framed as:

What are some of the key social conditions that enable the sustainable improvement of slum-livelihood and the incorporation of slum dwellers into autonomous development and environmental protection strategies?

Applying this question to the selected case:

What are the key social conditions that enabled the scavengers and other slum dwellers to engage in sustainable improvement of slum-livelihood and become involved into autonomous development projects and environmental protection strategies facilitated by Ciudad Saludable in the slums of Lima, Peru?

Sub-research questions:

Six sub-research questions were established to aid in the answering of the main question:

1. What is the scavenger's potential for the sustainable development of a city?
2. What social conditions are identified by different actors as playing a role in the case of Lima's scavengers?
3. What is the perception of scavengers towards their development and their relation to environment?

4. What are the key obstacles and opportunities that different actors identify for Ciudad Saludable's project?
5. What are autonomous development and environmental protection strategies in the context of slums?
6. How does a case study contribute to the knowledge of strategies for sustainable improvement of slums in general?

Scope

Methodology

This research is based on the assumption that the reality is a complex system of elements whose interrelation is specific to a certain context, and the researcher can neither grasp the totality of elements that constitute reality nor remain neutral in the observations. A case study methodology was chosen because it recognizes the importance of the context to both understand and explain a phenomenon, and because it aims at understanding the processes of social change in a detailed manner. The case study included only qualitative material gathered from literature review, direct observation, interviews and an experiment (tag activity) to compare respondent's views.

The conditions observed of the scavengers, municipality and NGO-project cannot be generalized to the profile of a scavenger in Peru, much less Latin America or globally. Generalization is neither the objective of case studies nor is it in line with the underlying assumption of reality as context-specific.

Geographical and Temporal

This research is focused on poor urban areas, often unregulated, that exist in middle and large sized cities of developing countries.

However the in depth analysis of the case is limited to the middle-low class district of San Juan de Miraflores within metropolitan Lima in Peru. The observations were performed in relatively 'dignified poor' conditions and the poorest and more dangerous areas of the district were not visited due to safety concerns and time constraints.

Limitations

The most important limitation of this research is the reduced number of interviews. This was caused by time constraints and the unknown dynamics of the site. A total of six interviews were conducted and two of the actors identified in the research design (NIS and I) were not interviewed. As a consequence, the perceptions gathered are not representative of the slum dwellers, scavengers or authorities that work in the district of San Juan de Miraflores.

A second limitation is the lack of quantitative data on the social development of the populations of study. This information was not available from public sources and was out of the scope of this research paper due to methodological choices.

A third limitation is the possible moulding of the interviewees answers to fit their perception of what the researcher wanted to hear. It is well known in the social sciences that the presence of a stranger and certain differences (i.e. gender, perceived socio economic level, age, etc.) influence the outcome (Rubin and Rubin 2005).

The fourth and final limitation is theoretical. According to the epistemology used in this dissertation, a researcher cannot neutrally observe an entire reality because it is a complex system and the researcher itself influences it. Therefore the observations and results gathered can only perceive those parts of reality available to the researcher.

All the field work was conducted in Spanish and the best effort was put into accurately translating the interviewees' answers and comments. However some concepts may not be fully represented in the English information processing.

Chapter 2: Methodology

This chapter will describe the research approach and the detailed procedure taken to conduct the project. This research is mainly empirical in nature, seeking to describe and make coherence of observations found in the field work rather than the development or exhaustive discussion of theoretical models of development of the urban poor. A pre-designed procedure of social or environmental research was not used, and instead the procedure was based on literature review, advisor's input, and time and resource availability.

The world view: author's assumptions

In Mexico there is a saying that roughly translates to: "each speaks according to how it went for him in the party" meaning that our opinions and knowledge about a particular subject are a direct result of our experience with it, and that different experiences produce different (but equally valid) knowledge.

Reality is a complex system , and the way we perceive its different components is subject to our 'standing': our culture, our parents' culture, our religion, language, gender, age, socioeconomic status, and exposure to ideas different from the mainstream shape the window between our brain, indeed our soul, and our surroundings.

When thinking about reality one must realize that 'absolute truth' is almost impossible to attain except in very few cases (i.e. certainty that we will die, certainty that we need water to survive, etc.) and that what we consider as true is a mixture of the 'elements' in the environment, our way of receiving information (conditioned by our standing) and our way of understanding the relationships we *can* perceive. The observer *creates* knowledge, he/she doesn't merely *report* it 'as it is' (Arbnor and Bjerke 2009). This creation arises at least at two different steps: 1) the information received by the subject is conditioned by its 'standing' and 2) the information will be processed according to the subject's world view. The notion that an observer can remain neutral and external to a situation, especially an observer who is purposely observing (i.e. researching), does not comply with the assumptions of this author. In the words of Rubin and Rubin: "The ethnographer may need to realize that what he or she observes is conditioned by what he or she is and that different ethnographers - equally well trained and well versed in theory and method but of different gender, race or age-might well stimulate a very different set of interactions, and hence a different set of observations leading to a different set of conclusions (Rubin and Rubin 2005).

This dissertation is based on the assumption that an absolutely true and universal answer to the research question cannot be given because the findings of social science are context dependent, and no universal laws regarding human behaviour and association exist. The results will show a partial view of the reality: that of the actors interviewed as processed by the author's own understanding of the context and her ability to communicate it.

Methodics

"Methodics is the way in which researchers relate and arrange the techniques-become-methods in their study plans, and the way in which a study is actually approached" (Arbnor and Bjerke 2009).

To translate the previous epistemology into the vocabulary of social sciences the language by Arbnor and Bjerke (2009) is used who, in spite of writing specifically about methodology for business knowledge, structure the concepts in a clear and generalizing manner and that can be applied for social research into social and environmental issues as well.

For these authors there are three methodological views of reality, meaning different ways or views about reality. These are the analytical, the systems and the actor's view.

The analytical perspective assumes that "reality is filled with facts and independent of individual perceivers" (Arbnor and Bjerke 2009). Thus, an observer is capable of analyzing reality objectively and the objective is to come up with explanations of the truth. These explanations are often based on the assumption that some concepts are more important than others to explain reality. Analytical researchers seek conclusions that can be generalized. The research methods aim to identify the more important concepts that shape reality for rather universal applications and the formulation of hypothesis to be confirmed or rejected is widely used.

The systems view, in contrast with the analytical, conceives reality as composed of objective factual structures and subjective perceptions of those structures; it "cannot see how different parts of reality can be simply added to each other and combined without those parts influencing each other" (Arbnor and Bjerke 2009). The systems approach implies that reality can only be understood in the specific context where it is developing; since all the variables work in a specific way to produce a specific outcome. The systems view ambitions both to understand and explain phenomena. Since it is very difficult to study a phenomenon in its entirety, usually only certain cases are analyzed at the same time. The results obtained may then be compared to others found in the literature reviewed, of cases in similar contexts. The conclusions are usually descriptions of the reality studied and its interpretation, often, through a metaphor, to help in its understanding.

Finally, the actor's view thinks of reality as "a social construction, filled by chaos and uniqueness, but also relatively stable structures mentally anchored with those actors, who maintain the structures" (Arbnor and Bjerke 2009). This view claims that knowledge is created as a participation of the researcher and the phenomena he/she tries to study. The researcher tries to develop a language that brings understanding. The choice of methods is the dialogue and narratives which may be complemented with some socio-structural studies. The results are aimed not at producing general principles of social behaviour, but at understanding the unique phenomenon. Metaphors are used often and the results include reflections related to the theories in the area.

The characteristics of each can be summarized in Table 1.

Table 1. Summary of methodological views according to Arbnor and Bjerke

	Approach		
	Analytical	Systems	Actors
What is reality?	Reality is a sum of facts independent from individual perceivers.	Reality is a system of objective elements and unique interrelationships that are context-dependent.	Objective reality doesn't exist; it's a social construction but has some stable structures amongst many perceivers.
Summary	Reality exists and by adding facts a more complete understanding of the truth can be achieved.	Reality exists but we can only understand it in its context, therefore only 'partial' realities can be understood.	The researcher, and not reality, is responsible for knowledge creation, since reality is just a social construction.
Scientific ideal	Find general rules with a wide consensus.	Improve the description of the system in its specific context.	Individual knowledge creation by the act of researching.
Preferred answers	Statistical results.	Unique results (context dependent) similar to other cases of similar contexts.	Rich description of the researcher's social construction about the phenomenon viewed.

Following the concepts above, this dissertation is in agreement with the systems approach, where reality consists on some more or less independent facts or elements but how they relate depends on their context and the picture can only be explained as a system since isolated parts cannot offer an adequate picture. Additionally the systems view considers also that the researcher's world view influences the knowledge created and that this fact must be recognized

According to this theoretical approach, a case study methodology was chosen. The case study is in agreement with the epistemological background because it is assumed that reality is made up of systems whose relations depend on their context; making them, in several ways, unique. However the selection of a case may give insight into how other similar systems behave and thus expand the knowledge of types of systems. Representativeness in a strict statistical sense is not sought since it is thought that autonomous development and sustainable improvement of slum-livelihood are highly context dependent.

Validity for the systems' approach requires that the researcher, the actors involved in the system studied and possible external experts familiar with similar situations, judge that the methodical procedure and the results are reasonable and correct. To promote correct measurements that reflect the real system, a case study attempts to approach a determined phenomenon from as many angles as possible by interviewing as many actors as possible and study as much secondary information as possible (Arbnor and Bjerke 2009).

In accordance to the systems approach no previous hypothesis were constructed; rather the research was undertaken in an open fashion to discover the key social conditions of the

improvement of slum-livelihoods of scavengers in Lima. The objective was not to prove or disprove a previously formed conclusion, but to find the perceptions of the actors themselves.

Case study

The case study is an empirical methodology that investigates a contemporary phenomenon within its real-life context, specially when the boundaries between phenomenon and context are not clearly evident, where more variables of interest exist than data points, and relies on multiple sources of evidence with data needing to converge in a triangulating fashion and benefits from the prior development of theoretical propositions to guide data collection and analysis (Yin 2003).

The ultimate goal of the case study methodology is to understand complex social phenomena. Through this method, researchers seek to keep the "holistic and meaningful characteristics of real life events" (Yin 2003). Yin states that there are generally three purposes of research: exploratory, descriptive and explanatory and the case study can be applied in either with the correct design.

In comparison to other methods of social research such as surveys, discourse and archive analysis or experimentation, the case study is better fitted to answer questions of how and why, whose answers are necessarily broad and include many variables. It is also used to study contemporary events where both interviews of persons involved in the event and direct observation can be made. Finally case studies research events where there is little or no control of behavioural events, in contrast, for example, with experiments (Yin 2003). Surveys and archival analysis are better aimed at finding answers for close ended questions such as who, what, where, how many and how much. These methods look for frequencies of incidence of a phenomenon (Yin 2003) and are generally not part of a systems view methodology (Arbnor and Bjerke 2009). Survey and discourse/archival analysis do not require that the researcher controls external effects to the system and are designed to look at contemporary events. Finally, experimentation requires that the researcher carefully controls the outside environment so that effect produced by the change in a single variable can be measured (Yin 2003), and quantified. Experimentation in its most strict sense is not usually part of the methodologies used in the systems approach, but 'loose' experiments are often used (Arbnor and Bjerke 2009).

The reasons to select a case study as the primary research method for this project are two: its accordance with the researcher's world view (i.e. system approach), and its appropriateness to deal with a variety of evidence (Yin 2003). The subject of this research is of the exploratory nature: what are the key social conditions that enable the sustainable improvement of slum-livelihoods? The topic is contemporary, as it seeks to identify those key conditions important in the present and the boundaries between slum-livelihoods and an external world cannot be sharply defined; they depend on each other and its specific place, time and culture. Moreover, since it is considered that the study of improvement of slum-livelihood is a complex system, in accordance to the systems view, the entire reality cannot be studied; therefore a specific case of this phenomenon (i.e. autonomous development and environmental protection strategies of scavengers) will provide insight into the processes of change of this particular sector of society.

A single-case study was selected due to time constraints as well because it is believed representative of similar projects involving the improvement in the quality of life of scavengers in its region (as

judged by literature review). The specific case of Ciudad Saludable's project in San Juan de Miraflores district in Lima, Peru was chosen because

1. It takes place in Latin America which minimizes cultural and language obstacles between this author and the subjects;
2. The region is a leader in social inclusion of scavengers as reported by Medina;
3. The project developer (Ciudad Saludable) has a strong reputation nationally and internationally for conducting successful projects focusing on urban poverty and the autonomous development of a section of slum dwellers (scavengers) that are being replicated in other parts of the world (Venezuela, Colombia, Mexico, Ecuador and India);
4. Ciudad Saludable (CS) showed a strong willingness to provide information, interviews and be visited;
5. The project in San Juan de Miraflores was completed and had included several components and strategic alliances with scavengers (at association and individual levels) and local authorities. The fact it was a closed project made it easier for the interviewees to reflect upon the changes in scavenger-livelihoods promoted by CS.

Sustainable livelihoods approach

The sustainable livelihoods approach (SLA) was used as a tool to construct an organized picture of the urban poor livelihoods. It is an approach that was originally developed to assess rural-poor livelihoods, but several works have tried to adapt it to the urban context (Rouse and Ali 2001), (IFAD n.d.) (Hussein 2002).

The sustainable livelihoods approach has two main components: first a framework designed to have a diagnosis of the currently state of livelihoods of poor people and second, a set of principles guiding action to overcome this poverty. SLA is used by major development agencies (UNDP, DFID, CARE, OXFAM, etc. (Hussein 2002) (Brocklesby and Fisher 2003)) to understand the situation of the poor and design effective strategies for improvement of their livelihood. The SLA has its origins in the work of Robert Chambers (1980s) and was further developed by Gordon Conway others during the 1990s (IFAD n.d.). Recently a more structured approach has been developed by the International Fund for Agricultural Development (IFAD), part of the United Nations, and the Department for International Development (DFID) of the United Kingdom.. Since the SLA framework used in this research paper follows the DFID guidelines, the following information is based on this source unless otherwise noted.

The DFID defines: "a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living"; a sustainable livelihood therefore occurs when "it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future while not undermining the natural resource base" (DFID 1999-2001). SLA is based on six core principles:

1. People-centred. SLA focuses its efforts in understanding the human situation, and its objectives (poverty reduction, economic reform, sustainable development) are directed at human populations. It is important to fully involve people and their views and it is interested in finding out the impact of policy and institutional arrangements upon people or

households. The alternative to being people-centred is becoming resource-centred, where the availability or access to a specific resource is the main concern.

2. Holistic. The aim of SLA is to involve all aspects of poor people's livelihoods into action. It does so by opting for a non-sectorial approach that is applicable across geographical areas and social groups. SLA is aware of the influences of people and seeks to understand relationships that have impacts on livelihoods and their diversity. Holism is preferred to gain a realistic understanding of what shapes people's lives and how the several factors can be adjusted to produce an improved livelihood.
3. Dynamic. The approach is dynamic because it seeks to identify those factors of change that determine livelihoods. It calls for ongoing investigation and effort to uncover the nature of complex relationships and events. Dynamism in SLA is reflected in the processes and modes of analysis and is one of the areas where the DFID recommends monitoring and continued learning.
4. Builds on strengths. One of the major characteristics of SLA is that it begins analyzing the strengths, rather than weaknesses, of the poor. The underlying principle is the recognition that all sectors of society have inherent potential for livelihood improvement. The key is to strengthen the identified assets.
5. Macro-micro linkages. The SLA attempts to narrow the gap between the macro and micro level on development activity. The aim of understanding the effects of policies on people and people on policies is an area of further development to strengthen the SLA.
6. Sustainability. A key concept of the SLA. A livelihood is sustainable when it is resilient to external shocks and stresses, independent of external support, maintains the long-term productivity of natural resources and does not affect the livelihoods or compromise livelihood options of others. It is recognized that a livelihood is rarely fully sustainable (on the environmental, economic, social and institutional dimensions); in most cases sustainability is the goal and paths that lead to it are desirable.

A large portion of the SLA is constituted by a framework to construct a picture of the livelihoods of poor people. This framework is presented in Figure 2.

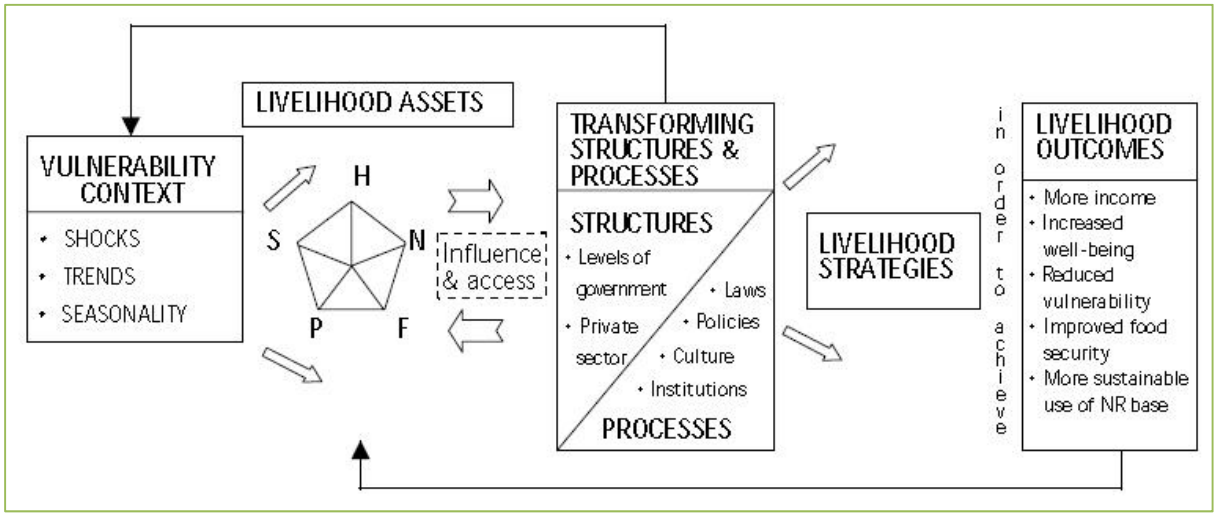

Figure 2. SLA framework (DFID, 1999-2001). Asset legend: H-human capital; N-natural capital; F-financial capital; P-physical capital; S-social capital.

This framework presents five categories of analysis: the vulnerability context, livelihood assets, transforming structures and processes, livelihood strategies and livelihood outcomes. These five categories shaped the SLA questionnaire presented later in this chapter. The shape of the framework is not intended to direct an order of analysis (i.e. vulnerability context first, followed by livelihood assets etc.); understanding livelihoods is most likely a simultaneous investigation of people's assets, their objectives and their strategies to reach those objectives. The DFID also emphasizes about the use of the framework: "use it as a flexible tool and adapt it as necessary. You can focus any part of the framework, but it is important to keep the wider picture in mind" (DFID 1999-2001).

Following is a brief description of each of the five categories:

Vulnerability context: The description of the external environment in which people exist and which may determine the availability of assets by poor people. It is important because normally poor people have fewer options to cope with stresses, which increase their vulnerability. It is divided into three sub-categories: Shocks refers to sudden, un-planned situations that happen without the control of the poor people and may include natural disasters, illness, economic shocks, conflict, etc. Trends are changes over a longer period of time and thus have some predictability, for example population trends, resource availability or health, national economic trends etc. Finally, seasonal shifts refer to periodical cycles that influence people's livelihoods such as seasonality of price, production, weather, health, etc.

Livelihood assets: Refers to people's strengths or capital endowments that are used to fulfil a positive livelihood. Five sub-categories (asset pentagon) make up the entire asset base since it is assumed that no single type of asset on its own is sufficient to yield the diversity of livelihood outcomes people seek. Assets are both created and destroyed as a result of trends, shocks and seasonality of the vulnerability context. They are also influenced by the transforming structures and processes. The people have to find ways of nurturing and combining what assets they have in innovative ways to ensure survival. The sub-categories are:

1. Human capital refers to the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their objective; it is necessary to make use of the other assets.
2. Natural capital is the natural resource stocks which produce key environmental services and food. According to Rouse and Ali, this is the hardest asset to match when using SLA in an urban area because the population does not usually depend directly on the natural environment for their livelihood.
3. Financial capital denotes the financial resources, including flows and stocks that people use to achieve their objectives; this asset can come in the shape of savings (cash or liquid assets), regular inflows of money and access to credit.
4. Physical capital constitutes the basic infrastructure and producer goods needed to support livelihoods and lack of this is considered a core of poverty. Infrastructure is usually a public good (water supply, sanitation, energy, information, transport) but it can also be privately owned (shelter, tools).
5. Social capital refers to the social resources which people can use in pursuit of their objectives. This form of capital can be developed through networks and connectedness,

membership of formalized groups and relationships of trust, reciprocity and exchange; this asset is most close to the transforming structures and processes.

Transforming structures and processes. SLA defines them as the institutions, organizations, policies and legislations that shape livelihoods. These determine the access to various types of capital, and livelihood strategies, the terms of exchange between different types of capital and returns of any particular livelihood strategy. These transformers have a direct impact in the social inclusion and well-being of the poor. The effects of culture are included in this category.

Livelihood strategies. Are the range and combination of activities and choices that people make/undertake in order to achieve their livelihood goals (including productive activities, investment strategies, reproductive choices, etc.). Choosing different strategies is a dynamic process in which the poor combine activities to meet their various needs at different times. At the household level it is common to see that different members live and work in different places temporarily or permanently. The expansion of choice and value of strategies is important because it provides people with opportunities for self-determination and the flexibility to adapt over time.

