Community-based environmental sanitation planning approaches for the South: the household-centred approach

vorgelegt von
Dipl.-Ing.
Christoph Lüthi
aus Zürich

von der Fakultät VI – Planen Bauen Umwelt
der Technischen Universität Berlin
zur Erlangung des akademischen Grades

Doktor der Ingenieurwissenschaften
- Dr.-Ing. -

genehmigte Dissertation

Promotionsausschuss:

Vorsitzender: Prof. Dr. J. Cramer
Berichter: Prof. Dr. P. Herrle
Berichter: Prof. Dr. H.J. Mosler

Tag der wissenschaftlichen Aussprache: 29. August 2012

Berlin 2012
D 83

Acknowledgements/Danksagung

Zusammenfassung

Diese kumulative Dissertation (*paper PhD*) ist das Ergebnis mehrjähriger vergleichender Feldforschung in Afrika, Asien und Lateinamerika zu partizipativen Planungsverfahren, die die Verbesserung städtischer Infrastrukturen in Armutssiedlungen in Entwicklungsländern zum Ziel hat. Die Studie befasst sich mit der aktuellen Fragestellung, wie Lebensbedingungen und Basisdienstleistungen in unterversorgten Armutssiedlungen kosteneffizient und nachhaltig geplant und umgesetzt werden können. Für die vorliegende Studie wurde in drei Ländern ein Planungskonzept für sanitäre Infrastruktur validiert - besser bekannt als haushaltszentrierte Siedlungshygiene (*household-centred environmental sanitation- HCES*).

In Armutssiedlungen diverser Grössen und Ausprägung wurde das haushaltszentrierte Planungskonzept HCES zur Verbesserung der Siedlungshygiene zwischen 2007 und 2010 in Laos, Nepal und Tansania getestet. Dabei wurden die einzelnen Planungsschritte analysiert und eine Ex-Post Evaluation nach Abschluss des Planungsprozesses durchgeführt. Diese unterstreicht den Nutzen von partizipativen, ergebnisoffenen Entscheidungsprozessen und den frühzeitigen Einbezug von betroffenen Stadtteilbewohnern in dreierlei Hinsicht:

i.   Die erhöhte Aneignung städtischer Infrastruktur (*ownership*) bietet die Möglichkeit zu nachhaltigeren Lösungen, deren Unterhalt eher gewährleistet werden kann;

ii. Durch eine frühzeitige und relevante Mitsprache im Planungsverfahren wird die Entstehung von Sozialkapital in armen städtischen Siedlungen in Bezug auf kollektive Problemlösung, Vertrauen und Solidarität gefördert;

iii. Eine Verzahnung von technischen und ‚weichen' Faktoren wie Verhaltensänderung oder Zahlungsbereitschaft kann so eher erreicht werden.

Es wurden zwei referierte Veröffentlichungen in diese Dissertation aufgenommen: Im fünften Kapitel der Artikel „Community-based approaches for addressing the urban sanitation challenges", 2009 in der Fachzeitschrift *International Journal of Urban Sustainable Development* erschienen; In Kapitel 7 befindet sich der Beitrag „User perceptions of participatory planning in urban environmental sanitation", der 2012 in der Fachzeitschrift *Journal of Water, Sanitation and Hygiene for Development* publiziert wird. Die Prozessanalyse im sechsten Kapitel ist der Veröffentlichung „NCCR dialogue" (2009) der Universität Bern entnommen.

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1. Introduction

This research aims to analyse the relevance of communicative planning for urban infrastructure planning in informal urban settlements of the „Global South" [1]. Specifically, it provides an empirical analysis of a novel infrastructure planning approach, the Household-centred Environmental Sanitation (HCES) approach. HCES was developed by the Working Group on Environmental Sanitation of the Water Supply & Sanitation Collaborative Council (WSSCC) between 2002 to 2005 (Eawag, 2005). HCES is a communicative planning approach where safe drinking water, environmental sanitation and hygiene promotion are addressed simultaneously. It places the household and neighbourhood at the core of the planning and implementation process. Decisions on determining the type of environmental sanitation services to be implemented is heavily based on the needs and means of the users and are taken in close consultation with all the stakeholders.