Livelihood outcomes. This refers to the achievements or outputs of the livelihood strategies. The outcomes people pursue may be very different and should only be determined through a participatory process and not presupposed. The SLA is about supporting people to achieve their own livelihood goals, albeit, only if this can be done in a sustainable way. Some of the generic outcomes commonly encountered (but not in every case) include: more income, increased well-being, reduced vulnerability, improved food security and a more sustainable use of the natural resource base.

Methodical Procedure

"Methodical procedure is the way in which researchers arrange, develop and/or modify any technique, theory, or previous result in a methodological approach, or alternatively, develop a new technique" (Arbnor and Bjerke 2009). A combination of primary and secondary data was used for this research paper.

The techniques used (i.e. use of primary (direct observation, interviews and experiments) and secondary (literature research) information) are in accordance to the systems approach and the case study methodology. The experiments (tag activity) are not common place of the case study methodology, but as noted by Abnor and Bjerke, are common place of the systems approach. The sustainable livelihoods approach (SLA) was selected as a tool to obtain a picture of the livelihood of the scavengers.

Literature review

An extensive literature review was performed concentrating in the following topics and levels:

Table 2. Subjects of literary review

Topic	Level
Poverty and human development	Global Peru Lima San Juan de Miraflores
Slums	Global Peru Lima San Juan de Miraflores
Development projects and associations in slums	Global
Methodology and research tools	General

The first purpose of the literature review was to set up the context of the research and to establish the magnitude and main characteristics of the urban poverty problem. As knowledge on the problem widened, some key social characteristics started to emerge that should be looked for during the field work.

A second aim of this part of the project was to establish a conceptual framework for the research through literature on methodology and case studies.

Finally the literature review emphasized on the understanding of the SLA, and interview methodologies to learn the practical research tools and techniques to be used during the fieldwork.

Whenever possible, academic sources of information were preferred such as peer reviewed journals and books. The use of publicly available information from international organizations such as the United Nations and World Bank; and national information sources like the Peruvian Institute of Statistics and Informatics (Instituto Nacional de Estadistica e Informatica, INEI) and the Peruvian Ministry of the Environment was deemed as reliable and valid.

During the literature research the use of independent reports or websites was avoided and data quoted in these sites was confirmed by the original source, which in turn is cited in this work.

Selection of case and contact

The criteria to select the case were:

1. Location in a preferentially Spanish-speaking Latin American country (to minimize cultural and language barriers between this author and the subjects);
2. Focus on urban poverty and slum-dwellers;
3. The reputation of the project developer and its willingness to provide information and interviews; and
4. Feasibility to visit.

Ciudad Saludable (CS) is based in Lima, Peru and works throughout the country since 2002. At the time of the field work, CS worked in 33 projects mostly in urban areas. Prior to establishing contact, CS' reputation and solidity were reviewed through its membership to several national and

international organisms and awards received by the likes of the European Parliament, the United Nations and other organizations. Contact was established through e-mail, and based on CS' strong willingness to participate and be visited it was finally selected.

It is to be noted that the contact and selection of a case took a considerable amount of time due to waiting times between email exchanges with different organizations. Other parties contacted were the Galileo University in Guatemala, Ms. Adriana Mota who works with a variety of scavenger cooperatives in Brazil, Ricerca e Cooperazione Bolivia, the Italian Development Agency in Bolivia, the Bolivian Catholic University, CALMECAC (NGO) in Guatemala, the National Development Foundation (FUNDE) in El Salvador and the National Scavenger Movement (MNCR) in Brazil.

Field work research design and preparation

The preparation for field work activities was based primarily on literature review regarding the SLA and qualitative research methodologies. Qualitative research was preferred because it's better fitted to collect perceptions: "Qualitative interviewing projects are especially good at describing social and political processes, that is, how and why things change" (Rubin and Rubin 2005) and case studies are primarily based in qualitative data. A joint quantitative and qualitative study was out of the scope of this research due to the choice of method (case study).

Five key actors were identified as important in development projects that dealt with scavengers and municipal solid waste management in general: scavengers involved in the project (IS), scavengers not involved in the project (NIS), project developers (PD), local waste management authority (LWMA) and intermediaries (I) who buy material from the scavengers and in turn sell to the recycling industry. These actors were selected based on research literature (Medina, The World's Scavengers. Salvaging for Sustainable Consumption and Production 2007), (Rouse and Ali 2001), (Vedeld and Siddham 2002).

A questionnaire based on the SLA was developed following the guidelines of the DFID adapted to each type of key actor.

The preparation for the interviews was done following social research literature (Denzin and Lincoln 2003) (Mikkelsen 2005) (Rubin and Rubin 2005). An unstructured interview format was chosen for the IS, NIS and I, while a semi-structured approach was chosen for the PD and LWMA. The reasons for different interview approaches were: the probable interview settings (street vs. office environment), understanding of the technique (i.e. PD and LWMA are more used to ready-made questions and note taking) and facilitating trust with familiar interview situations.

SLA questionnaire

To prepare a framework to guide observations and relevant interview questions, SLA was used. A questionnaire was developed Based on the SLA guidelines issued by the DFID from the United Kingdom. General guiding questions were prepared for each actor not with the purpose of being asked exactly, but to provide a topic guide and awareness of different issues for the researcher.

The questionnaire was structured as shown in Table 3.

Table 2 actor legend:

IS: Involved scavenger (those working on Ciudad Saludable's project).

NIS: Non-involved scavenger (those not in cooperation with Ciudad Saludable's project).

PD: Project developers (Ciudad Saludable's representatives).

LWMA: Local waste management authority.

I: Intermediaries (buyers of recyclable material from the scavengers to sell to the recycling industry).

Table 3. SLA questionnaire framework

SLA Section	Category	Sub-category	IS	NIS	PD	LWMA	I
Vulnerabilities	Shocks	Health Home insecurity Cultural duties Insecurity					
	Trends	Amount of waste Amount of scavengers Value of waste Formal waste management					
	Seasonality	Weather hardships Waste changes					
	Spatial	Location preference					
	Source of livelihood	Dependency					
Assets	Human	Education Technology/tools Healthcare					
	Social	Safety net Information Different relationships Power relationships					
	Natural	Waste Working space Housing space					
	Physical	Housing adequacy Energy Sanitation Potable water Transport means					
	Financial	Income Savings Credit					
Transformers	Justice	Accessibility Fear of					
	Waste management policies	Existence Enforcement					
	Urban development policies	Existence Enforcement					
	Cultural attitudes	Authorities Slum dwellers Community					
Livelihood strategies	Multiple strategies	Alternatives					
Livelihood outcomes							

Qualitative research methodologies

Standard procedures regarding personal in-depth interviews, focus groups and interactive methods were followed (Denzin and Lincoln 2003) (Rubin and Rubin 2005). It was decided in conjunction with the main adviser that voice or video recording of interviewees would only be done with their knowledge and authorization to avoid ethical dilemmas.

It is worth noting that representative sampling was purposefully excluded from the scope of this research following general case study methodology.

Field work

The field work had a double purpose: to make independent observations on the daily workings of the scavengers and to interview the selected actors to discover their perceptions on how and why the scavengers engage into autonomous development and whether this is leading to the sustainable improvement in slum and scavenger-livelihoods.

Observations

Following the theoretical framework of the SLA observations tried to discover vulnerabilities, assets and transformers involved in scavenging activities in San Juan de Miraflores, Lima.

The observations included:

1. Recycling discussion panel gathering scavenger cooperative leaders, enterprises, export association representatives, local authorities and Ciudad Saludable to discuss scavenger formalization and tax regimes;
2. Day and night work with a family of scavengers;
3. Ciudad Saludable's daily activities with scavengers.

Observations were recorded through field notes, videotaping and photographs (where possible).

Interviews

Following the premise "The purpose of interviews conducted as part of elaborated case studies is to find out what happened, why, and what it means more broadly" (Rubin and Rubin 2005) interviews tried to discover those social conditions that supported the sustainable improvement in the quality of life of slum dwellers in the case, in hopes it may shed light about broader processes of urban poverty alleviation.

A total of six actors were interviewed:

1. (IS) Tiburcio Gonzalez Silvera. Scavenger head of family.
2. (IS) Elizabeth Lizano. Scavenger, Tiburcio's wife.
3. (IS) Rosario (didn't provide last name). Scavenger.
4. (PD) Albina Ruiz Rios. Ciudad Saludable founder and executive director.
5. (PD) Vladimir Olarte Flores. Ciudad Saludable solid waste coordinator (BID project).
6. (LWMA) Manuel Hinojosa Requena. San Juan de Miraflores district manager of city services.

Semi-structured interviews were conducted for PD and LWMA and unstructured ones with scavengers. All interviews were videotaped with the exception of Rosario (inappropriate setting) and Manuel Hinojosa Requena (equipment malfunction).

No NIS or I were available for interview because there was not enough time to establish trust bonds with actors outside CS' project. This limitation is acknowledged in Chapter 1.

Tag Activity

Since the interviews followed a semi-structured or unstructured method, and the phrasing of the questions was adapted to each interviewee, their answers could not be reliably compared (i.e. understanding of a question depends on the language). Additionally, the author more or less intervened in the direction of the interviews, and the topics pre-selected in the SLA framework were given more emphasis. To provide a degree of comparability in the perceptions of the actors chosen and minimize the researcher's influence on the interviewees an interactive exercise was performed.

Participants were shown tags and asked to rank them in order of importance in the arrangement that best explained their interrelationship. Two sets of tags were shown: the first set referred to social conditions that can influence the success of a project in a slum, while the second referred to types of support needed for the success of livelihood improvement strategies. The social conditions and types of support included are based on the author's perceptions of slums and what was gathered from the first part of the literature review.

The tags were presented in small pieces of paper and scattered randomly. The participants were asked to arrange them in order of importance with a shape that better suited to describe how they related to each other and to a successful development. Additional blank tags were provided so they could include items they perceived as missing. When the participants were satisfied with the arrangement, (confirmed by direct asking from the author) a photograph and video recording was taken of the final shape.

The tag activity was carried out with all the interviewees except Rosario (due to setting constraints) and each was only shown the original set of tags; they did not see the tags that previous participants had created.

This tag activity can be considered a sort of 'loose' experiment, where the researcher controls some outside inputs (determined tags) and measures what the outcome would be. It is loose because the environment where the experiment was conducted (i.e. office during working hours, private house during leisure time) was not controlled and could have influenced the outcome, and because the experiment was not repeated with a sample representative of the scavenger population. Thus, as a 'loose' experiment, it is in accordance to the methods used by researchers with a systems approach as reported by Abnor and Bjerke.

Figure 3 and Figure 4 show the actual tags and Figure 5 and Figure 6 present a schematized version (translated in English)

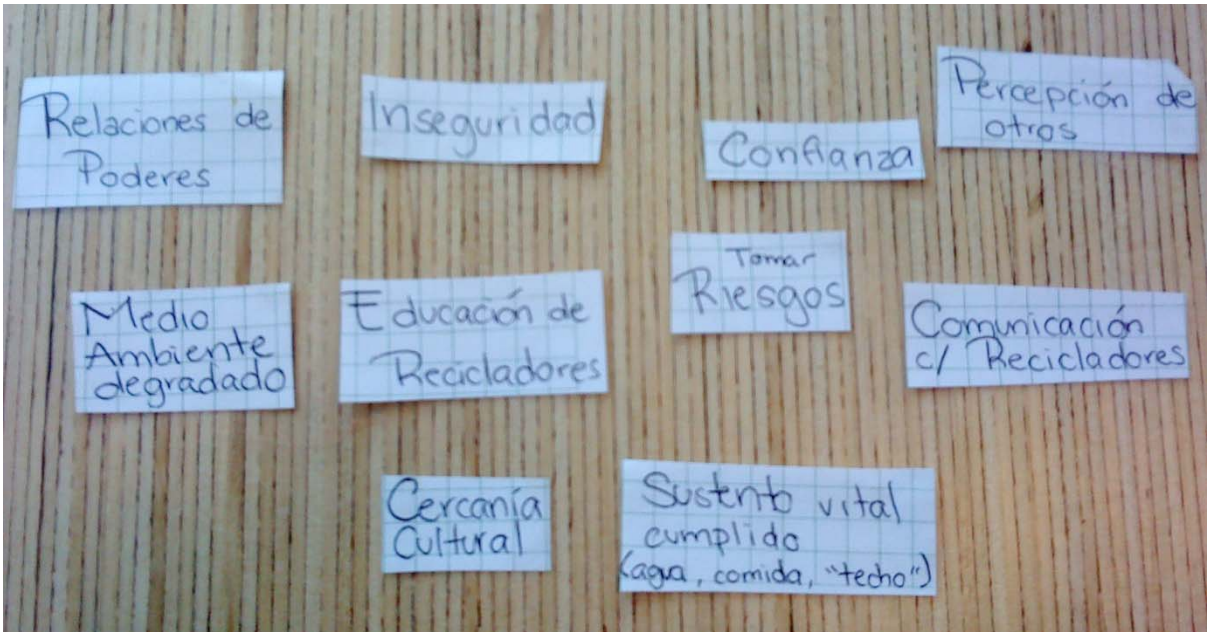

Figure 3. Social conditions tags

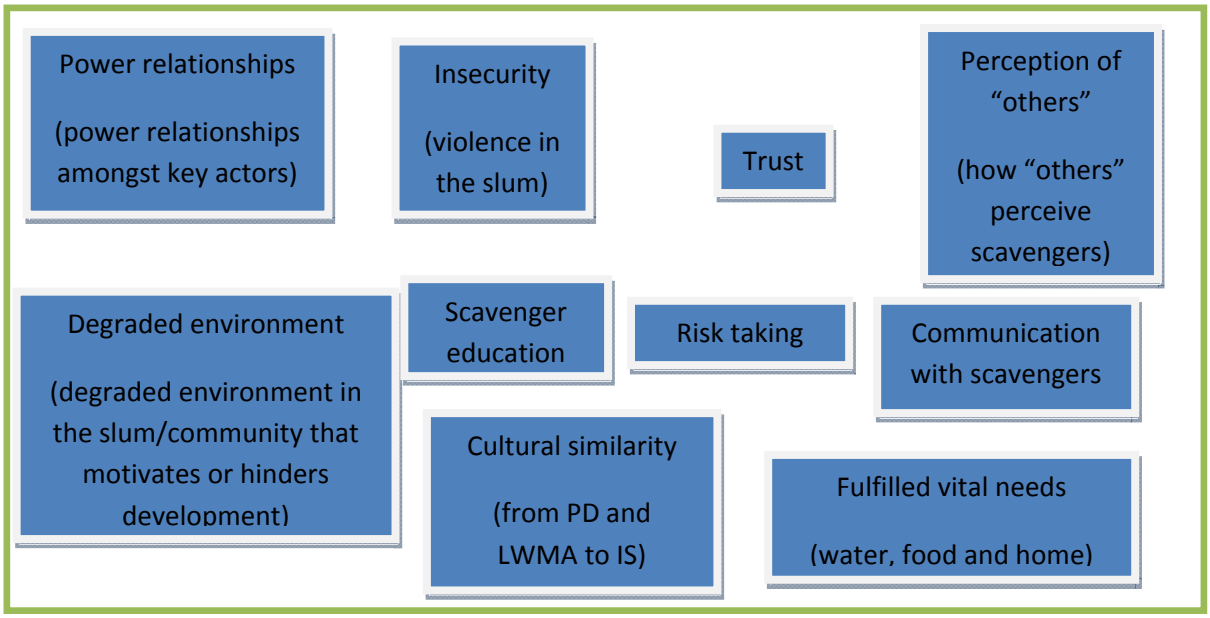

Figure 4. Schematized version of social conditions tag activity

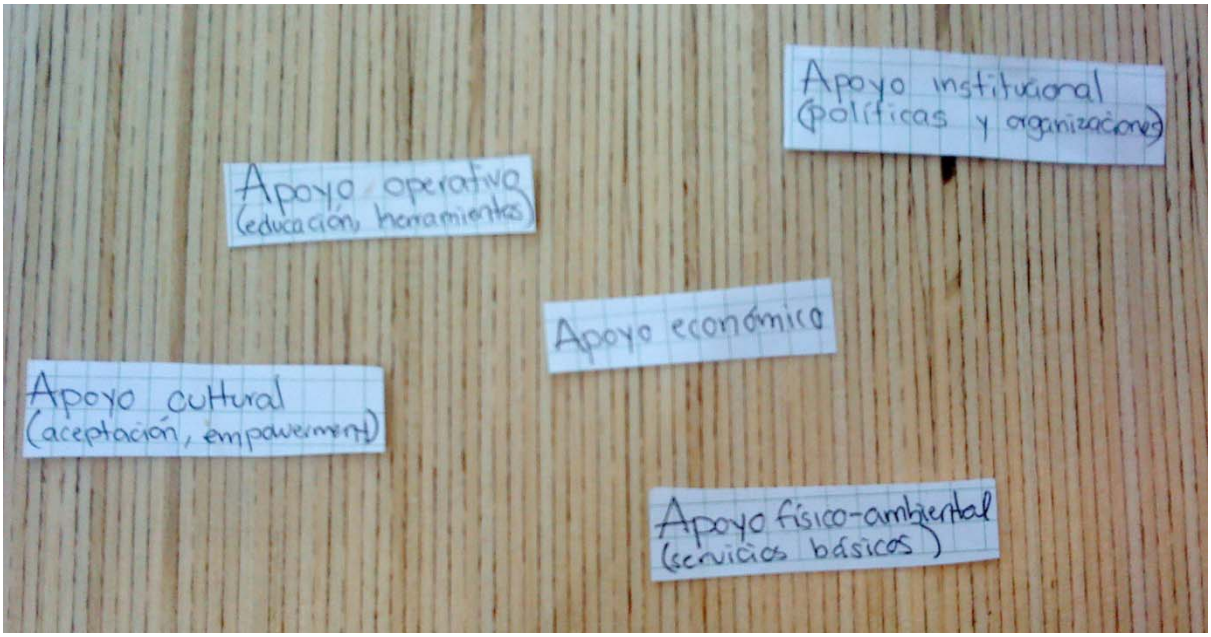

Figure 5. Support type tags

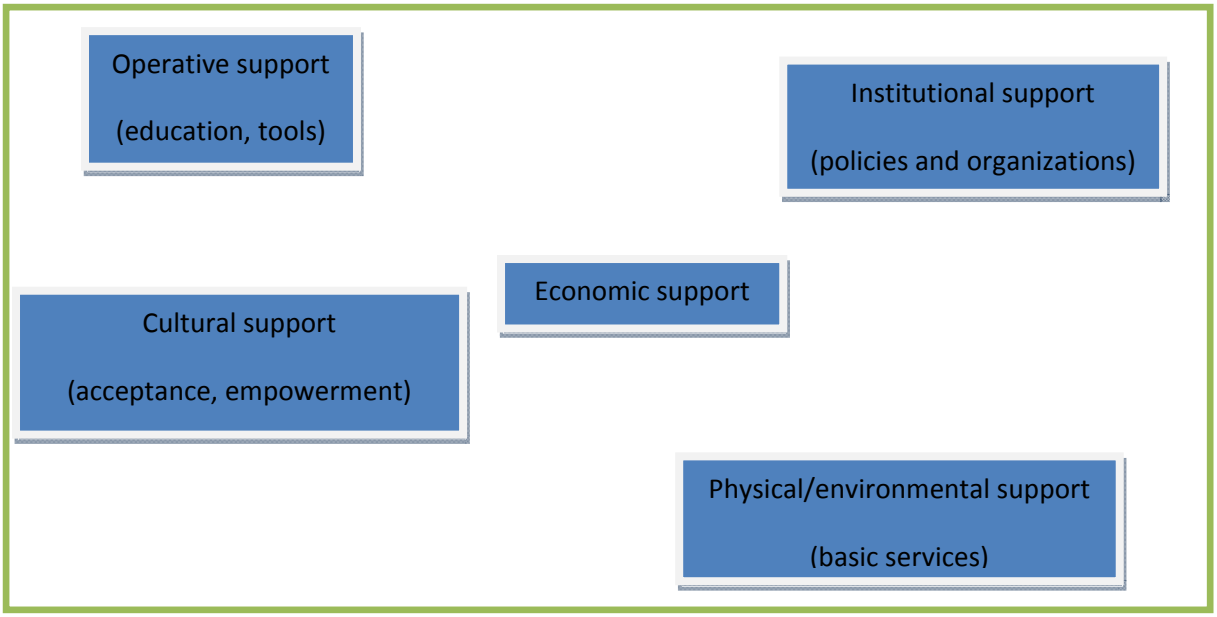

Figure 6. Schematized version of support type tag activity

Data processing

With the semi-structured interviews where note-taking was done simultaneously, data processing involved the translating of the notes and arrangement of answers to fit into the SLA questionnaire framework.

For unstructured interviews, a summary of answers was noted after, with the help of videotape recorded (where available). As above, the information was translated and fit into the SLA questionnaire framework.

For the tag activities, the arrangements were schematized. Raw data and schemes are included in Appendix 1.

Analysis

After the field work information was processed into the SLA table and schemes, it was analyzed following the research and sub-research questions. The results were also compared and contrasted to others obtained by similar researches found in the literature.

Discussion and Conclusions

Finally a discussion of the findings at desk and field work level was performed. Some conclusions regarding the case and how it compares to others found in the literature attempt at giving concrete answers to the research question. Lines for future research were suggested.

Chapter 3: Sustainability, Slums and Urban Environment

This chapter provides the background on perceptions and actions towards sustainable development in cities. Secondly, the worldwide situation of urban areas, concentrating on slums, the urban environment and the needs for improvement is described. The idea of slums as an area of opportunity for urban sustainable development is presented.

Sustainable development in a city; sustainable improvement of slum-livelihood

Since the 1992 Rio de Janeiro Earth Summit, the world's leaders, international organizations and NGOs came to the agreement that if the world was to become a liveable place for all, both in the present and in the future, the path to follow should be sustainable development. This concept has guided local, national and regional policies ever since, and is currently the main paradigm for holistic well-being. The original definition for sustainable development as stated in the Brundtland report is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN General Assembly 1987).

The sustainable development concept has been subject to much discussion both in academic and non-academic areas in regards to its meaning. Mebratu (1998) discusses the concept by dividing it into three major groups, according to their constituent representations: institutional, ideological and academic versions of sustainability. Institutionally the definitions concentrate on needs satisfaction, where the major need is or can be fulfilled by the particular institution (i.e. international governance, communities, business). Ideological conceptions of sustainable development are rather oriented at finding the root cause of environmental imbalance and attribute it to different reasons (i.e. capitalism, patriarchal societies and lessened spirituality). Finally, academic discussion of the term traditionally frames the subject from a determined discipline's point of view and is normally reductionist. Mebratu discusses that some of the difficulties in coming to a unified definition arise from the traditional three-dimensional nature of the concept (social, environmental and economical) because it gives the idea that each sphere is independent and may be analyzed separately. He ultimately proposes a different model of embedded 'cosmos': the abiotic cosmos contains in itself the biotic one, which in turn contains the social cosmos who finally contains the economic cosmos (Mebratu 1998). In another study, Pezzoli (1997) finds 10 categories of literature that deal with the sustainable development concept. He reports that most of the definitions are found within the managerialism, policy and planning, social conditions or environmental law categories which have an applied perspective of sustainable development. Other debates include epistemological emphasis and more technical or hard scientific definitions. In any case, Pezzoli argues that "The term sustainability has ideological and political content as well as ecological and economic content" (Pezzoli 1997). Lélé (2002) argues that it is the all-embracing nature of the concept that gives it political strength, but the lack of agreement in its vision of certain concepts (i.e. poverty and environmental degradation) leads to inadequacies and contradictions of policy (Lélé 1991). More recently Robinson (2003) argues that there is a tendency for government and businesses to embrace the term sustainable development, as the original definition in the Brundtland report is more

managerial and incremental, while NGOs and academia prefer the term sustainability, since they are concerned that the term development is synonymous with economic growth (Robinson 2004). A strong critic of the term sustainable development is Wolfgang Sachs, who states that development, modernly conceived as economic or wealth growth, suffers from two fallacies: that it can be universalized in space and that it could be durable in time. Regarding the first, there is a crisis of social justice which is inverse to a crisis of nature: if more people demand land, energy and wealth, this will undermine the conservation of soils, forests, or human health elsewhere and vice versa. As for the second, he suggests that we are entering an area in which the finiteness of development is becoming an accepted truth. Thus, sustainable development becomes an oxymoron, where development (as conceived) can never be sustainable either in time or in space. Additionally he declares that the term is used more to arrive to a political consensus rather than to provide a clear direction to stir efforts, and because a variety of definitions exist, each actor, producing its own, can lead to any direction under the flag of sustainable development (Sachs 1999).

In spite of the criticisms of the ambiguity of the term sustainable development one characteristic of the concept is that, in general, it advocates a balanced inclusion of different dimensions or actors. A sustainable development in cities therefore requires that all sectors participate and that all dimensions are taken into account.

Cities in developing countries in particular are the home of thousands or millions of poor. As the next section will detail, in some areas of the world the proportion of urban poor constitutes the majority. It is then vital that when thinking about sustainable development in a city that it not only takes into account the necessities of this sector, but that it engages them to actively creating their own development. Talking about the situation of the urban poor it is unmistakable that in many cases, their livelihoods don't even reach the standards of living required by the Universal Declaration of Human Rights. Safe living conditions, education, healthcare, recreation amongst others, are often not achieved and this situation should be improved. However, this improvement should follow the notion of development respectful of the environment, other social groups and institutions to become a long term, stable reality; that is, to become sustainable.

The sustainable improvement of the livelihood of people in marginal urban areas (slums), helps the overall development of a city by narrowing the gap between social groups in terms of basic services access, decreasing the number of people exposed to certain diseases (Mitlin and Centre 2003) and diminishing some of the environmental pollution often found in these areas. Improving the quality of life of poor citizens can also help ease social tensions that arise in severely differentiated/unequal cities. Ameliorating slums in a sustainable manner may produce a 'trickle-up' effect, improving larger dimensions of city life.

Using the language of SLA; **improvement of the slum-livelihoods means the self-strengthening of the poor's assets using the available transformers to overcome the vulnerabilities and make a positive change in their livelihoods while being respectful of all the human rights, the environment, other social groups and the future generations.**

Slums and waste

What is a slum? Defining a slum is the first task of any approach towards their development. A more or less classical definition can be found in the Encyclopaedia Britannica which states that slums are "densely populated area of substandard housing, usually in a city, characterized by unsanitary conditions and social disorganization" (Encyclopaedia Britannica 2010). This definition puts forward some classic ideas of these urban areas: disease, overcrowding, poor living conditions and anarchy. In contrast, the United Nations Human Settlements Programme (UN HABITAT) proposes an operational definition of slums as "an area that combines to various extents the following characteristics: inadequate access to safe water, inadequate access to sanitation and other infrastructure, poor structural quality of housing, overcrowding and insecure residential status", a definition more focused on lack of access and less on the social qualities of the people who live there. It will be discussed later how these stereotypical images of slums, and its dwellers, weight in their development.

It is estimated that approximately one billion people live in slums in widely varied proportions. While in the developed world the proportion of urban slum dwellers is 6%, in the developing world it is nearly half, at a global median of 43%. Of the latter, in sub-Saharan Africa 71,9% of the urban population is a slum dweller, followed by South-central Asia (58%) Eastern Asia (36,4%), Western Asia (33,1%) Latin America and the Caribbean (31,9%), Northern Africa (28,2%), Southeast Asia (28%) and finally Oceania (24,1%) (UN HABITAT 2003).

Slums are associated with deplorable living conditions: lack of sanitation, poor access to safe potable water, overcrowding, lack of resilient housing, violence, mafia-type resource control, little or no access to education, heavy soil, air and water pollution, vulnerability to infectious diseases and pests and vulnerability to human-induced accidents (i.e. fire) or extreme weather events accentuated by climate change (floods, high winds, etc) due to unsafe housing and/or risky locations. "Rapid urbanization has altered the distribution and face of poverty. Slum dwellers, who account for 1 billion of the worldwide urban population, die earlier, experience more hunger and disease, receive less education and have fewer job opportunities" (UN 2008).

Other characteristics described by the UN Habitat are social exclusion and a minimum settlement size. All of these factors make the definition of slums very relative: what in one part of the world is considered a slum, in another would be adequate housing and services provision. This variability in the definition of slums makes their classification difficult and impedes a more global assessment in terms of extension and population. Figure 7 shows several images of slums around the world:

Figure 7. Typical images of slums around the world

Several factors influence the prevalence and growth of slums and they are often distinguished in the literature as "push" and "pull" factors. One of the main factors is migration, both from rural areas and increasingly, from other urban areas (UN HABITAT 2003). The fact that larger cities offer real or perceived increased chances for income generation or development is a prime "pull" factor. Also, cities, and with them slums, are growing by themselves; the newest residents are not outsiders but are rather born and bred within the metropolitan limits. The chances for economic advancement that the informal sector provides in a multitude of areas often surpass those of the rural context and also provide a subsistence strategy to those city dwellers that lose their formal jobs; these residents just relocate to city shantytowns instead of returning to the rural space (even though these are potentially cheaper places to live). (Potter, et al. 2004)

Scavengers are those people who retrieve recyclable materials from landfills, open dumps, streets and private households and sell them to the industry. Due to their daily and close contact with refuse, scavengers are often seen as one of the lowest social classes and are rejected by the general community. This waste management is informal, since scavengers are not normally associated with the local authorities or private service providers and they sell to intermediaries without any proof of transaction.

Do people in slums live in worse conditions than people in rural areas? The academic opinion on this regard is diverse.

Most of the literature reviewed states that the advantage of living in an urban area is that options for improved quality of life are more available tu urban dwellers although not always accessible. The availability of services provision, healthcare and education facilities and opportunities for diversified employment (in the formal or informal sector) increase as urbanization increases (Potter, et al. 2004). Potter offers a comparative table of urban-rural incidence of poverty for 26 developing

countries, in all cases the proportion of rural people living in poverty is larger than their urban counterparts (Potter, et al. 2004). In the late 1970s, Michael Lipton proposed what is known as the 'urban bias thesis' (UBT) and Robert Bates further developed it in the early 1980s. The UBT claims that urban areas are more able to develop themselves because the power to make decisions that affect the macro-level are located in them, and thus, urban actors will always act in self-interest. In a recent (2005) statement of UBT, Lipton maintains that urban bias "involves (a) an allocation, to persons or organizations located in towns, of shares of resources so large as to be inefficient and inequitable, or (b) a disposition among the powerful to allocate resources in this way" (Jones and Corbridge 2010). The UBT has as a central element the 'price twists'; goods and services originating in rural areas were underpriced relative to a market norm while goods flowing from urban to rural areas were overpriced. The end result of the urban bias was that rural areas have worse livelihoods than its urban counterparts (Jones and Corbridge 2010).

However urban poverty recognition is gaining momentum: "The humanitarian sector has traditionally focused on rural areas; it is only slowly coming to recognize that urbanization is compounding the humanitarian issues faced by many in this region" (Chazan 2006) The UN HABITAT declares that "Slum areas have the highest concentrations of poor people and the worst shelter and physical environmental conditions". Oxfam adds that in contrast with rural areas, city dwellers must function within fully monetized societies, and rely on an often insecure informal sector to for employment (Beall and Fox 2007). In the highly dense slums there is usually little or no space for subsistence agriculture and the pressures of living in the city may lead to increased violence. Regarding the UBT, Jones and Corbridge present some criticism, in essence that the UBT may lead to wrongly think that the urban poor are at less of a disadvantage than the rural poor and therefore, policies for improvement and international aid should be directed at the rural sector because the urban poor can, in theory, help themselves thanks to being in cities. "It is misleading to speak of a single urban class exploiting a single rural class. To the extent that the UBT has encouraged a neglect of urban poverty and the economic dynamism of many cities in the developing world, it has also had unwelcome effects on policy" (Jones and Corbridge 2010).

The fact is that neither the rural or the urban areas are isolated, and strong linkages derived from economical and social ties influence each other, and poverty in either end ultimately affects the region as a whole. Poverty in urban and rural areas takes different forms because it deals with different characteristics, nevertheless regardless of its location or weather one or the other is 'worse', poverty should be combated to allow for the people and its environment to lead a better life.

Challenges on the urban environmental base of slums

There are positive and negative environmental impacts of slums and its dwellers upon their local, and even regional environment

There is no question that the local environment is negatively impacted by urbanization, and slums being highly concentrated urbanization with little space for "nature" decidedly create a pressure on air, water and soil. "Developing countries also face intensified environmental problems due to urbanization. How can living conditions be improved for the millions of people densely packed into cities without destroying the natural resource base on which improved living standards depend?" (UN HABITAT 2003). It is well documented that slum dwellers around the world generally depend on

woody biomass for their energy requirements, mainly for cooking, causing some deforestation mainly along the city's periphery. (UN-HABITAT 2004). In addition, slums that are not connected to basic services such as sewage, electricity and waste collection often make up for these services through informal private systems that often may not take environmental protection as a priority. Soil and water may be heavily polluted with organic matter derived from open defecation and piles of garbage including hazardous waste (Akter, Leal Filho and Ali 2007). Medina reports that trash pickers working across the cities often open bags of trash on the sidewalks, spread it and leave it scattered deteriorating the city's environment. Indeed, he declares that "poverty can be a greater threat to local environments and human health than wealth" (Medina, The World's Scavengers. Salvaging for Sustainable Consumption and Production 2007). A popular criticism of slum dwellers is that they often invade public land destined to conservation, such as hill slopes, river banks, and parks. This decrease of the amount of 'green' areas within the city results in a general degradation of the quality of life for the entire population.

On the other hand, it is reported that slum dwellers generally make a more efficient use of the water, energy and land that other inhabitants of the same cities and also produce less solid and liquid waste (Vedeld and Siddham 2002), (Beaumont 2000). Satterthwaite declares that it is not the urban poor who degrade the environment the most: "the key relationship between environmental degradation and urban development is in regard to the consumption patterns of nonpoor urban groups (especially high-income groups) and the urban-based production and distribution systems that serve them. Ironically, at a continental or global level, high levels of urban poverty in Africa, Asia and Latin America (which also means low levels of consumption, resource use and waste generation) have helped to keep down environmental degradation." (Satterthwaite, The links between poverty and the environment in urban areas of Africa, Asia and Latin America 2003). Waste Concern, an NGO based in Dhaka, Bangladesh, has worked with trash pickers in the slums to collect organic waste from the city and transforming it into compost. This work produces organic fertilizer, displacing agrochemicals and has avoided the production of greenhouse gases derived from the decomposition of organic waste in the streets, illegal dumps and sanitary landfills. Waste Concern designed a methodology to incorporate organic composting to the Clean Development Mechanism (CDM) of the Kyoto Protocol, and was registered in October 2006 declaring that they will avoid the releasing of 89. 259 metric tons of $CO_{2\ eq}$ per annum and contributing to climate change mitigation (UNFCCC 2010).

Slums: burden or opportunity?

Around the world there is a clear mainstream perception of what a slum is and the quality of its dwellers are. The classical discourse of slums and slum dwellers has been investigated by several researchers with the general results that slums are places to be eliminated as nests of poverty and a burden to society. Portes explains: "It is consensually established that life in the peripheral slum lacks the minimum standards of mutual respect, knowledge and information, and rational striving after cultural goals found in middle-and upper-class areas and even in inner-city working-class sectors" (Portes 1972). Vedeld and Siddham explore the dominant images of slums in New Delhi, India enlisting, amongst others illiteracy, low status and backwardness, unemployment, poverty, environmental threat, theft of city electricity, criminality, instability and uprootedness as characteristical (Vedeld and Siddham 2002). Medina, talking specifically about scavengers who often live in the streets or in slums writes that : "due to their daily contact with garbage, waste pickers are usually associated with dirt, disease, squalor, and perceived as a nuisance, a symbol of

backwardness, and even as criminals" (Medina, Waste Picker Cooperatives in Developing Countries 2005). Referring to a slum in South Korea ,home of many scavengers, Mitlin reports that "Nanjido was labelled as a place of deviants, marginal people or criminals and therefore the children were alienated at school" (Mitlin and Centre 2003).

However, there is more to slums than the traditional views and perceptions expressed above. Slums are radically different across the world and as Mike Davis states in his book Planet of Slums: "Not all urban poor, to be sure, live in slums, nor are all slum dwellers poor" (Davis 2006). Slums are constituted by a heterogeneous mix of people from different geographic and educational backgrounds that not always coincide with the perceptions above stated. For example Vedeld and Siddham found that the slum dwellers had a higher education than average in Delhi, belonged to a caste higher than the city average and earned an average income larger than twice the official poverty line. Regarding scavengers Medina reports that "scavenging can be a profitable activity when scavengers are organized and authorities sanction, or at least tolerate, their activities. Scavengers at the Beijing dump, for instance, earn three times the monthly salary of university professors" (Medina, Scavenger Cooperatives in Asia and Latin America 2000).

The 'social disorganization' label used by the Encyclopaedia Britannica in the first definition may also be relative. An eloquent voice is the real life example of the capacities of slum dwellers of self-organization for development as portrayed by Shack/Slum Dwellers International (SDI). This federation is an international network of local slum dweller groups that have organized themselves into city and national levels for their self-development. SDI was founded in 1996 by Indian and South African partners mainly as collectives of savings and credit schemes. Currently SDI encompasses 33 organizations in Africa, Asia and Latin America and organizes itself into seven major areas of activity ranging from census (enumeration), to international exchanges and slum upgrading. Another such organization at the international level is Homeless International who incorporates national and local NGOs in Africa and Asia.

The question here is: if most of the world is urbanizing and most of these are poor people in developing countries who will live in slums, how can we manage these places so that the people living there sustainably improve their livelihoods while reducing pressure in the urban environment for the whole city?

Increasingly policies concerning slums have shifted from an aim of eradication towards an upgrading approach (Bolay 2006). Particularly in the case of scavengers, who often live in slums, the urban poor can contribute to the improvement of the urban environment.

There are several environmental benefits that scavengers render to cities (Medina, The World's Scavengers. Salvaging for Sustainable Consumption and Production 2007), (Ciudad Saludable 2010), (Gonzales 2003), (UNFCCC 2010). By retrieving part of the waste fraction they lower the amount (and importantly, the volume) of wastes to be disposed of, increasing the life of sanitary landfills or other disposal sites. Apart from extending the life span of landfills, pollution to the soil and groundwater derived from the leaching of inorganics is also reduced. The replacement of virgin materials with raw materials may represent important energy and detrimental environmental impacts savings when compared to the extraction (i.e. paper, aluminium) of resources from their natural basins. When organic material is also collected and composted, it can reduce the use of agricultural fertilizers, reducing potential soil and water pollution. An economic-mathematical model

was developed by Moreno-Sanchez and Maldonado (2006) to measure the impact of scavenger-friendly policies towards the environment. They found that when there are no policies in place the environmental quality function is maximized at year 13, after which it descends rapidly due to reduction of landfill space. In contrast when scavenger-friendly policies are instituted, the environmental quality function doesn't reach a maximum even after 20 years because of a reduction in the extraction of raw materials (and its associated impacts) and the increase in available landfill space (Moreno-Sanchez and Maldonado 2006).

In Latin America and Asia, cooperatives of scavengers have formed that have allowed its members to improve their quality of life by fortifying their position in terms of economic status and player in the material flow to the industry. One of the most dynamic of these cooperatives is Cooperativa Recuperar (Recovery Cooperative) in Medellin, Colombia. This cooperative has allowed its members to earn a higher than minimum wage salary, has enabled scavengers to enter the Colombian system of socialized medicine, it gives them access to loans, scholarships and insurance (Medina, Waste Picker Cooperatives in Developing Countries 2005).

It is in the context of the scavenger activities conducted by slum dwellers that this research is focused, since their sustainable livelihood improvement can potentially play an important role in the sustainable development of the city as a whole. A project led by Ciudad Saludable in Peru is taken as a case for the analysis of slums as opportunity by analyzing the conditions that lead to the livelihood improvement of scavengers that render environmental services for the city of Lima, and specifically, the district of San Juan de Miraflores.

Chapter 4: Case: Scavengers in the district of San Juan de Miraflores, Lima, Peru.

This chapter describes the case from the general national level up to the specific project led by Ciudad Saludable. The country profile describes the general situation of Peru, emphasizing on urban areas and waste problems. A profile for the city of Lima highlights the situation of slums and specifically the scavenger sector. Further the district of San Juan de Miraflores is described and to conclude the development project is overviewed.

Peru

The Republic of Peru (subsequently addressed as Peru) is the third largest country in South America by extension (1.285.216 km^2) and the fourth most populous (UN 2009) with an estimated total population of 29.461 933 in 2010 (INEI 2010). It is located in the western coast of the continent and borders Ecuador and Colombia on the north, Chile on the south, Brazil and Bolivia on the east, south-east and the Pacific Ocean on the west. Peru is divided into 25 regions and the central government is located in the city of Lima, region of Lima on the central western coast.

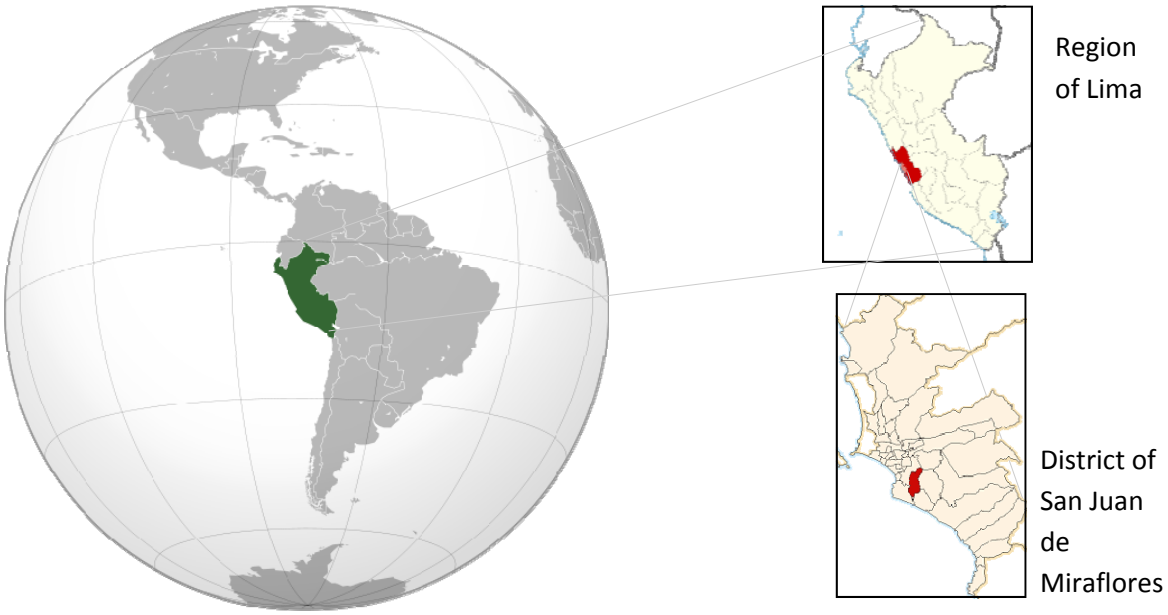

Figure 8. Location of Peru, Lima and San Juan de Miraflores. Source: Wikipedia

The population of Peru consists of 50,3% women and 49,7% men, with 24,1% rural and 75,9% urban inhabitants. Peru has a relatively young population with 30,5% between 0 and 14 years old, 63,1% between 15 and 54 years old and only 6,4% over 65 years old (INEI 2007).