To give the planning framework a life beyond theory, three demonstrative case studies are at the core of the dissertation, showing the potential of communicative planning for urban infrastructure development, especially regarding environmental sanitation. The three case studies from Laos, Nepal and Tanzania demonstrate both specific opportunities to improve basic services in various urban and peri-urban configurations, and the broader potential of HCES in urban decision-making processes. The study is based on a review of three current developmental discourses:

- urban planning with a focus on participatory planning approaches in the global South;
- the intricacies of urban service provision for unplanned urban areas, especially for environmental sanitation; and,
- the role of civil society and meaningful community participation in planning and service provision.

The review provided in chapters 3 and 4 will show how these themes are interlinked and provide the background for the validation of the HCES planning approach. As a planning approach, HCES belongs to the family of communicative-collaborative

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[1] Global South here refers to the development gap between developed countries and less developed regions (predominantly in the Southern Hemisphere). Due to the accelerated development of many countries especially in Asia, the term predominantly used in development discourse, „developing countries vs. industrialised countries" has increasingly lost its meaning in the past decades.

planning practice based on communicative planning theory developed by different scholars (Forester, 1985; Healey, 1997, 2003, Hamdi & Goethert, 1997). By taking practical cases as the raw material of my enquiry and drawing on the theory of communicative planning, we analyse the possibilities and limitations of this most recent addition to participatory planning practice, geared towards poor urban contexts.

This PhD lies at the convergence of *environmental planning*, *urban studies* and *sanitary engineering*. The research is not only interdisciplinary but transdisciplinary as it aims to transgress disciplinary boundaries rather than combine or integrate disciplinary work. Russell *et al,* (2008) and Mitchell and Willets (2009) identify key features of transdisciplinary research as:

- crossing, transcending or fusing disciplinary boundaries;
- drawing on multiple sources of knowledge (such as reports, media and stakeholder views);
- responsiveness to real-world and socially relevant problem situations;
- effective communication to multiple and diverse audiences.

The field research involved both scientific and developmental actors that are active in urban development and service provision in the selected countries, including research institutions (e.g. Asian Institute of Technology, Thailand), local non-governmental institutions (e.g. Centre for Integrated Urban Development, Nepal), as well as government agencies (e.g. Public Works and Transportation Institute, Lao People"s Democratic Republic (PDR). The research methodology follows an inductive research approach as it is process-oriented and makes specific observations in a variety of contexts and draws broader generalisations for communicative planning.

1.1 Motivation

I gained my first working experience in urban development in the global South in 1994 as an intern with the Kenyan-German *Small Towns Development Project* (1999-2004) of the Deutsche Gesellschaft für Technische Zusammenarbeit (now GIZ) and one of my first assignments was to analyse urban environmental problems in two unplanned settlements in Narok town in the heart of Masai country. The study I carried out together with my Kenyan counterpart Paul Kirai included a baseline survey involving 150 households of the Majengo/Relief Scheme neighbourhood in Narok. The survey

and the results we obtained were a true eye-opener for me, not only letting me realize for the first time what urban poverty means in real terms, but also how urban poverty is manifested by the absence or poor provision of basic services including water, sanitation, solid waste collection and drainage.

Since then I have participated in many urban development planning projects and processes in various countries ranging from participatory slum upgrading in Kenya and Senegal (both with GIZ) to top-down, expert driven master planning in Mauritania and Vietnam (World Bank). Almost two decades after my first assignment in East Africa, the seemingly intractable urban infrastructure problems of the expanding cities of the global South are still are of great interest to me.

Much of this rapid urban growth is taking place in unplanned neighbourhoods of cities, be it in peripheral growth areas or in the dense inner-city tenements and slums. Since 1994 when I started working in Kenya, global urban population has increased by 1 billion people, reflecting the global demographic rural-urban transition happening in real time. 3.5 billion people live in cities today, of which over 825 million people live in slums, the majority of them in Sub-Saharan Africa and South Asia (UN-Habitat, 2010). Recent estimates do suggest that the rate of urban growth is indeed slowing in some regions and that slum populations are also falling in some cities. However, according to newest demographic figures, Sub-Saharan Africa will continue to feature high fertility rates and unabated rates of urbanisation in the decades to come (UN-Habitat, 2010).