In 2008 the largest contributor to GDP was the services sector accounting for 54,9%, followed by the industry with 21,5%, the extraction sector (agriculture, fishing, cattle grazing and mining) 13,9% and the remaining 9,7% came from taxes. Figure 9 shows a further breakup of the contribution to GDP of each of these sectors

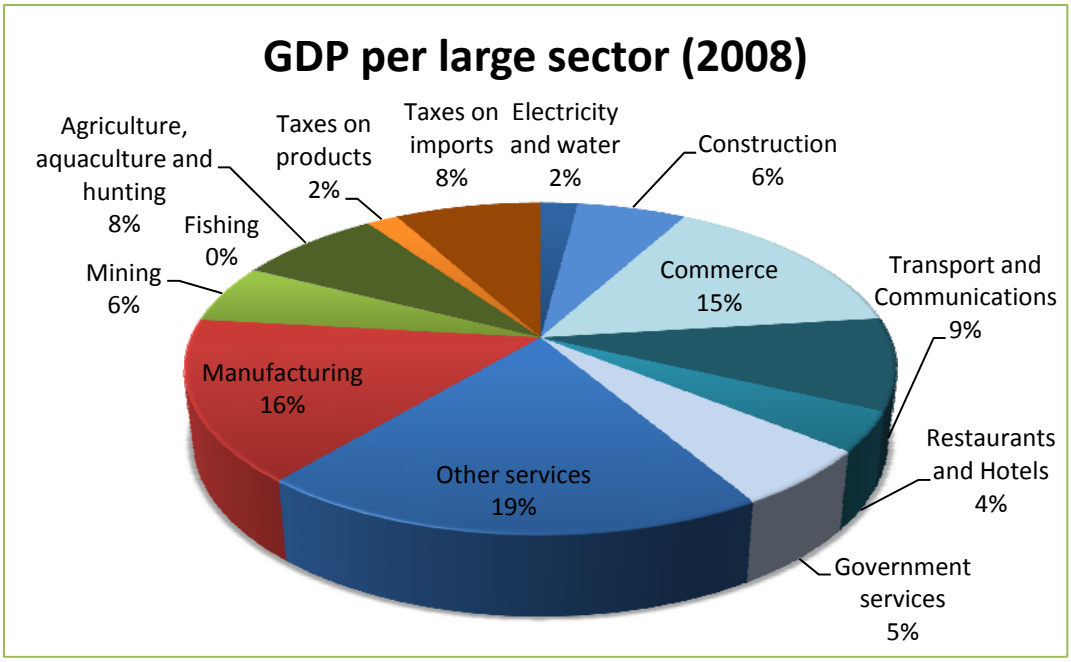

Figure 9. Sector contribution to GDP (2008 in constant 1994 currency values). The blue colours illustrate the services, the red the industry, in green is the extractive and in orange the taxing sectors.

It can be seen that the largest contributor to Peru's economic wealth is the 'other services', which includes the informal sector.

In terms of poverty and development, Peru is classified as having a high human development, ranking 78 out of 182 countries surveyed with a Human Development Index (HDI) of 0.860 in 2007; a Human Poverty Index (HPI) of 10.2 placing it at the 47th position, and with a population below the international poverty lines of 1.25 USD/day and $2 USD/day 7,9% and 18,5% respectively (UNDP 2009). In April 2010 The World Bank classified Peru as a lower middle income country, but when reviewed in early June 2010, this classification had been upgraded to upper middle income (World Bank n.d.).

Peru measures poverty according to two methods: poverty lines (total poverty and extreme poverty) and the unsatisfied basic needs measure (UBN). The total poverty line is a measure of the basic goods basket, a pondered value of the minimum cost of living to fulfil all nutritional, educational, transportation and tenure requirements. The extreme poverty line is a measure of the basic food basket, a pondered value of the minimum cost of living to fulfil only nutritional needs (without any provision for other necessary goods). The latest value of the national poverty lines from an official source (INEI) is for the year 2008: the total poverty line was 251 S/person/month and the extreme poverty line 139,8 S/person/month. At June 2010 exchange rates (1S= 0,29€/0,35USD June 2010) this would translate into a total poverty line of 73,7€ 88,16 USD/person/month, and the extreme poverty line at 41,1 € 49,1 USD/person/ month.

National statistics place poverty as affecting 36,2% of the population in 2008 and most poor (59,8%) live in rural areas. Out of those in poverty, 12,6% do so in extreme poverty (INEI 2008). If poverty is measured as the population with at least one UBN, the percentage in 2008 was of 31,3% of the total

population (INEI 2008). The difference between poverty measure methods (poverty lines or NBI) does not greatly alter the result (36, 2% vs. 31, 3% of total Peruvians).

The largest metropolitan areas are Lima (8. 564.867 inhabitants), Arequipa and Chiclayo-Lambayeque, Trujillo-Salaverry-Otuzco, Huancayo-Jauja, Piura-Castilla and Iquitos (INEI 2007). Lima is the most expensive region; in 1997 its poverty line was the highest. In these cities, the percentages of poverty are 18% (Lima), 21,9% (Arequipa) and 29,2% (Chiclayo).

Nationally, in 2007 the urban Peru produced 22.475,79 metric tons/day of municipal solid waste (MSW), 68% of which came from private houses (Red RRSS 2009). The Movimiento Nacional de Recicladores del Peru (Peruvian National Recycler Movement, MNRP) estimates that 100,000 people work as scavengers separating more than 1.800 tons of recyclable material a day from the general refuse (MNRP n.d.).

Lima

Lima is the capital city of Peru and it is located in the central Pacific coast at 110 meters above the mean sea level. The country's largest city by far, its estimated 7 million inhabitants produce two thirds of the country's economic and industrial wealth. The city is located in a region of the same name which is 99,87% urban. Lima is divided into 43 districts where the city centre is the heart of middle-low class commercial trading and the government's seat, and the central coast concentrates the wealthier areas. From the 1940s, Lima expanded into what is known as the "Cono Norte, Cono Este and Cono Sur" (north, east and south cones) which are generally lower income areas (Castellanos, Joseph and Ubillús 2003).

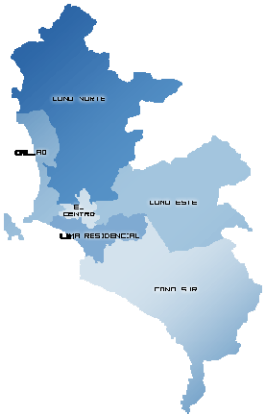

Figure 10. Scheme of Lima city distributed by major areas. Source:http://www.mudanzas-peru.com/Lima_Lima--Callao/

The population is 92% born and bred in Lima (locally known as Limeños) while 8% are migrants from other regions of the country. Most Limeños are catholic (83.1%), and only 7% had an indigenous language (non-Spanish) as a mother tongue in 2007. In Lima 37,73% finished high school, 20,09 % have some degree of schooling and only 6,56% are illiterate. City services coverage is high; 93,01% have electricity, 73,48% have access to potable water, 79,95% have access to sanitation systems and tenure is generally solid since the main household construction material is brick or cement block (78,33%). Most houses use liquefied-petroleum gas to cook (86,32%) followed by kerosene (4,21%) and electricity (3,64%). In 2008 the proportion of Limeños under the national poverty was of 18,3% .

Regarding the amount of municipal solid waste (MSW), in 2007 metro Lima produced 2.092.166,03 metric tons/ year (Red RRSS 2009) which translate into 5.731,96 metric tons/day or 25% of the national total. According to the same agency, the average composition is 56,7% organic matter followed by the 'others' category (18,5%), plastics (9,5%), paper and cardboard (8,7%), metals (3%), glass (2,6%) and textiles (1,3%) (Red RRSS 2009).

No statistics on the number of scavengers or associations are obtainable through official information sources as these are most often not registered in any way with government agencies. Information from a report for the Interamerican Development Bank estimates the number of scavengers in 5.000 for the city in 1994 (IPES 2005), and Ciudad Saludable estimates 35,000 for 2010 (Ciudad Saludable, personal communication).

Limited information was gathered from Ciudad Saludable, where they conducted a study of 460 scavengers of 21 scavenger associations in the city. In this study, most of the scavengers were men (77,8%) in the age group between 30 and 60 years old (70,6%). CS reported that approximately 50% came to Lima from other regions of Peru. In regards to the education level, 32% had some degree of high school, 24% had finished high school, 17% had incomplete elementary school and 15% had completed elementary school. On the extremes, 3% had completed a college degree and 3% had no schooling at all. The study reported that 38% of interviewees had been scavenging between 0 and 5 years, 25% between 6 and 10 years and 33% for more than 10 years. They mostly reported not to have diseases in the last 2 years (39%), but the three most cited health issues included respiratory (15,6%), muscular (6,5%) and lumbar (5,4%) problems; 82,3% of interviewed did not have any form of health insurance (Ciudad Saludable 2010).

San Juan de Miraflores District

The District of San Juan de Miraflores is located in the south cone of Lima. In 2007 it had 362.643 people, mostly concentrated on the north of the district (Pamplona Alta) considered as the most poor and dangerous sector of the district (according to Ciudad Saludable, scavengers) where houses are made "of cardboard and laminate and there is no water and a lot of garbage because the trucks of the municipality cannot reach those hills" (Lizano and González Silvera 2010).

San Juan de Miraflores (SJM) is a middle-low income district whose population is mainly involved in commerce (24%), manufacturing industries (12%), transport, storage and communications (10%) and construction work (8,2%); non-specified economic activity is reported at 5,7%. (San Juan de Miraflores District 2007).

According to Mr. Manuel Hinojosa, manager of city services of the municipality of SJM, there are approximately 400 scavengers working informally in the district, that is, they are not part of the local government's services or alliances. In 2007 the district was reported to be the 8th largest producer of MSW in the country generating 1,7% of the national total (Red RRSS 2009). In 2009 the district produced 84.199 metric tons of MSW, 85% of which come from private residences (San Juan de Miraflores District 2010).

Figure 11. Views of the municipality of San Juan de Miraflores. Source: author (except low-middle wikipedia)

Project: Building citizenship and developing opportunities of social inclusion and work insertion of informal scavengers

Ciudad Saludable (CS) promoted the project 'Building citizenship and developing opportunities of social inclusion and work insertion of informal scavengers' (referred to as 'the project') in the district of San Juan de Miraflores from August 2008 to June 2009.

The project's objective was to formalize the district's recyclers to improve their technical, negotiating and commercial capacities to complement the municipal solid waste management systems and reduce the amount of intermediaries in the recycling chain (Perez de Cuellar 2009). In the project's context, formalization refers to the relationship between the district's municipality and the scavengers in association.

The project worked with 85 scavengers grouped in the association Reciconsur, the Management of City Services of the municipality of SJM, a private bank for the negotiation of micro-credits, a national technical instruction institution (SENATI), 23 factories and 21 non-industrial companies.

The project worked with the scavengers in the following ways/activities:

1. Training: solid waste management, occupational health and safety, social abilities and personal development, entrepreneurship, marketing, planning and basic accounting. 85 scavengers involved.
2. Micro-credits: through a private bank with a negotiated interest rate, micro-credits were given to individual scavengers and Reciconsur as an association for the purchase of tools and the establishment of a self-owned waste transfer centre. 75 scavengers received micro-credits.

3. Waste transfer centre: establishment of a waste transfer centre owned by Reciconsur. This centre collects (in theory) the recyclable material from all the members, pre-processes it, and negotiates and sells directly with recycling industries. 1 storage centre established.
4. Collection routes: establishment of specific collection routes for scavengers. Domestic routes involve individual households that separate their waste and give it to the scavenger who picks it up at a specified time during the week; industrial routes require that individual companies donate their segregated material to the scavengers equally at specified intervals. The routes require that scavengers make a compromise on collection frequency and specific time of the day and fulfil it. 80 scavengers were placed on domestic and 7 on industrial routes.

The results from the project can be seen from two perspectives: the 'hard' quantitative data used by CS and the SJM district showing varying degrees of success for the different components of the project and the 'soft' qualitative from the some of the scavengers involved summarizing as: "it didn't work so well" (Lizano and González Silvera 2010).

A final report of the project by an independent consultant and commanded by CS concludes that the family micro-enterprise model on the industrial route is successful, the income of scavengers increased by 50% and that they became micro and small entrepreneurs (Perez de Cuellar 2009). The report details that 100% of active or real members of Reciconsur were trained and formalized, that 100% of material is jointly collected and sold, and that 110 families of scavengers were granted a micro-credit. It is worthy to of notice that the report states that the micro-credit system was not fully successful (13 scavengers could not pay anymore, and the private bank retrieved some of the money CS had established as a bond). It also states that the real average income of interviewed families was reduced from 647.5 S in 2007 to 439.7 S in 2009 (-32%) and that their quality of life in terms of access to services remained more or less unchanged from the pre-project conditions. Interestingly, the scavengers also reported to be less satisfied with their work at the end of the project than at the beginning; the report explains that perhaps this perception was a result of the lower income the scavengers received, which could be directly attributed to the decreased value of sold material due to the economic crisis of 2008.

For its part, the municipality of SJM indicates that 20% of households participated in the domestic collection route, where the collection routes were executed as planned at least a year after the project start. A presentation of the project shows photographs of 'before' and 'after': the former photograph shows a scavenger in ragged clothing, beside an overflowing tricycle; in the latter some scavengers are properly equipped with uniforms, safety equipment, re-conditioned tricycles or motorcycles and collecting material from house to house with complying neighbours. They estimate that involved scavengers would earn 50% more (San Juan de Miraflores District 2010).

However, for the scavengers interviewed (members of Reciconsur and thus involved in the project), the main perception is that the project failed. "The ideal thing would have been that the selective collection (domestic route) would have worked, but it didn't. We don't go there anymore because there were many problems" (Lizano and González Silvera 2010). The problems they refer to are the lack of participation of most of Reciconsur's members, apathy from the households in separating their waste (the households reportedly feel that they are not gaining anything with the project), an inadequate day-time schedule enforced by CS, negative attitude from some factory workers and

managers, the fact that the waste transfer centre doesn't receive enough material because most Reciconsur members sell to other intermediaries who give them a slightly better price. On the other side, the interviewees recognized that the training had helped them perform their job better and that the industrial route still worked somehow, which they considered as a tangible benefit from the project. Elizabeth (scavenger) also mentioned being very grateful for the possibility of accessing credit, since it allowed her family to purchase a motorcycle to collect the recyclables. Tiburcio (scavenger) considered that the project had allowed them to have a closer contact with the sources of material such as neighbours and factories. All the scavengers interviewed mentioned that through Reciconsur they had established an agreement with the local authorities that was mutually beneficial: scavengers occasionally helped the municipality with hard labour and in turn, the municipality let them scavenge without harassment.

Chapter 5: Analysis of results

This chapter presents the results of the field work, the analysis of data using the SLA and the tag activity. The last section compares these results with others found in literature of similar studies.

Feeling the case: a narrative impression

Appendix 2 helps illustrate this narrative.

San Juan de Miraflores is a far-away district. To get there from the city centre takes three changes of congested public transport and a short walk; in total approximately 1 hour. Mr. Carlos Tuesta, a solid waste management specialist from Ciudad Saludable and I reached the southern area of the district, in an informal settlement known as "El Inti". The streets were unpaved, a few stray dogs rested in the shadow, the soil was dry, sandy and orange, but, to my surprise, the houses were made of brick and concrete block, there was ample space between the houses and very little garbage was lying in the streets. This didn't seem like the slum I had pictured, crowded, dirty and with a sense of despair; it resembled more a poor but neat remote corner of Lima.

We first arrived to Reciconsur's waste transfer centre to wait for Tiburcio, the head of the family of scavengers I was going to visit and work with. Meanwhile, informal chit-chats between Mr. Tuesta and some of Reciconsur members regarding the success of the centre revealed general disappointment: Mrs. Yolanda, the centre's keeper, talked about the low cooperation of associates to sell their material to their own transfer centre: "Out of over 100 people perhaps only 15, 18 come. They all go to the informal intermediaries just because they get one or two cents more". Mr. Tuesta was interested: "But they know that those people cheat the weight (i.e. the balances to weight the material and calculate payment are intentionally tapered with), maybe they would even get more money here" A general nod of agreement; but worry was in the air.

Tiburcio arrived to pick us up and take us to his home. He is a 51 year old head of a household fully dedicated to scavenging. Mr. Tuesta had chosen him and his family because they are actively involved in CS' activities, their house was large enough to accommodate me during the night and because they trusted them with my safety. As we walked towards the house it was the meeting of strangers: a foreigner that came to ask questions, would stay over to sleep and even wanted to scavenge; a Peruvian family with unknown habits, perhaps unwilling to be asked certain questions, and maybe biased towards wanting to please me. The house was surprisingly clean and proper; with modest but sufficient furniture and excellent sanitation facilities. Was this a typical Lima slum-household?

Tiburcio introduced his wife, Elizabeth who after a short while felt confident enough to take the lead of the discussion for the rest of the day, night and next day. The household is comprised of 8 people: Tiburcio (51 years old), his wife Elizabeth (49), four sons: Luis (20), Kevin (18), Christian (14) and Bryan (10), Tiburcio's sister Marcelina (37) and her son Nelson (12). Tiburcio and Elizabeth talked about their previous lives as informal street-sellers: caramels, cakes, flowers. Each time the business worked for a few years, even allowing them money for recreation, but it ultimately failed because either the price of raw materials went up, or because the suppliers owed them indefinitely. Approximately five years ago (i.e. 2005) Tiburcio and Elizabeth started picking up PET bottles and

aluminium cans in their way to work, and collecting them in their house until they had enough to sell; as the primary source of income dwindled, they increasingly compensated it through scavenging until this last activity fully replaced street vending. Soon the three oldest children started helping their parents by scavenging and the family began investing in tools that would make the job easier (modified motorcycles to haul the material). Later, Marcelina and Nelson joined the scavenging to aid the household. At the time of the visit only the youngest son, Bryan, did not regularly participate. Elizabeth had a special worry for him; the doctor had recently told her that he was severely small for his age as a result of undernourishment. Therefore Bryan was currently living with his aunt who could closely supervise his feeding habits. Elizabeth felt partly guilty for her son's stalled growth because of her working hours it was hard to keep a track of his nutrition.

Other scavengers didn't live as the family: Tiburcio said "We have some colleagues who live in houses made of laminates; they are in worse situation than us"; yet others had several motorcycles and carts and recovered large amounts of material that allowed them to have a good life. A clear and identifiable profile of scavengers was difficult to see; the men thought that overall there were more male scavengers; the women thought more scavengers were female. Scavengers and CS thought that most are adults and older people, while the municipality saw youngsters. The family are street scavengers: they collect material from domestic trash bags that households leave in the sidewalk before the municipal truck collects them. Elizabeth knew that there were other scavengers working directly in the dumps and others who buy bulky material from house to house, but she had no idea on who they were or how they worked. From what they knew, scavengers came from different places, had different education levels and scavenged for different purposes, either to complement another type of livelihood or as their only source of income.

Scavenging is tiresome labour, involving a great deal of walking, carrying big loads by hand and constant squatting. The family and most members of Reciconsur had assigned sectors of the SJM district and they work three times a week during the night. If the economical situation is bad, the family works everyday in un-assigned parts of the city. Around 19:00 we left the house, Tiburcio, Elizabeth, Marcelina, Luis, Kevin, Nelson and me. Seven people in two motorcycles we drove five kilometres to the residential area assigned by Reciconsur, CS and the municipality. The family spreads: the men go together with the motorcycles and scavenge speedily, trying to cover a large area; Elizabeth and Marcelina go by foot carrying sacs in a relatively small space and Nelson is in charge of a tricycle where the women routinely collect the material. The municipality's waste collection truck passes at around 22:00 and the families in the neighbourhood start putting out their trash bags at 20:00…we have two hours in this area to collect as much as possible. The work is simple but tiring and potentially dangerous. We inspect every trash bag: we squat and carefully feel the outside with bare hands searching for hard material (recyclables are usually hard). If you feel something, then you open up the bag, retrieve, close the bag and move to the next. It is important to have bare hands to be able to feel the texture and possibly, type of material before you open the bag to look for it. CS had provided some sturdy leather gloves that make this tactile element impossible: "wearing those gloves is the same as wearing shoes in the hands. It is good for the domestic collection route where the neighbours give you already separated trash, but for this work we need to feel, and those gloves make it impossible" (Elizabeth). Sometimes there is broken glass or sharp objects and many scavengers get hurt, but it is more important to be able to feel the material through the plastic bag. We go around the same streets over and over, and in each new

round there are new bags as neighbours take out their trash; when the trash truck comes we move to a different area.

Today we are very visible: Not only do I have a camera and video recorder, I look rather foreign and not only am I talking to a scavenger (which is in most cases almost unthinkable), I am scavenging as well. Elizabeth tells me that normally she doesn't get attention from a good or a bad side, scavengers tend to be a bit invisible, but today my presence is changing everything. Well into midnight two security guards in the area come and advise me to go home, as we are being followed by four men most probably to steal from me. This is unusual and creates some concern over my and her safety; Elizabeth tells me, normally the streets are safe for her. After some thought I decide to hide my belongings under the collected recyclables in the very bottom of the cart Nelson looks after. Maybe without anything in my hands or back there won't be any problems tonight. At approximately 3:00, we came home, ate and normally they would clean the house and watch TV, but since I am falling asleep they don't want to bother me and go to bed. They sleep at approximately 5:00 and next day wake up at 10:00 or 11:00. During the morning the material must be taken to the waste transfer centre and sold. And the cycle begins again at night.

The following morning, Tiburcio, Elizabeth and I started discussing about their strategies for livelihood improvement. Reciconsur, the association of scavengers to which the family belongs was the main topic. The association had great plans: their self-owned waste transfer centre so the associates could sell material directly to the recycling industries and become entrepreneurs, a plant nursery to grow trees for sale and the newly inaugurated micro-bank. Indeed 'the association' had established important relationships with CS and the SJM district authorities, two feats which would have been impossible by individual scavengers. Tiburcio and Elizabeth were very involved in Reciconsur's projects, she even acted as a sort of administrator for the micro-bank, and had a stash of associate's files who wanted to participate; one of them sent a messenger to the house to call for her, he wanted to put his savings in this bank. After a small lunch and many assurances that I had enjoyed the experience, I left the family and headed back to CS headquarters.

For CS, the formation of scavenger associations or cooperatives represents one of their best chances for autonomous development. It is through associations that individual scavenger's needs and worries can be heard and acted upon. As part of their ongoing activities in Lima, CS organized a round-table on the topic of taxation systems for formalized associations; an association that pays taxes to the government may extend receipts, which opens up their choices for buyers of recyclable material. Many actors were present: scavenger associations' leaders, some representatives of industrial buyers of recyclable material, an expert from the Peruvian taxation office, representatives of exporters of recyclable material, an officer from the Lima municipality. The leaders of the different associations and cooperatives strived to understand the tax technical language but it was obvious the speaker did not know his audience; for him it was not understandable that individual scavengers could not afford the time and money to register in the tax system. In the end, a few leaders of the associations asked CS for a more 'scavenger-friendly' meeting where all the technical terms would be explained. It seemed the associations (supported by the other actors present) wanted to become involved.

For the municipality of SJM, the scavenger associations are their political partners to complement waste management services to the citizens and avoid trouble from this sector of the population. This

municipality had established a deal with Reciconsur: I let you work at peace in my district (i.e. no police raids of your property or bribes to the right of scavenge) if you do it in a cleanly manner and in turn, aid me when I need labour-intensive work.

Alas, Reciconsur has a big problem: "the majority of associates are 'relaxed'; they don't want to make an effort to make the association work, they think that the NGOs should give them things already in their hand" (Lizano and González Silvera 2010). The lack of participation of most associates was preventing Reciconsur's success. Only 10 or 15 people out of more than 100 regularly contributed. It was a disappointment that only the associates could see, because under the label of 'association' all the members were equal to the eyes of CS and the district authorities. Other active members (Rosario, met at the nursery and the scavengers running the waste transfer centre) shared the feeling of lost potential.

CS' project with the SJM district had ended and Reciconsur was now responsible for its own development. The association was still functional; some of the projects began with CS still ran (the industrial route, the centre) and new ones such as the nursery and micro-bank were developing. The scavengers visited felt the wheels into which the association ran, and though disappointed, they still contributed. The authorities would let them work as long as they occasionally cooperated with them (and as long as the present administration remained), and CS was a partner they could use for support and as a know-how provider. The improvement of their livelihoods was attainable as long as the members decided to take the risk of trusting themselves.

Actors in play: an analysis

There were five key actors identified as important for the sustainable development strategies of scavengers of Lima: scavengers involved in the project (IS), scavengers not involved in the project (NIS), project developers (PD), local waste management authority (LWMA) and intermediaries (I) who buy material from the scavengers and in turn sell to the recycling industry.

Work on the field showed that the scavenger's association is a key actor influencing the sustainable improvement of scavenger-livelihood that was not taken into the account on the research design. For the rest of this analysis the scavenger association will be denoted with the letter 'A'. The IS perceive A as the means to their social and economical empowerment while servicing the community, and a key to their self-development, independent from CS' project.

There are two situations concerning the actors in play. The theoretical, ideal, situation where the PD, LWMA and A work together to exclude I and where all the individual IS support this arrangement. Figure 12a illustrates this situation. However, the association doesn't work in reality as a single entity; its individual members act in opposite ways, stalling the livelihood improvement plans. The following relationships exist:

1) PD-I: PD wishes to eliminate I forming an alliance with A and LWMA whose decision makers participate.
2) A-LWMA: The A helps the LWMA in labour-intensive work when requested. In return, LWMA allows scavenging in the district undisturbed.
3) PD-A: PD helps the IS by providing access to training and continued information and support. During the project, the PD opened a line of credit to A and individual IS to acquire new work equipment and the waste transfer centre.

4) PD-LWMA-A: The three actors set up the project described in Chapter 5. The domestic and industrial collection routes were established and the scavenging sectors were assigned to individual IS.
5) A-I: Most of the individual IS still sell their material to I instead of to A. This is one of the major reasons why the waste transfer centre still is not successful and A has not benefited as expected from the project. IS sell their material to I because it gives them higher prices per kilo than A, even though the scales are not trustworthy (i.e. they show less weight than real)
6) LWMA-I: The LWMA is not fully separate from I, since some of the municipal waste collectors also sell recyclables to I.
7) NIS: Non-involved scavengers (not part of A) are mostly attached to I although some are starting to sell material to A's waste transfer centre; they don't participate with the LWMA.

In this way of looking at things, the two main forces are PD against I, with LWMA *mostly* cooperating with PD and the IS *mostly* cooperating with I. NIS, by mainly supporting I, enhance its power.

Figure 12 schematizes the relationships between actors depicting the a) theoretical and b) real situations.

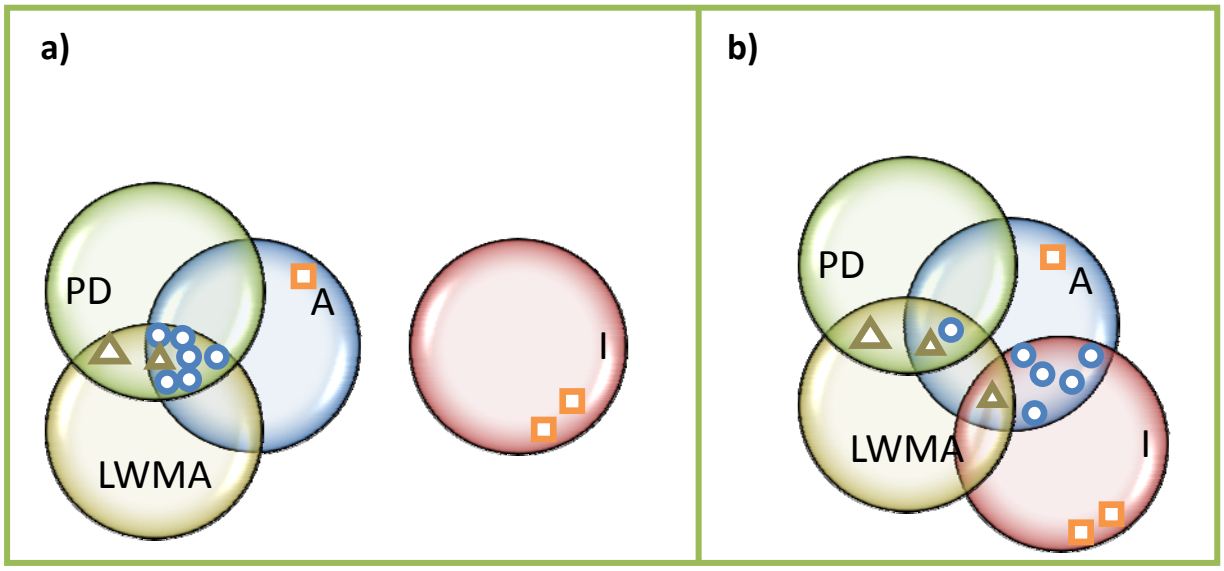

Figure 12. Schematic representation of the relationships between actors in the case. a) theoretical situation and b) real situation. (IS) Involved scavengers (members of Reciconsur); (NIS) non-involved scavengers (not members of Reciconsur and not part of the project); (LWMA) local waste municipal authority (San Juan de Miraflores); (PD) project developer (Ciudad Saludable); (I) intermediaries; (A) association of scavengeres (Reciconsur).

Figure 12b shows the internal division of the A and LWMA which creates some of the larger obstacles for sustainable improvement of the scavenger-livelihood .This effect is only seen when the organizations are disaggregated to analyze its inner workings because institutional labels of homogeneity may mask key social conditions and processes. As the next section will show, the lack of participation of most members of the association in the communal projects is seen by the interviewees as one of the main obstacles to their autonomous development.

Other important actors for the autonomous development of scavengers that were not taken into account in the initial framework are the larger community and the recycling companies. The companies will buy the material from any entity that has a steady supply of high quality material (i.e.

clean, separated and in some instances pre-processed) and were not part of CS project. The larger community in general influences the sustainable improvement of the scavengers livelihoods because source separation would, in the opinion of the IS, make one of the greatest improvements for their livelihood. Currently the neighbours mostly don't separate their material, and those in the domestic route set up by the PD and LWMA have mostly abandoned the practice. These two actors are not shown in the above scheme because they did not form part of CS' project (recycling companies) and because the relationships with the community are with individual scavengers (IS or NIS) and would add complexity to the diagram.

The case through SLA

The sustainable livelihoods approach was used to conduct the observations and give general direction to the topics that would be covered during the interviews. The findings are categorized in five groups: vulnerabilities, assets, transformers, livelihood strategies and livelihood outcomes.

Vulnerabilities

The IS interviewed identified as the major vulnerability the fact that within A most of the members did not participate in the project, decreasing their chances of communal development. Forming associations was their main strategy for autonomous development, one supported and encouraged by Ciudad Saludable, so the failure of Reciconsur was seen as the major obstacle in their path for their sustainable livelihood improvement. The scavengers reported that Reciconsur has over 100 members, but only approximately 15 participate in the several projects they have started, and declare the rest as the 'relaxed' members. This vulnerability was seen as paramount in the case of the waste transfer centre, where the project has stalled, in their ability to obtain credit (since some members of Reciconsur became debtors and now no new credit is given any IS), and the success of other projects (discussed later).

A second vulnerability the IS mentioned is the fact that the number of scavengers has increased, and within a limited space for work (derived from the agreement they have with the municipality of SJM), the competition for the recyclable material has increased. It is harder to find enough material to make a satisfactory living. The scavengers did not say whether they thought this trend would continue (i.e. the number of scavengers would likely increase), but even at the present state it is a concern.

Finally the interviewees reported that they depend entirely on scavenging; Tiburcio and Elizabeth lead a household of 8, where 6 or 7 members scavenge regularly, and Rosario and her husband scavenge to support their 2 youngest children, and occasionally help the rest when it's needed (5 children and several grandchildren). If any of the dynamics of scavenging is altered, these families risk access to the most basic needs because they currently have no other means of supporting themselves.

During the design of the study it was thought that insecurity would rank high in the vulnerabilities of scavengers, however they reported feeling generally safe and the family had only twice been stolen from without considerable consequences for their livelihood. This assumption was based on the general discourse regarding slums and slum dwellers as discussed in Chapter 3, and the author's pre-conceptions.

The other actors interviewed, PD and LWMA, identified the dependency on scavenging for survival, health issues related to unsanitary conditions in their homes (or slums in general) and work and the changes in local government (and therefore, unsecure support for cooperation with A) as the scavenger's main vulnerabilities. This last issue could be better understood not for individual scavengers to secure a livelihood but an increased vulnerability of projects of sustainable development for this sector.

Neither the PD nor the LWMA mentioned lack of participation from Reciconsur's members (the largest concern of IS) and talked about the association as a homogeneous entity that could perform tasks. This blind spot on the inner workings of the association may present a departure between the PD and LWMA and the scavengers; while the first plan for the workings of the association, individual members feel an unequal and 'flawed' development that cannot be maintained in the long run.

Interestingly none of these actors identified security of tenure as a vulnerability, presumably due of the relatively good and secure housing conditions of the area's scavengers. It is notable that health is seen as a vulnerability more by PD and LWMA than IS, and could be due to the larger family support systems experienced by the IS interviewed, or because daily contact with risky conditions minimizes the level of alert.

Assets

Paradoxically, the strongest asset identified by the IS is A. As commented earlier, Reciconsur is seen as the best instrument for autonomous development and communal well-being. From the interviews with the IS, comments in the shape of "if the association worked we would be better off" abounded. This view is shared by both the PD and LWMA because it gives them access to the whole community with defined points of contact.

The ability of A to generate development is evidenced through some of its activities: Reciconsur has launched 2 independent projects so far: a plant nursery and a micro-bank. The nursery, set up in a local school, has the purpose of growing plants for sale using organic waste scavenged; this would diversify the member's source of income and serve mainly to fund other Reciconsur's projects. The micro-bank, currently administered by one of the interviewees (Elizabeth) is seen as an alternative to the micro-finance scheme of the project since neither the private bank nor CS now lend money to any member of Reciconsur because some haven't repaid their debt.

Forming scavenger associations is therefore a large asset if all, or at least a majority, of its members actively participate for communal development and it can be classified as pertaining to the social capital asset.

Education is a second asset recognized by the IS, both in formal schooling and in work-related training provided by the PD. The IS used assistance to the project's training to distinguish between the associates (IS) and the informal or those scavengers who don't belong to Reciconsur (NIS), and thought of themselves as more advanced in terms of scavenging techniques. Regarding formal schooling, Rosario mentioned that Elizabeth could "do more things and organize things better" because she had more schooling. Individual education forms part of the human capital assets.

A third asset of the IS is their ability to be subjects of credit. Through the project, several scavengers were granted credit by a private bank. This enabled many, such as the interviewees, to buy tools for

their trade (uniforms, transport) and considered it a great support by the PD. In face of Reciconsur's morose status (and ban of further credit by CS and the private bank), A created its own micro-bank. This micro-bank, referred by the interviewees as 'little bank' (Spanish banquito) was seen with great hope by the IS interviewed because it saw the scavenger's as individuals and vanished the generalizing "debtor" label that applied to the (reportedly majority) responsible members. Credit was most often associated with an opportunity to make their work less heavy (through equipment), to attend household needs (home construction or upgrading) and to attend healthcare issues. Banquito is a term used both to denote small size and also endearment, and so the interviewees saw this emerging strategy beyond its practical ability to improve their livelihoods, but with affection. This asset is classified as a financial capital.

Another asset the Elizabeth and Tiburcio discussed was the property of motorized vehicles for their transport and work, which allowed them to participate in the industrial route, which they deemed as very valuable. The connection of the family to the industrial routes was an asset that did not made a significant impact in the income, but that was desired to expand as much as possible and held a great promise. Tools and techniques are classified as human capital asset by the SLA.

Similarly to the vulnerabilities, having a secure housing mostly connected to city services wasn't mentioned as an advantage, perhaps because the interviewees have lived with secure and services housing for an extended period of time as do most of their neighbours and peers.

In the case of the PD the major asset recognized was the ability of scavengers to form successful associations (social capital asset) As second, is that scavengers perform an environmental service to the community which can empower them in negotiations with the LWMA because they are doing "part of the job…but at no cost for the municipality" (Ruiz Rios, Key social conditions to work with the urban poor 2010) . These negotiations generally involve the halt of harassment by LWMA and its support in establishing recyclable collection programs within the community (social capital asset). The ability of finding credit is seen as important, and it is a reason why the PD promoted micro-financing within the project even though the results were counterproductive to the PD itself (Perez de Cuellar 2009). As mentioned before in the SLA this is classified as financial capital asset.

In the opinion of the LWMA, the scavenger's major asset is their successful association, because it organizes and uniforms otherwise disperse and unreliable efforts by individuals (social capital asset). A second asset is the IS relationship with NGOs in general and the own LWMA. These alliances permit the creation of projects for the benefit of the larger community (social capital asset).

Transformers

The transformers are the institutions and processes capable of exerting a significant pressure to change the background against which livelihoods take shape.

For the IS interviewed, the existence of the 'Recycler's Law' (published October 7 2009) was seen as an important milestone that gave them respect from the community. All the IS interviewed were aware of the law because A held a meeting to inform them about it. The law states that local governments must keep a record of scavenger's associations and associates to hand in authorization and certification; this will grant them the right to work within the locality, scavenge in in sanitary landfills, training and access to credit (Gobierno del Peru 2009). However, this law still has to make an effect on the daily lives of the IS because it was just recently passed. A ruling of the law, needed

to establish more concrete measures regarding formalized scavenging, was under development at the time of writing. The IS expressed hope that this law would improve their livelihood giving them access to other areas of town, to collect more material than that available in the SJM district.

The attitudes of the LWMA and community are also important transformers for the IS. The fact that the SJM district let them work at peace made the IS feel safe working at nights and separately (i.e. each member of the family works in a different section of the district to cover a larger area) without fear of extortion from the police to allow them to work. The interviewees credited this secure atmosphere with the rise in the number of scavengers in SJM; apparently other districts harass them. Regarding the community's attitude they still qualify it as mostly poor but with time faced less rejection in the area "because the neighbours know me, I come here in the same streets and they already know me, that I work well and I leave everything clean; now sometimes they even set up a bag with only recyclable material so I don't have to look inside all the trash" (Elizabeth, 2010). The change in attitude of the community had the largest (potential) positive transformative power; if the IS could pick up the material already segregated, it would greatly improve the quality of their work, and thus, the livelihood. A more positive attitude from the community was a great hope by the IS interviewed.

The Recycler's Law was also perceived as victory by the PD, who actively participated in it's creation and is currently working on a ruling proposal. This law is the first of its kind in Latin America and seeks a better management of municipal solid waste by incorporating the existing workforce and experience of this sector of urban poor. This law, if well implemented may serve as a decisive transforming force in the livelihoods of scavengers since the environmental service they provide to the city will be recognized and will grant them protection and a stronger voice in civil society.

The PD also identified the attitude of the LWMA, the general police and the greater community as important transformers. CS expressed that in general, scavengers now face less harassment from the police than before and that the neighbours slowly showed more positive attitudes towards them and source separation. In the view of the PD, aside from the victory of having a national Scavenger's Law, the local government's change of attitude towards scavengers is essential since waste is often managed and this level and changes in the local have more immediate impacts upon scavenger's livelihoods. When government support exists many of the barriers to self-development are knocked down because it is usually the local government the "hardest actor to convince" (Ruiz Rios 2010).

The PD also emphasized on the importance of including all the residents of the slums into effective waste management systems. The influence of key actors in the slums that may or may not be scavengers (such as the local doctor, teacher, religious authority, respected elders or youth, etc.) is very large and when engaged into a project, they have the capacity to transform the inner relationships and engage the majority of the residents.

As for the LWMA, again the main transformative force is the existence of the Scavenger Law. Interestingly, community cleanliness was viewed as a transformative force: its a primary motivation for change. The lack of cleanliness was seen as generating a sense of apathy, leading to perceived poverty and then insecurity (violence). Thus, when a community is clean it is more proactive in its autonomous development and more receptive to innovative strategies that include the scavengers in the waste management system.

For the LWMA (as for the IS and PD) the participation of the greater community is a transformative force that could either support or defeat scavenger's development projects. Spreading information about the environmental and social benefits of integrating scavengers to the waste management system was seen as an important condition that could greatly enhance the IS' position within the community. The LWMA mentioned that the support from the government is important at all levels and is definitely a transformative force in Peru; however, its processes are generally too slow for scavengers and even NGOs: "I speak of tomorrow, but their needs are for yesterday" (Hinojosa 2010). This speed differential between government support and slum dwellers 'day to day' lifestyle creates the feeling that policies don't work.

Livelihood strategies

Livelihood strategies are very different for the IS interviewed. While Rosario and her husband are the only scavengers in the family and the children have other jobs, the entire family of Elizabeth and Tiburcio are full-time scavengers. Reportedly all the IS work at nights, contrary to the PD and LWMA's wishes and programs, because it is the only time when waste is available in the district. Not all the waste collected is sold to recycling industries; usable clothes and furniture is sold to itinerant buyers or in an informal market for used goods.

Generally, scavengers search the locality for the intermediary that will give them the best price for their material that day, if they are not indebted and bonded to a specific buyer. For this, it is reported that some scavengers use mobile phones to communicate to each other the most convenient places to sell or if there are any modifications in price. This real-time communication system proves to be a sophisticated network of information to support certain groups. In CS' report of the project it is said that mobile phones are perceived as a work tool (more than a personal tool) by some scavengers (Perez de Cuellar 2009).