1.2 Research rationale and research questions

This research aims to contribute to the growing body of research on enhancing participation in urban development planning and the planning and delivery of basic urban services. The overall research objective of this thesis is:

- *to analyse and validate a multi-stakeholder planning concept for service delivery in unserved and under-served informal settlement areas in low-income countries.*

We focus on the strengths and weaknesses of demand-led environmental sanitation planning tools and provide a comparative analysis of two well-known sanitation planning approaches, the Household-centred Environmental Sanitation (HCES) approach and the Community-led Total Sanitation (CLTS) approach. Both HCES and

CLTS feature multi-stakeholder, open-ended and flexible planning frameworks, one predominantly for urban and peri-urban (HCES) and one for rural contexts (CLTS). The main research questions elaborated in this study are:

1. *What are the limitations of communicative planning approaches to environmental sanitation planning?*
2. *In what contexts does participatory planning practice work best?*
3. *What are the key influences that shape decisions and final outcomes?*
4. *How satisfied are stakeholders with the planning processes and outcomes?*
5. *Does participation improve the quality of decisions that are made and lead to the formation of social capital?*

After presenting the normative framework and major deficiencies of infrastructure delivery in low-income countries in chapters 2-4, we answer the main research questions as follows:

- Analysis of the level of participation at each stage of the process (Chapter 6)
- Examination of participants" satisfaction with community decision making through quantitative surveys (Chapter 7)
- Assessment of how timely and real participation of the community in design and management arrangements can improve social capital formation and contribute to more durable and equitable basic services (Chapters 7 & 8).

1.3 Scope and limitations

This research is based on empirical field research carried out between 2006 to 2010 at the Department of Water and Sanitation in Developing Countries (Sandec) at the Swiss Federal Institute for Aquatic Research and Technology (Eawag). The Sandec department is an internationally renowned centre of competence for international water and sanitation research with more than 30 years of experience. Sandec"s objectives include the generation of new knowledge on concepts and technologies in water and environmental sanitation and augmenting research capacity and professional expertise in low and middle income countries.

The applied research analysed the planning processes and stakeholder relations of the community-based HCES development approach to basic service provision in informal settlement areas of the global South. While community-level processes and an in-depth

understanding of the potentials and limitations of community participation are central to this research, we do not include a theoretical discourse on actor-centred institutionalism or network theory.

Similarly, whilst the HCES approach is situated on the planning-engineering interface and acknowledges the importance of adopted and appropriate sanitation technology, sanitary engineering is not at the heart of this research. The case studies in the three countries do go into some detail regarding the selected technology options and engineering solutions adopted in each context, however, sanitary engineering is but one of the factors studied.

Likewise, the research will not further develop spatial and strategic development aspects of urban planning at the city-wide level, but will rather focus on community-level planning processes. It is understood that many of the serious problems faced by cities cannot be tackled effectively by civil society and non-state actors alone. Responsive and accountable formal political institutions are needed for effective urban governance. Although discussed in section 3.6, they are not central to this research.

1.4 Structure of the study

This research aims to unbundle the different aspects of participatory planning approaches *and* urban environmental sanitation. Environmental sanitation goes beyond the access to toilets and includes both behavioural issues and decision making for the entire sanitation chain (see chapter 4.4). The thesis comprises 8 chapters:

After an introductory first chapter, we present the methodological considerations of the research in **Chapter 2**. We present the selection criteria of the three chosen case studies in Lao PDR, Tanzania and Nepal and the methods of data collection and data interpretation for the empirical part. The survey results from the three case studies form the basis of chapter 7, the paper on stakeholder perceptions on participatory processes.

In the **third Chapter** the guiding theories and frameworks for the scientific investigation are discussed. I present the conceptual basis for communicative planning based on Jürgen Habermas"s social theory *Theorie des kommunikativen Handelns* (Habermas, 1981) [English translation: *Theory of Communicative Action* (Habermas, 1984)] and communicative planning theory advanced by planning scholars such as

Patsy Healey, John Friedmann and Judith Innes in the 1980s and 1990s. The chapter provides a critical review of both concepts of communicative rationality and communicative planning.

Chapter 4 provides an analysis of the challenges of service provision for low-income urban areas. It discusses current global urbanisation trends and the urbanisation of poverty. The second part looks at the ensuing complexities of service provision and why access to urban infrastructure and sanitation services is so difficult to achieve in urban areas. Chapter 4 discusses the implications of poor sanitation coverage both in terms of human health and economic impacts. Finally, we discuss the newer discourse on urban governance and the emergence of civil society organisations in urban service provision in the past decade.

The **fifth Chapter** comprises the first peer-reviewed paper entitled *"Community-based approaches for addressing the urban sanitation challenges"*. The paper presents a critical review of two recent community-based approaches to improving environmental sanitation services in poor areas: The household-centred approach (HCES) and the Community-Led Total Sanitation (CLTS). The household-centred approach is further detailed in an in-depth account of three HCES case studies in **Chapter 6.** The case studies form part of a four year applied research project carried out within the framework of the Swiss-funded NCCR North-South research programme and piloted by Eawag, the Swiss Federal Institute of Aquatic Science and Technology. This chapter analyses urban decision-making processes in regard to service delivery, stakeholder involvement and a detailed account on the participatory methods of the planning approach adopted. Two of the three cases presented were previously published in NCCR dialogue No. 22 (Lüthi *et al*, 2009a).

Chapter 7 contains the second peer-reviewed paper entitled *"User perceptions of participatory planning in urban environmental sanitation"*. It is based on the findings of the structured surveys conducted with experts and residents in the three pilot sites and critically discusses stakeholders" perceptions of participatory planning processes. The last part of the paper provides recommendations for future improvements for participatory planning processes in urban service provision.

Finally, the last **Chapter 8** presents conclusions and recommendations for community-led planning processes. The synthesis discusses issues such as time frame, agency and

barriers to more communicative planning. This section discusses if participation can improve the quality of decision-making and lead to more sustainable urban development outcomes. It analyses the conditions under which participatory arrangements can be both empowering and governance-enhancing. Special attention is given to the issue of domain interface – the linking of institutionalised top-down with bottom-up decision-making processes. The thesis closes with recommendations for further research on communicative planning in cities of the global South.

2. Methodological considerations

This chapter presents the methodological framework used for the field research. The study is based on inductive research which utilizes qualitative data. It is rooted in field validation and the study of context factors from a variety of settings in Africa and Asia. We present the criteria for the selection of the three study sites and the data collection methods used. The structured interviews that were conducted in the three sites in Laos, Nepal and Tanzania elucidate subjective judgments regarding the planning process and project outcomes.

2.1 Selection criteria for the case studies

Based on empirical research conducted between 2006 and 2010, this thesis focuses on three participatory planning experiences in small to medium-sized towns in Laos, Nepal and Tanzania. The core of this thesis aims to document and analyse participatory planning experiences with specific attention to the levels of participation and arguments for enhancing planning effectiveness.

The three case studies for this research were selected from a list of nine pilot sites where the HCES approach by Eawag had been evaluated between 2006 and 2010. The original nine pilot sites were chosen after an international call launched by the Water Supply and Sanitation Collaborative Council (WSSCC) and the Swiss Federal Institute of Aquatic Science and Technology (Eawag) and vetted from a list of 20 participating sites around the world. Table 2.1 below provides an overview of the pilot sites that were selected in Africa, Asia and Latin America.

The nine HCES pilot sites were chosen according to the set criteria that were agreed upon by Eawag-Sandec and the Water Supply and Sanitation Collaborative Council (WSSCC).

	Case study city/country	City/town population	Pop. of pilot site	Existing sanitation systems	% with access to improved sanitation	Neighborhood characteristics	Launch date	GDP (US$) per capita at PPP (2005)
	LATIN AMERICA							
1	Curidabat/San José Costa Rica	2.4 million	750	septic tanks	89%	low income with land titles	07 2006	9,887
2	San Martin/Pococi Costa Rica	30,000	800	septic tanks	89%	low income with land titles	10 2006	9,887
	AFRICA							
3	Dodoma Tanzania	420,000	33,000	simple pit latrines	53%	low-income, medium density	09 2007	673
4	Waruku, Nairobi Kenya	3.5 million	9,000	simple pit latrines	46%	low-income, high density	01 2007	1,062
5	Fada N'Gourma Burkina Faso	33,000	45,000	pit latrines/ septic tanks	42%	entire town with downtown area	08 2007	1,258
	ASIA							
6	Hatsady Tai, Vientiane, Laos	450,000	1,000	septic tanks	64%%	low-income, high density	09 2007	2,300
7	Nala, Nepal	7,500	2,700	simple pit latrines	35%	old peri-urban settlement. high density	10 2009	1,150
8	Dharkan, Mongolia	55,000	9,000	simple pit latrines	50%	low-income, low density	09 2010	2,470

[1] % access in urban areas of respective country only. 2004 figures (WHO 2006).
[2] in international dollars (more valid measure to compare standards of living)

Table 2.1 List of selected HCES pilot sites. Source: author.