A's waste transfer centre has the objective of pre-processing waste to sell to medium-large recycling industries, passing from a mere association's storage warehouse to a micro-enterprise. Some problems have hindered this transition (insufficient participation from members, insufficient waste collection, lack of power outlet for the processing machine) but this strategy is in its initial steps.

As an alternative to scavenging, Reciconsur set up a nursery with the purpose of growing and selling plants, as mentioned before. At the time of writing this nursery had not commercialized any of the plants because only a few members were actively engaged and took care of the plants. This strategy has yet to prove viable.

Livelihood outcomes

In general, the IS interviewed expressed that they lead poor but dignified lives. The basic services were provided for, and scavenging was enough to support a frugal but decent living when the entire family worked. However the IS are strongly bound to be constant; if they miss work some days or for some reason the entire family cannot participate, the situation may quickly worsen. Due to their dependency on scavenging, any strong fluctuations in the price of raw materials may severely affect their income (Perez de Cuellar 2009). The family reported that on average they made 120 S every night of scavenging (and they do so 3 nights a week plus the industrial route on the weekends). Calculated for the month and per capita, each member of the family lived with 180 S/person/ month (63,2 USD/person/month or 52,9€/person/month). This income is between the Peruvian total

poverty and extreme poverty lines. Calculated daily, it amounts to 2,1 USD/day, just above one of the World Bank's international poverty lines (as laid out in Chapter 4). By national and international standards, this scavenger family is considered as part of the world's poor.

Most of the IS and NIS sell to their material to I, which dictate the prices and is believed to be the actor who profits most from the recuperation of materials. IS and NIS continue to sell to I due to bonds of debt (Rouse and Ali 2001) (Medina, Scavenger Cooperatives in Asia and Latin America 2000) (Perez de Cuellar 2009) or because they seek 'instant' higher prices for the material (Lizano and González Silvera 2010) even though they know they are going against projects by their association (in the case of IS).

The scavengers in SJM try to develop themselves by associating in cooperatives and this has given them important contacts and allies, with the local authorities and NGOs. Additionally, through A, other projects for self-development have arisen such as the plant nursery and micro-bank, although these are still in their infancy and yet to be proved sustainable.

Key social conditions for sustainable development: perspectives

Tag activities have the purpose of discovering the social conditions that each actor perceived as key to the autonomous and sustainable improvement of scavenger-livelihood. The photographs of the tag arrangements and their schematized version can be found on Appendix 1.

IS

In accordance to the previous findings, peer participation in the association was deemed as the single most determinant condition for autonomous development. The tag 'peer participation' was suggested by the IS during the exercise and was placed it in the highest rank.

Another important social condition suggested by the IS is that for development to happen, the poorest members of the IS should be economically supported by the whole because only then can they actively participate in an association. This has some relationship with the suggested tag 'fulfilled vital needs' which ranked lower in the list of importance but emphasizes the heterogeneity of the IS group; having everybody's basic needs fulfilled is important but some people need more external help more than and this fact should be emphasized.

Communication also appears high in the IS ranking of key social conditions and is reflected in three tags: 'scavenger education', 'communication with scavengers' and 'perception of others'. Effective communication is needed for education (training of scavengers), to involve the members in the association's projects and for the greater community, to improve the perception of scavenger's work and personal qualities. As discussed earlier, the perception of others is key to a rapid amelioration of their quality of life. The IS saw scavenging as having equal dignity and importance as any other kind of job with the added bonus of helping the environment, but it is the 'greater community' who think lowly of them. The notion that scavengers belong to the lowest social strata was also shared by the IS before they became waste pickers. Taking up scavenging signified a step down in the self esteem of Elizabeth who said that: "at the beginning I really didn't like this job, I also thought [like the neighbours do] that it was dirty and undesirable, it did take me a lot of time to think better of myself".

Social conditions that were middle-ranked were a degraded environment as a key motivation for improvement, power relationships, insecurity and an addition: 'own land'. If IS owned land, they could set up the waste transfer centre without paying rent, which would increase the profits for all. Power relationships and insecurity and a degraded environment are important issues when living in the slums but the scavengers have the know-how to deal with them so they don't represent larger obstacles.

In the exercise the social conditions that were placed on the lower rank for IS' livelihood improvement were 'trust', 'risk taking', 'fulfilled vital needs' and 'source of jobs' (last one was suggested by them). Interestingly when arranging the tags Elizabeth was very enthusiastic about risk taking and said repeatedly it was the key to their problem of peer participation. This leads to the possibility that the ranking exercise was not well communicated and that the tags they placed at the bottom in fact indicate necessary pre-conditions for their livelihood improvement, rather than less important social conditions.

The second tag activity, type of support, turned up two levels of importance. More valuable is institutional, cultural and physical/environmental support; in second rank come economic and operative support. An explanation is that the second rank of support types can be achieved by the scavengers' themselves without external aid: "money is important, but if CS hadn't given us credit to buy our motorcycles or our uniforms we would still be scavenging like we did before they came" (Elizabeth). The first ranked cannot come about only by the effort of individuals or even organized scavenger associations, the support must also be created within the external world not controlled by the scavengers.

PD

Two different PDs were interviewed independently and, as a result there are a total of four sets of tags; two for the key social conditions activity and two for the types of support. It can be said in general that the view of both PDs is rather different and this may be due because of the different roles they perform in Ciudad Saludable as well as personal perception and experience. For this research PD1 refers to Mrs. Albina Ruiz Rios, the founder and executive director of Ciudad Saludable and PD2 is Mr. Vladimir Olarte Flores, the solid waste coordinator of one of the largest current projects of Ciudad Saludable. Both interviewees have been working in CS since its founding in 2002.

For PD1, working in slums is a complex system and there cannot be a specific ranking of importance of key social conditions or types of support. PD1 arranged cyclical relationships, where each element has an equal importance with mutually reinforcing relationships. However there are three triggers of autonomous or partly-aided development: 'degraded environment', 'fulfilled vital needs' and 'insecurity'. When any of these three conditions are very deficient it becomes a motivation for improvement. PD1 suggested three social conditions that are also key to a sustainable improvement of livelihoods: 'values' (working with high ethical values), to 'clearly establish each actor's role' and 'transparency'. Without these, efforts to devise projects of livelihood improvement would probably fail in the long term. PD1 also arranged the type of support tags in a cyclical non-hierarchical way and added 'ability to learn from what already exists', meaning that he know-how of other experiences is a type of support that must not be forgotten because it can help the project to avoid past mistakes.

PD2 arranged the tags somewhat differently, but notably most of the key social conditions suggested had more or less a similar weight; only a few were relatively more or less important than the majority. Most importantly to have sustainable livelihood improvement is that political involvement from the authorities exists and that they are willing to take risks (i.e. risks of loosing popularity for the next election). The tag 'political involvement' was suggested by PD2. Secondly it is important that a degraded environment and vital needs are addressed if any project is to be sustainable. Of equal importance and forming the largest base for sustainable livelihood improvement are 'use of valuable time, people's behaviour, cultural similarity, scavenger education, communication with scavengers and trust. Of lower impact on autonomous development in slums are 'perception of others', 'power relationships' and 'insecurity'. In regards to the types of support the most decisive to livelihood positive transformation are institutional and citizenship support. Economic, infrastructural, operative and cultural support were deemed as less influential. It could be argued that citizenship support can be derived from cultural support, but the PD2 suggested specifying the former.

LWMA

The LWMA was the actor who suggested most complements to the tags provided, and notably, the only actor who did not use all the tags provided. The LWMA schemes are very hierarchical with several levels of importance. On the top the most influential conditions that promote livelihood improvements are a degraded environment and the fact that the greater community has little environmental education. These two conditions are triggers for action from the LWMA. Then follow three important conditions (all suggested): political decision, economical resources and sensitized and motivated municipal employees. These conditions are indispensable for the authorities to establish a positive environment to scavengers. The next hierarchy of social conditions is comprised of risk taking, trust, communication with scavengers, scavenger education and perception of others; this level was defined as operative social conditions, or those needed to be taken into account when a determined project is ready to be implemented. Finally, the comparatively least important social conditions for the LWMA were the fulfilled vital needs and source of jobs (suggested). During the exercise the LWMA expressed that for any improvement of livelihood the people must have fulfilled vital needs and diverse sources of jobs but to fulfil these conditions takes larger, longer-term efforts and cannot be typically fulfilled by short administrations (as his). It notable that one of the tags omitted by the LWMA was power relations; perhaps since he represents a strong power for this case, he did not recognize the effect of strong or unequal power relationships for the improvement of scavenger livelihood. Other tags omitted were cultural similarity and insecurity.

A strong hierarchical relationship was also formed for the second tag activity for the types of support. The most important support type for him was institutional. This reflects the vision of the LWMA on his own importance in livelihood improvement. Next come strategic alliances (suggested tag) to allow the institutions to operationalize projects. Economic support comes in third as indispensable to fund LWMA activities. Cultural, operative and infrastructural supports have equal importance in the fourth rank.

It can be said that the LWMA understood and selected those social conditions for sustainable livelihood-improvement of scavengers needed by local authorities, rather than scavengers themselves.

Comparison of findings to the literature

Literature regarding improvement of slum and scavenger-livelihood is compared against the case findings.

Vulnerabilities

The case findings do not completely coincide with those found in literature for other scavengers or in general poor urban people. According to Rouse and Ali in their study of scavengers in Dhaka, Bangladesh, one of the most evident vulnerabilities is related to health issues; when a trash picker falls sick the cost of medicines, transport and the opportunity cost of resting (versus working) is often too high (Rouse and Ali 2001). When asked about health issues and concerns the IS reported that even though sometimes they get hurt because there is broken glass or needles in the trash, they haven't really had any major health issues. The difference perhaps lies in the interviewees' situation: while Rouse and Ali worked with children in dumps and who often don't have a family that supports them, the IS interviewed worked in the streets in 'cleaner' environments and had family support systems.

Another vulnerability cited by UN HABITAT, Vedeld and Siddham, Chazam, Davis, and others is the lack of secure tenure. Slum dwellers typically do not own the land they inhabit and are at constant risk of losing it to government or private evictions, natural disasters or accidents and, as the Slum Dwellers International phrases it, "when communities of the urban poor do not have ownership rights to their settlement, the impulse toward improvement is stifled because there is no incentive to invest in something that will eventually be bulldozed" (Shack/Slum Dwellers International (SDI) n.d.). In contrast, the scavengers interviewed never mentioned security of tenure as a current vulnerability. Tiburcio had been previously evicted from a slum that was taken down by private developers, but as he said "After that I just came here and put my house, and it's been improving all the time". No comment on the ownership of the IS house was made, but it should be noticed that it was made of brick, with concrete flooring and ceiling, was connected to electricity, sewer, potable water and telephone and this may not be the general situation of all scavengers in Lima. Information from CS reports that only 10% of scavengers live in 'illegal' homes and 3% rents a house; the remaining 87% own the house they live in (Perez de Cuellar 2009). It would appear that at least with scavengers in Reciconsur, security of tenure is not a main vulnerability as may be with scavengers and/or slum dweller in other locations. When asked how many scavengers lived in more precarious situations the answer was "there are, but just a few; most of us live in poor houses but with enough" (Elizabeth).

Assets

In the case of the scavengers, and as reported by Rouse and Ali, the abundance, stability and availability of waste as a primary resource is a very strong asset. In Peru, as in Bangladesh, formal waste management is not enough to cover the entire population, and so, amounts of garbage are free to take without competition, as no other groups consider it valuable. The fact that there are ever increasing amounts of waste generation per capita and that the recyclable fraction increases (San Juan de Miraflores District 2010) is an asset to the scavengers.

This is a delicate point, what is good to this impoverished urban sector is, in general terms, detrimental to the environment. Reflecting on the definition of sustainable improvement of

scavenger-livelihood in Section 3.1 this asset goes against sustainable improvement for slums because it represents a transfer of negative environmental impacts outside the region by increasing the extraction of raw materials and its industrial processing. If the most environmentally desirable option happened (i.e. amount of waste generated decreased) the livelihoods of the scavengers *as they are* would be threatened. The challenge here is to modify the livelihood to be more in accordance to an environmental ideal for the larger level.

However abundant the waste stream is, it is very important to have access to it first, this is the reason why the IS head out several hours before the municipal truck arrives, to have time to extract the most material out of every bag and the reason why some municipal workers who also separate trash compete with the scavengers to obtain 'un-tampered' bags. The timing of the access to the resource (first, second, etc.) is also important for scavengers in other areas of the world. In a case study of the Payatas dump scavengers in Manila, Phillippines, Gonzalez (2003) reports that "getting the earliest access to recyclable materials is the key to success. Those who get the leftovers face the greatest risks and get the lowest returns" (Gonzales 2003).

Transformers

According to Rouse and Ali, waste management policies at the national and local level are part of the transformative institutions and processes. In Peru, waste management legislation is relatively new; the Law of Solid Waste was issued in July 10 2000 and mandates that reduction and recycling should be considered before final disposal, which should be done with 100% of the wastes, although collection efficiency is of 73,7% nationally (Perez de Cuellar 2009).

In Latin America important transformers have been the institutional and community acceptance of scavenger cooperatives such as Brazil and Colombia (Medina, Scavenger Cooperatives in Asia and Latin America 2000).

Chapter 6: Conclusions

The year 2008 marked the first time in history where more people in the world lived in cities rather than in the countryside. An estimated 50,46% of the world population lives in cities, and the developing world is growing at the fastest speed.

Urban poverty is increasingly being recognized as an area that needs to be seriously addressed to comply with the millennium development goal of eradicating poverty. Many of the urban poor live in slums, which in the eyes of the United Nations can be defined as "areas that combine to various extents the following characteristics: inadequate access to safe water, inadequate access to sanitation and other infrastructure, poor structural quality of housing, overcrowding and insecure residential status" (UN HABITAT 2003).

It is estimated that around the world there are approximately 1 billion slum dwellers who engage into different livelihood strategies to provide for themselves and their families. Many slum dwellers participate in the informal economy because they often lack the assets needed to participate in formalized wage employment (UN HABITAT 2003). Out of the multitude of livelihood strategies taken by slum dwellers, scavenging is one of the lowest ranked. Scavengers are those people who retrieve recyclable materials from landfills, open dumps, streets and private households and sell them to the industry. Due to their daily and close contact with refuse, scavengers are often seen as one of the lowest social classes and are rejected by the general community.

Slum dwellers and scavengers have participated in sustainable autonomous development strategies to improve their livelihoods. In the case of scavengers the services they can render to the environment by reducing the amount of virgin materials for the industry, increasing the life of landfills and dumps and indirectly preventing some soil, water and air pollution aids in the sustainable development of the entire city.

This research paper used a case study of scavengers in Lima, Peru to discover some of the key social conditions that enable the sustainable improvement of slum and scavenger-livelihood and the incorporation of slum dwellers into autonomous development and environmental protection strategies.

World view, initial assumptions and methodology

When this research paper was framed, the underlying assumptions were that slums were places where it was particularly hard for autonomous development or livelihood improvement. They were viewed as places where violence, powerful groups, lack of education, general rejection to "outsider" proposals, comfort in established routines and more urgent worries hindered the appropriation of strategies to improve life.

Throughout the literature review it was realized that these assumptions followed the mainstream view of slums as places of general "social disorganization" and the research question and objectives were directed at finding out those exceptional cases where slum populations together with project developers and perhaps local authorities broke these barriers and were successful in ameliorating the dweller's quality of life. As the reading progressed it became more clear, and hard to accept, that

this work, envisioned as a novel perspective in the power of the urban poor, in fact was founded by the traditional stereotypes of slums.

The case study methodology was successful in revealing the meaning of 'sustainable livelihood improvement' from the perspective of the scavengers and some of the actors who influence the livelihood through development projects. Since slums and livelihoods are very different of each other due to specific economic and cultural background, the key social conditions that enable improvement were more accurately identified through a case study rather than other social research methods such as surveys, discourse/archive analysis or experimentation.

The findings of the case cannot be generalized to a global context, but may aid in the understanding similar cases or systems elsewhere, providing insight into the processes of change of scavengers in larger cities in Latin America.

The single most important limitation of this research is the reduced number of interviews of scavengers and other slum dwellers; in consequence the data gathered is not representative of the livelihood improvement strategies of scavengers. Both the scavengers interviewed and the researcher recognized this shortcoming. More interviews were not conducted due to time constraints and unknown site dynamics.

The key actors chosen for interview, based on literature review, proved to be too few for this case; other important actors are the scavenger association, neighbours and the recycling industry.

The tag activity served as a base for comparison of perspectives of different interviewees. The fact that in all cases different social conditions were top ranked, that tags were suggested to complement a picture and that no suggested tags are alike indicates that each actor's role is well defined and do not normally overlap. The tag activity was useful to create awareness in the actors that they would normally not have thought about (as expressed by the interviewees).

The sustainable livelihoods approach is a practical tool to get an organized picture of livelihoods of the poor. The use of an SLA-based questionnaire as a basis for the interviews allowed that the different actors involved talked about different components of a livelihood, which are not usually perceived.

Some of the components of SLA require modification when it is applied to the urban context. Most notably, and as reported by Rouse and Ali, the 'natural capital assets' must be re-defined to fit city life. For this research, the natural capital of scavengers consists of housing space and the recyclable material found in the streets: this is the raw material they extract from the environment to make a living.

Key social conditions for sustainable improvement of scavenger-livelihoods

The most referenced asset of the scavengers was of social capital: their ability to form organized and proactive associations.

In the interviewed scavengers' point of view, the existence of an association of scavengers was the first key to their autonomous development. Through the association they can form alliances with the

local authorities, NGOs, and recycling companies that would not otherwise be formed due to the low social status of individual scavengers. Another important aspect of the association is that it enables economic investments that cannot be afforded by single individuals, such as an own waste transfer centre or a micro-bank, and time investments such as taking care of a plant nursery. When these economic and time investments are shared, their ideas for livelihood improvement can be implemented in 'real life'. For scavengers that are part of an association and hold it as the potential solution to their livelihood improvement, its failure due to lack of participation represents the largest threat to success. In this point it is important to recognize that the scavenger association was not homogeneous and individual members acted, in their majority, against the communal goals and agreements.

A second key to the livelihood improvement is creation of strategies for more homogeneous participation. The requirements for peer participation are that their vital needs are fulfilled, confidence in themselves, and willingness to take risks.

A third key for the sustainable improvement of slum-livelihood is the diversification of income source. When a household depends on scavenging alone it is subjected to strong variations in income because the price of materials is highly dependent on macro-economic situations outside of the scavenger's control and to conditions imposed by intermediaries. Scavenging alone can sustain a household only when the majority of its members participate in it; but in situations where only few people are able to work it is not enough.

A fourth key social condition is the recognition by the scavengers that they are performing an important service for the environment and the city as a whole. When a degraded environment was seen as a prime motivator for improvement, the scavengers visualized themselves as important components in the city's cleaning and environmental enhancement. They existence of the Recyclers Law, which recognizes the scavenger's role was an empowerment instrument, even if still far away from tangible livelihood changes.

The attitudes of the general community are key for the scavengers in two respects: first to improve their chances of social status upward mobility (if stigmas attached to them are eliminated) and second for source separation of waste, which would, in the opinion of the IS, provide the greatest, fast improvement of their livelihoods since they wouldn't be exposed to health hazards and ailments rummaging through non-separated trash. The failure of domestic source separation (in the project's domestic collection route) was the largest disillusion for the scavenging family.

Another key social condition is support of the institutional, cultural and infrastructural type by the authorities and other groups, such as an NGO. This external support provides the physical base to fulfil vital needs, the education and recognition of their importance for the city's waste management and recycling systems and empowerment to overcome intermediaries.

Other key social conditions were found in the literature that were not brought up or considered as very important by the scavengers interviewed: secure tenure (which motivates the investment of time and money in the improvement of the living arrangements), strong social safety nets and family ties to support on in case of need and the breaking of power relationships that keep scavengers in the loosing side (with intermediaries and authorities).

Insecurity and corruption within slums or scavenger managing was not considered as a very important factor affecting the livelihood of the scavengers, and so an improvement in these areas would not represent a major success. This finding is contrary to the researcher's initial assumptions of key factor. This may be due to the case study selected or to the researcher's bias and more research into other cases could help in clarifying its importance.

A key social condition identified by the PD and LWMA is political involvement. If the authorities are not willing to provide support, the sustainability of scavenger's livelihood improvement strategies is at risk because all improvements should respect the current laws and policies. Political involvement can lead to small scale rapid improvement (for example in the district of San Juan de Miraflores where scavengers are no longer harassed by the police) or become a larger transformative force (such as the creation of the Recycler's Law).

Future lines of work

After concluding this research there are still some un-answered questions that future work could be designed to answer. Among these are:

1. Why the members of the association mostly acted supporting the intermediaries? Are there deeper reasons why they act against communal gain other than being 'relaxed' members?
2. Is the low importance of insecurity in the livelihood- improvement of scavengers a general trend? Is it very case specific? Would similar results be common findings in other cases? How would the regional context change the importance of this condition?
3. Are the livelihood-improvement strategies of the scavengers in harmony with livelihood-improvement strategies of the other slum dwellers? With the greater community?
4. If the generation of garbage is seen as unsustainable at the macro level, how can a sustainable improvement of scavenger-livelihood decouple from the need that there are large streams of recyclable refuse available? Are the goals of minimizing waste fundamentally at odds with scavenging?
5. Until what point is it convenient to most people that slums are continually developed? If there were no slums left, would this mean there would be no urban poverty? Where would the urban poor or the new migrants move?

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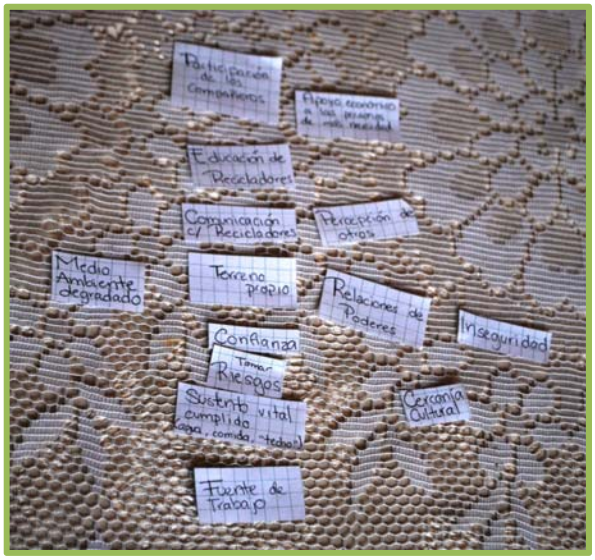
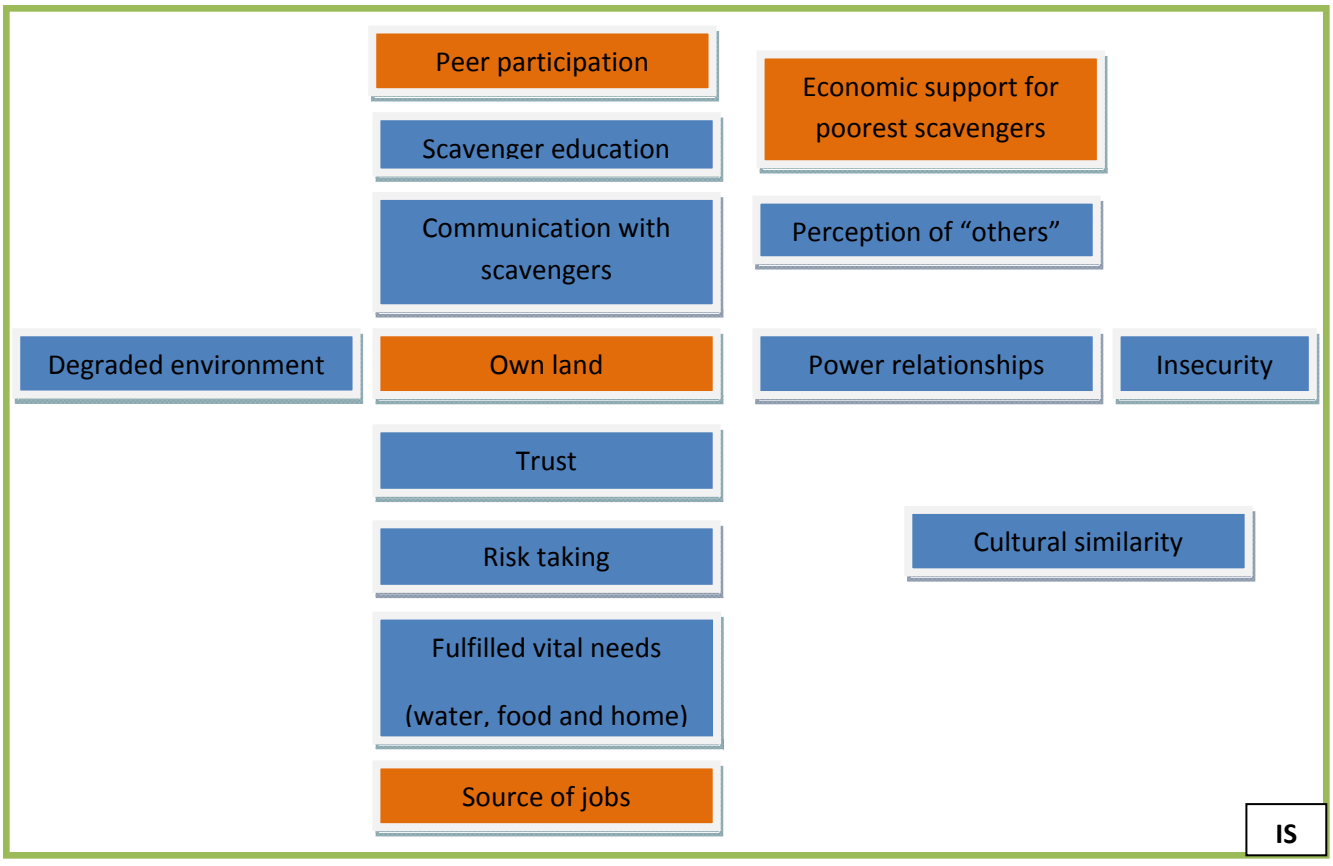
Appendix 1: Tag Activities

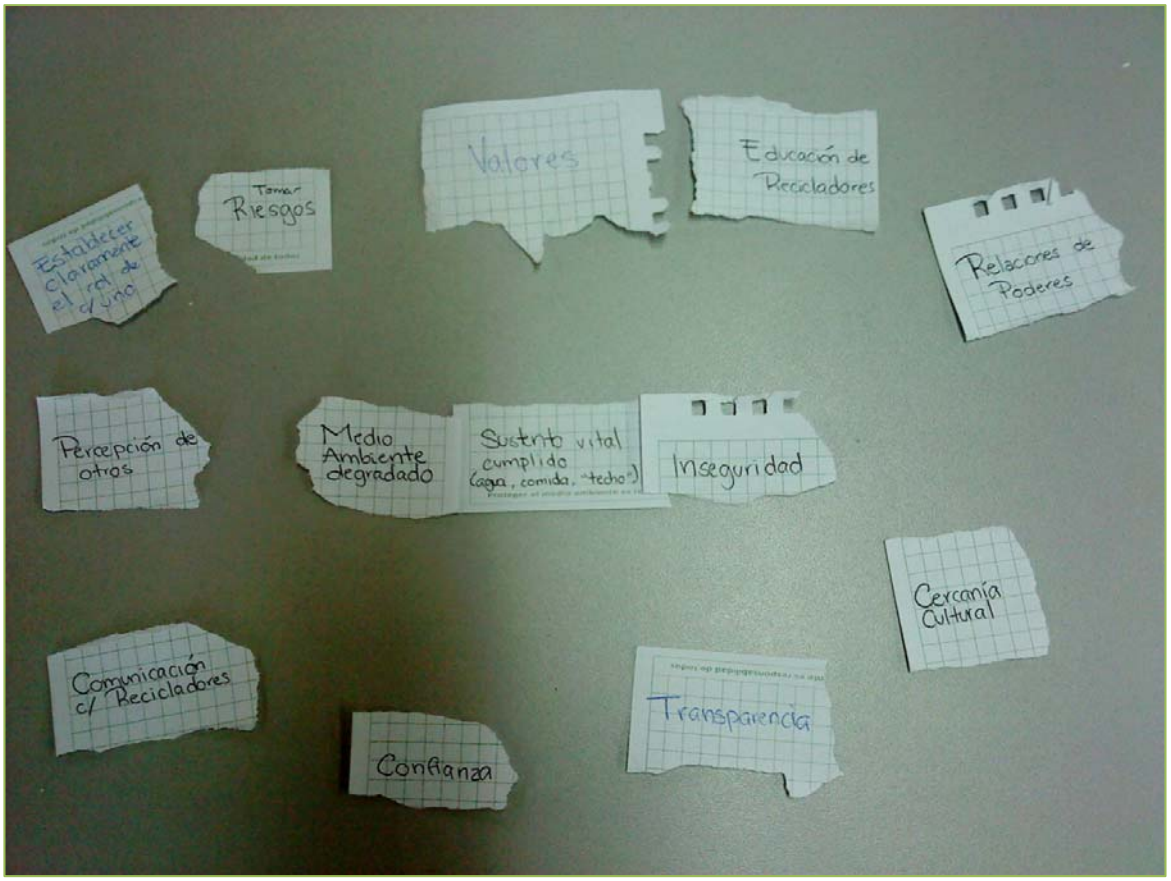
Tag activity 1: Key social conditions

Rank in order of importance in a shape that you consider shows the correct relationship

Tags in blue were given by researcher (as seen in Chapter 2), in orange are additional concepts suggested by the actors as important.







Values

Risk taking

Scavenger education

Clearly establish each actor's role

Power relationships

Perception of "others"

Degraded environment

Fulfilled vital needs (water, food and home)

Insecurity

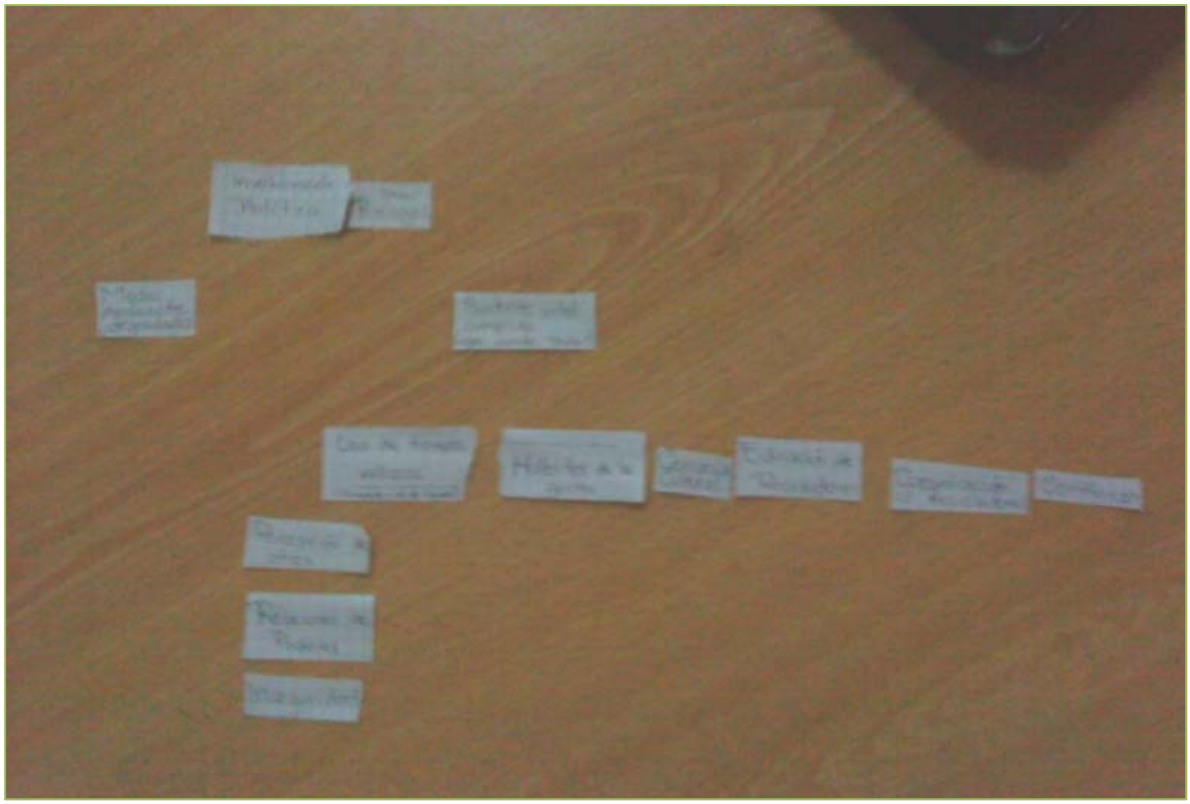
Communication with scavengers

Cultural similarity

Trust

Transparency

PD1



Political involvment

Risk taking

Fulfilled vital needs

(water, food and home)

Degraded environment

Use of valuable time

People's behavior

Cultural similarity

Scavenger education

Communication with scavengers

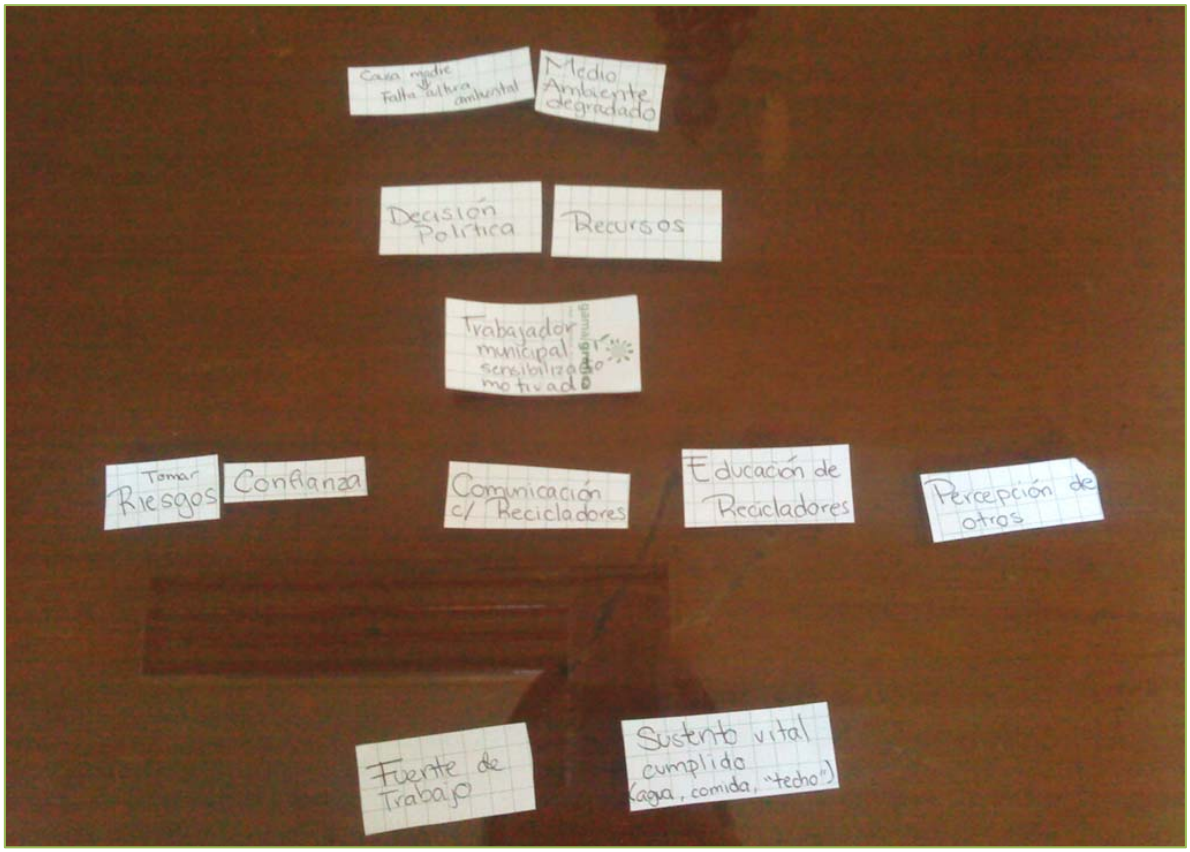
Trust

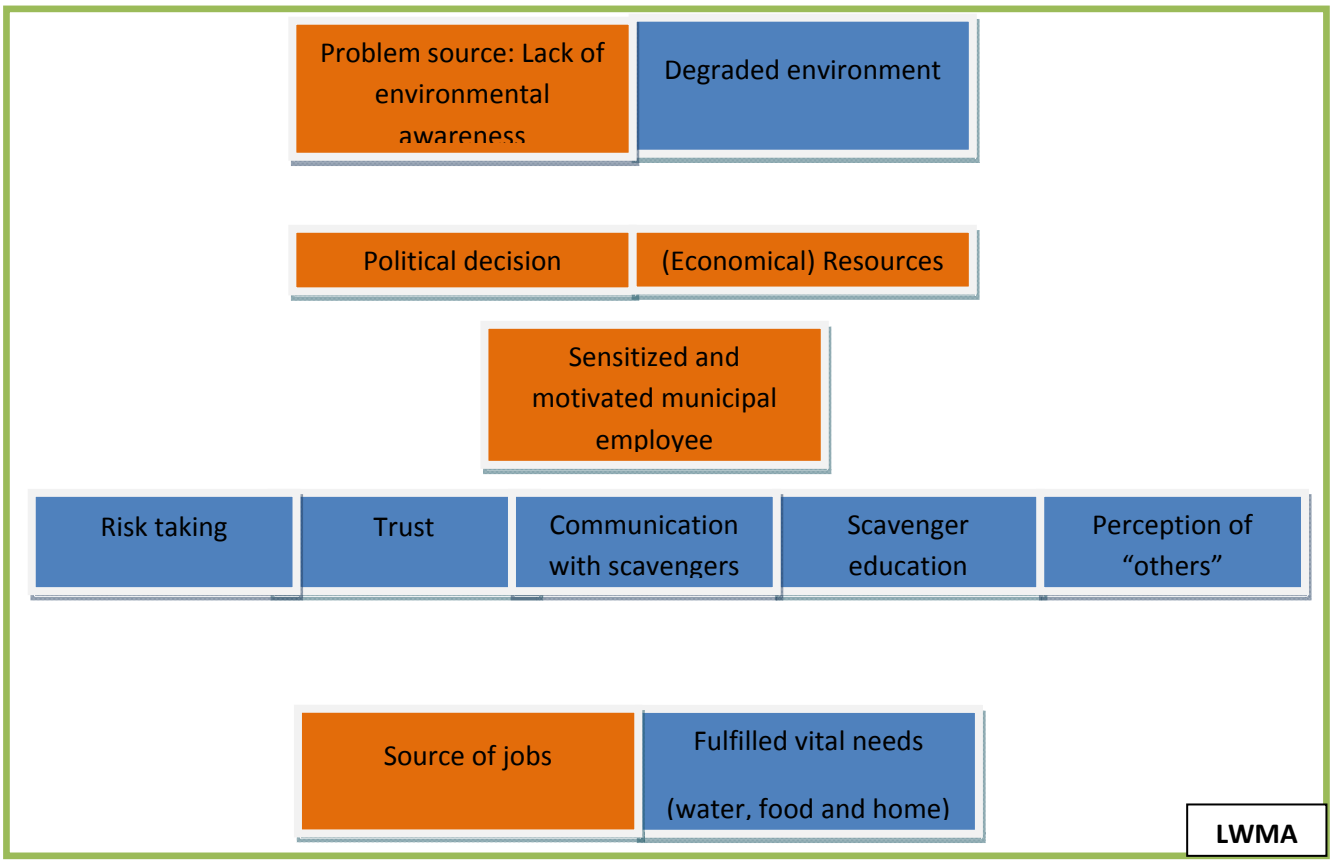
Perception of "others"

Power relationships

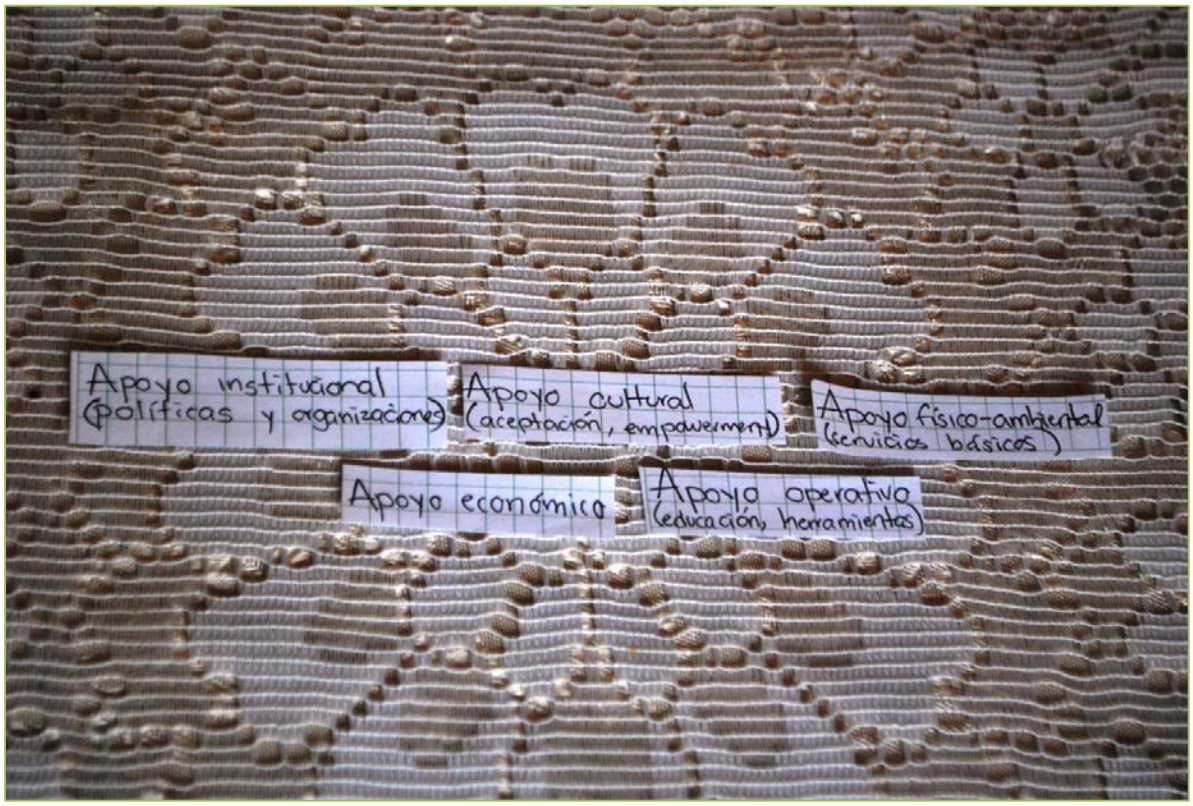
Insecurity

PD2


Causa: madre
Falta cultura ambiental
Medio Ambiente degradado
Decisión Política
Recursos
Trabajador municipal sensibilizado motivado
Tomar Riesgos
Confianza
Comunicación c/ Recicladores
Educación de Recicladores
Percepción de otros
Fuente de Trabajo
Sustento vital cumplido (agua, comida, "techo")