General criteria

- Inhabitants and authorities show an interest in improving their living conditions through improved Urban Environmental Sanitation Services;

- The socio-cultural and political environment is favourable for testing novel approaches - authorities show political will and flexibility on the application of existing standards;

Size & spatial criteria

- The pilot site should cover a specific, easily definable neighbourhood within a larger urban area;

- The site should be either fully urbanized (e.g. informal settlement) or situated in a peri-urban setting with densities of over 150 inhabitants/ha;

Population criteria

- Pilot site population should range between 1'000 to 30'000 initially;

- Informal settlements with high mobility and seasonal migration should be avoided to facilitate participatory planning;

Institutional criteria

- Capacity of community self-help in form of intermediary organisations like grassroots organisations (CBOs), women‟s‟ associations, etc. is proven (experience gained from other projects/sectors);

- In order to guarantee research backstopping and support, a viable action research partner should be located within the region;

Planning and implementation of the HCES approach in the nine pilot sites was supported technically and financially by Eawag in collaboration with local institutions such as NGOs, research institutions or governmental offices. Not all the nine sites completed the 10 planning steps of the HCES approach. In one case (Waruku, Kenya), the high-density informal settlement was razed to the ground in August 2009 following a land grab by high-placed figures of the Kenyan elite - a few months after the implementation of the first built interventions.

Of the nine mentioned sites, we selected three study sites which fulfil the following key criteria (Table 2.2):

  i.   The chosen site should reflect different country and cultural contexts;

  ii. It should reflect a variety of urban scales and contexts (peri-urban and inner-city informal settlement)

  iii. The HCES process has been completed and an Action Plan adopted and implemented or is currently under implementation.

Case study	Community of intervention	Population	Type of lead organisation
Hatsady Tai, Vientiane, Laos	Urban (formal)	275	National government institute
Nala, Kavre District, Nepal	Peri-urban/Small town	2,275	Local NGO
Chang'ombe, Dodoma, Tanzania	Peri-urban (informal)	35,000	Local NGO

Table 2.2: Scale and intervention area of the three selected case studies. Source: author.

Validation and field research for all three case studies was overseen and coordinated by the author in his capacity as the programme manager of the "Strategic Environmental Sanitation Planning" research unit at the Swiss Federal Institute of Aquatic Science and Technology (Eawag). The action research was funded by the Swiss research programme NCCR North-South, a twelve-year interdisciplinary and transdisciplinary research programme that aims to strengthen North-South research partnerships on sustainable development issues *(www.nccr.org).* Eawag‟s NCCR research contribution

is under the thematic heading "Health and Environmental Sanitation" combining the thematic fields of public health and environmental sanitation. It aims to find ways to integrate effective health and sanitation strategies into participatory planning processes (NCCR, 2008).

Fig. 2.1 Map of the three case study locations

Characteristics of the three case study sites are presented in greater detail in chapter 6. The three case study locations shown in Figure 2.1 allow us to analyse and explain the process and organizational arrangements in each case and to contrast similar results under similar conditions in a context-sensitive way. The scope of the three case studies from Tanzania, Laos and Nepal thus is an empirical inquiry that investigates a phenomenon within its real-life context (Yin, 2003). Accordingly, this dissertation belongs to the domain of comparative urban research that is experimental and which compares experiences made with a novel planning approach (Robinson, 2011). The three chosen case studies are comparable to a point: limited urban infrastructure, lack of planning, fragmented decision-making procedures, informal economic activities and construction methods are characteristic for all three sites (Herrle and Fokdal, 2011). Field research and step-by-step process documentation between 2006 to date, allowed to analyse the following parameters: stakeholder involvement, the enabling environment, a detailed analysis of the process steps, a detailed cost comparison and (where applicable) a comparison of the final outcomes. The overarching goal of this

research is to explain the variations in outcomes and adaptation in process in three varying urban contexts.

2.2 Method of data collection

This research pursued analytical and not statistical generalisations regarding the testing and replication of applied planning propositions. This included several data collection techniques including participant observation, focus group discussions and structured household interviews. The data collection employed in the three pilot sites in Laos, Nepal and Tanzania was carried out through structured household interviews by a team of Eawag researchers. A total of 363 interviews were carried out, of which 32 were key actors or primary stakeholders of the planning process. These participants were key actors from public and civil society institutions in Laos, Nepal and Tanzania. They were interviewed based on their active involvement in the planning process. Our main aim was to elucidate subjective judgments regarding the planning process and project performance. A list of the primary stakeholder interviewees from the three sites is provided in annex 2. Structured interviews allow for good response rates, allow for repeating the same survey in different cultural contexts and allow for the collection of subsidiary information through participant observation. However, structured interviews are time consuming and costly and local interviewers need to be trained to reduce variability.