Problem source: Lack of environmental awareness
Degraded environment
Political decision
(Economical) Resources
Sensitized and motivated municipal employee
Risk taking
Trust
Communication with scavengers
Scavenger education
Perception of "others"
Source of jobs
Fulfilled vital needs
(water, food and home)
LWMA

Tag activity 2 : Types of support



Institutional support

(policies and organizations)

Cultural support

(acceptance, empowerment)

Physical/environmental support

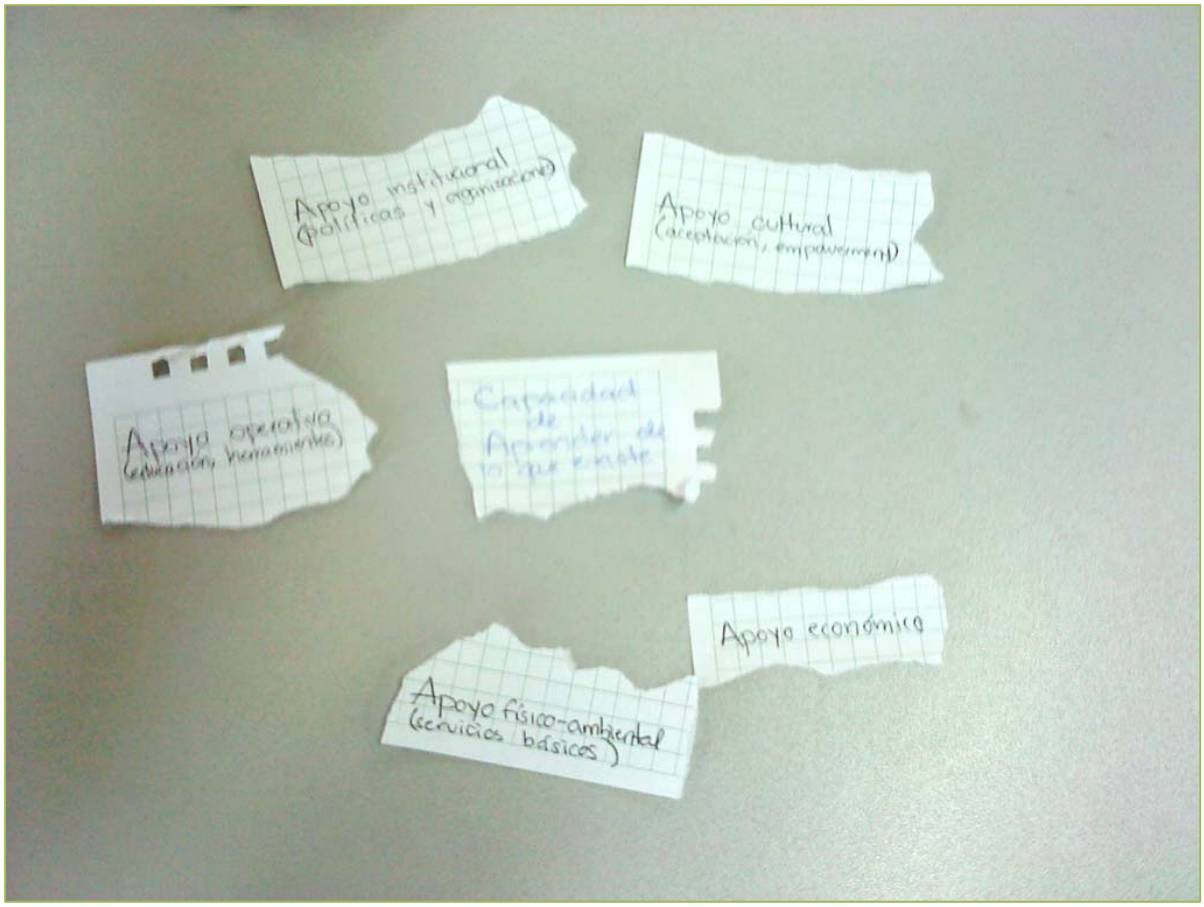
(basic services)

Economic support

Operative support

(education, tools)

IS



Institutional support

(policies and organizations)

Cultural support

(acceptance, empowerment)

Operative support

(education, tools)

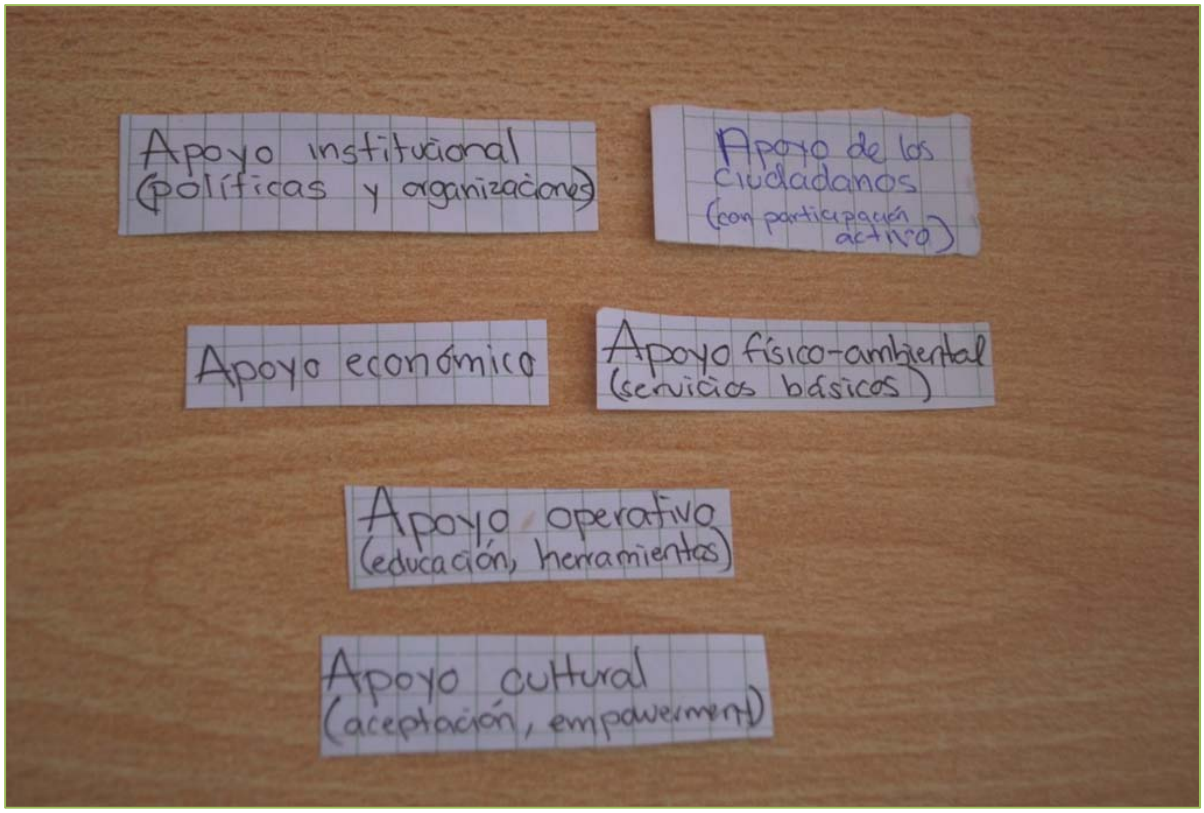
Ability to learn from what exists

Economic support

Physical/environmental support

(basic services)

PD1



Institutional support

(policies and organizations)

Citizenship support

(active participation)

Economic support

Physical/environmental support

(basic services)

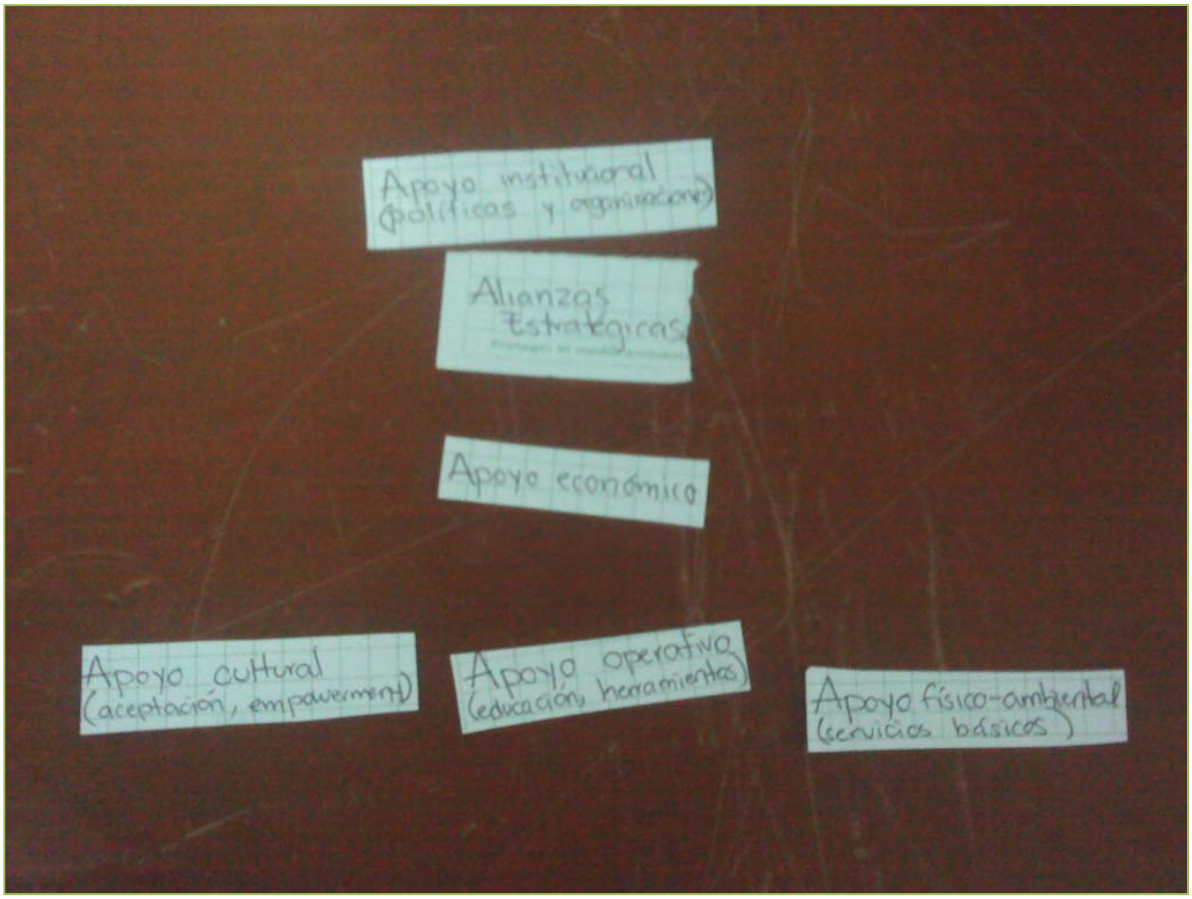
Operative support

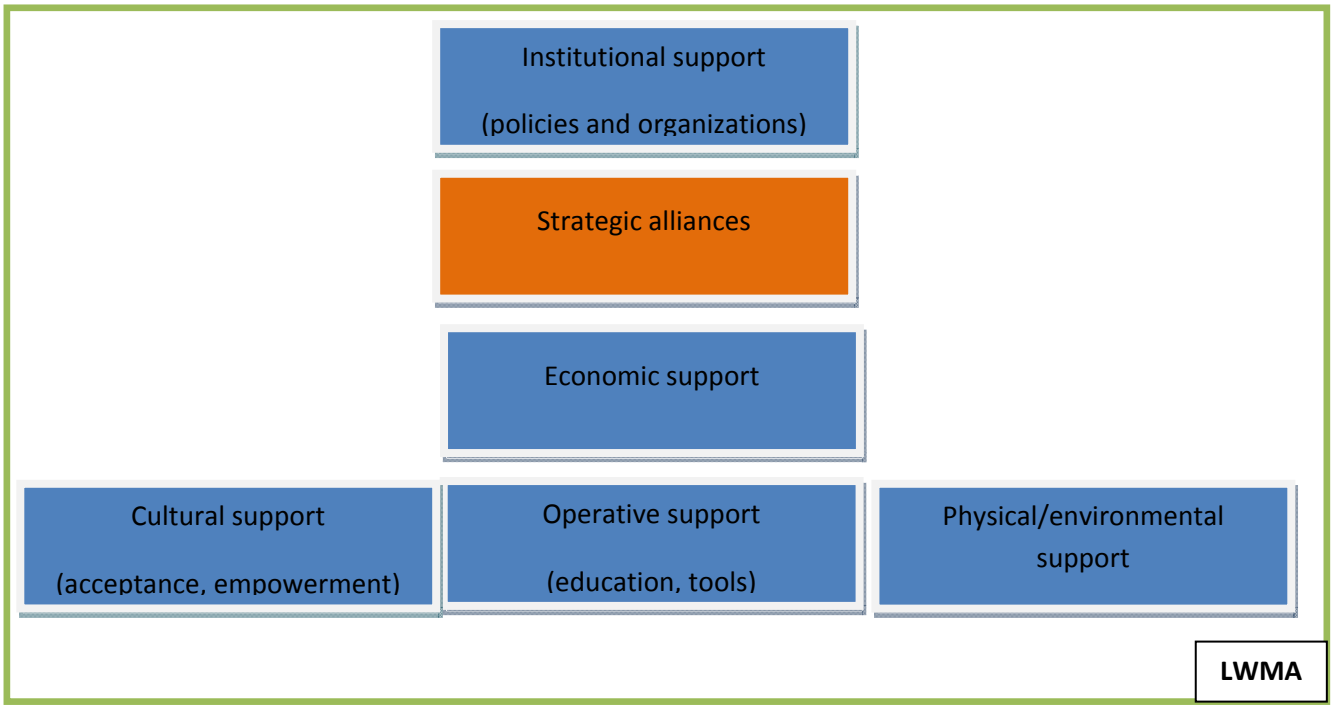
(education, tools)

Cultural support

(acceptance, empowerment)

PD2

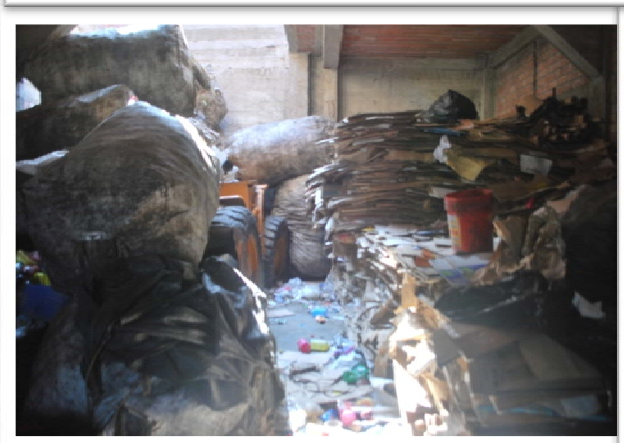

Apoyo institucional (políticas y organizaciones)
Alianzas Estratégicas
Apoyo económico
Apoyo cultural (aceptación, empowerment)
Apoyo operativo (educación, herramientas)
Apoyo físico-ambiental (servicios básicos)


Institutional support
(policies and organizations)
Strategic alliances
Economic support
Cultural support
(acceptance, empowerment)
Operative support
(education, tools)
Physical/environmental support
LWMA

Appendix 2: Storytelling

Comic strip photo-report illustrating the daily life of the slum dwellers, showcasing their activities, daily interactions, thoughts, and surroundings. One week in the daily life of a participating slum dweller and one week in the daily life of a non-participating slum dweller

This is the marginal urban area “El Inti” where Reciconsur’s waste transfer centre and Tiburcio’s family lives. El Inti is part of San Juan de Miraflores, south of Lima

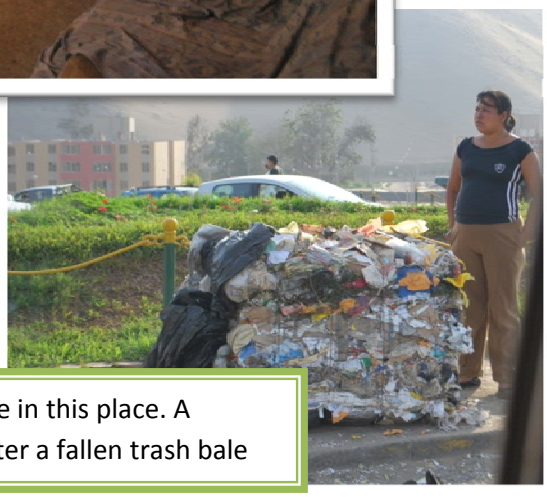


10:00 Reciconsur’s waste transfer centre. Mrs. Yolanda is in charge today

Sometimes the informal recyclers come to sell their material here. It is a good thing…

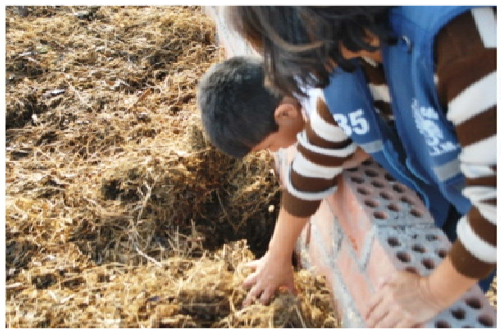
11:30 Tiburcio's home

A motorcycle is a valuable tool, it allows us to do Ciudad Saludable's industrial route. -Tiburcio



Trash is valuable in this place. A person looks after a fallen trash bale

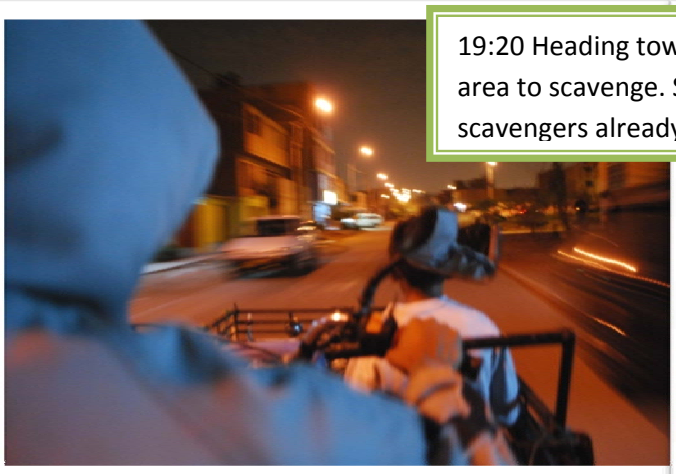
17:30 Elizabeth, and Bryan (the youngest son) come to the nursery to wáter the plants



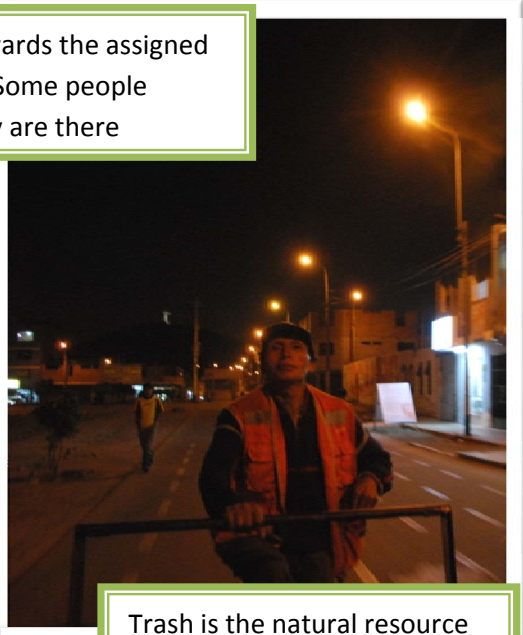
We are the only ones who come to water the plants, hopefully this project works.-Rosario

I'll write all your names – Elizabeth (Rosario can't read or write)

18:50 As night falls, it's time to get ready for the real work



19:20 Heading towards the assigned area to scavenge. Some people scavengers already are there



Trash is the natural resource for scavengers

Maybe you won't like my job, you know, I have to handle trash like this, in the streets. Sometimes we get cut with broken glass or needles, see this broken beer bottle?-Elizabeth

01:30 Its not a very good day…the car is empty

03:30 The night's scavenge: work by 6 people for 7 hours. It was a bad night

Hmmm yes, that is important to make it work- Tiburcio

11:00 (next day) Elizabeth and Tiburcio arrange the tags. Some of them have things they had never thought about. How to arrange these things? When everything is important, what is most?

Ciudad Saludable Works with many scavenger associations throughout Lima, Reciconsur is only one pin in their map