People participated voluntarily and did not receive anything in return for the interview. This also included residents who participated only once or were only present at community meetings. The questionnaire was first drafted in English, and then finalized after revision by local experts. The questionnaires were translated from English to the local language and then re-translated to ensure the quality of the translation. The interviewers were local people, who had not participated in the processes. These were chosen based on their experience in interviewing from earlier social economic surveys. Pre-tests further ensured the quality of the questionnaire before actual interviews were conducted in April 2010 in Lao, in May 2010 in Nepal and in May 2011 in Tanzania. The key actors questionnaire including 53 structured questions is provided in annex 3.

Sample Sizes

In Nepal, N = 290 participants were interviewed; with slightly more women than men (53%). The mean age was M = 36 and the oldest person was 80 years old. The majority (62%) of the respondents did not have children below five years living in their household, resulting in an average of M = .4 children below five years per household. On average, M = 6 people share one household. 28% of the people said they had only 0 to 5 years of education and 47% stated to have at least 5 years of education up to 12 years. In addition, 14 key stakeholders were interviewed who played an active role in the planning process.

In Lao, N = 41 participants were interviewed, of which 20 were women. The mean age was M = 49 years, with on average M = 1.6 children below five years of age per household (56% do not have children below five). On average, one household consists of 5 members. In Lao PDR, 14 key stakeholders were interviewed who played an active role in the planning process.

In Tanzania, N = 4 key stakeholders were interviewed, all of which were men, all of them experts or key informants involved in the planning process. The mean age was M = 41 years.

2.3 Data interpretation

For each chosen factor, scales consisting of two to seven questions were used. All the answers to the questions were standardized and ranged from 0 to 1 or from -1 to +1 (in the case of bipolar variables). The answer that is most in favour of the behaviour is 1, and the answer that is most against the behaviour is 0 or -1, except in the case of costs, and where higher costs have a higher value and less costs a lower. The bipolar variables have nine-point-scale answer categories, and the unipolar variables five-point-scales.

Satisfaction with participation was measured with two questions, e.g. "How content or discontented are you with participating in the planning process?"
Satisfaction with the outcome consists of three variables, one of which is "How satisfied or dissatisfied are you with the solutions found in the planning process?"
Intention to participate again was recorded with the help of three questions, for example "Would you like to participate in future participative activities?"

Affect was measured with three variables, one is "How do you feel about taking part in the participatory process?"

Attitude consists of two questions, e.g. "How good or bad did you find the participation process?"

Sanitation beliefs were measured with three questions, for example "Do you believe that there is a relation between common diseases and your sanitation situation."

Knowledge was surveyed with two questions, one of which is "How much would you say you know about sanitation in your community?"

Social support consists of three variables, e.g. "How often do people around here give advice or information to one another?"

Institutional support consists of three items, one of which is "How committed do you think is the regional government to the planning process?"

Perceived benefits were measured with seven questions about aspects of benefit, e.g. "How much did you benefit from the participation in terms of saving money?"

Perceived costs consist of five items about aspects of costs, e.g. "How much effort was the planning process for you in terms of organising childcare?"

Perceived returns were surveyed with the help of four questions, for example "Do you think the new sanitation system is worth more than it costs or it costs more than it is worth?"

Perceived influence was measured with two items, e.g. "Did you have more or less to say than other participants in the decision making?"

Control was recorded with the help of four statements, for example "The agreements found in the planning process are being respected"

Self-efficacy consists of seven variables, one of which is "How easy or difficult do you find it to pay the monthly service fee?"

Collective efficacy was surveyed with five questions and statements, e.g. "By working together, people in my community can influence decisions that affect the community."

Involvement was measured with three items, e.g. "How many hours did you invest in activities of the community sanitation project?"

Ownership consists of two variables, one of which is "Who is responsible for the maintenance of the sanitation facilities to be built?"

The results of the field surveys are presented in chapter 7: "User perceptions of participatory planning in urban environmental sanitation", first published in the Journal of Water, Sanitation and Hygiene for Developing Countries in 2012.

3. Theoretical framework: the theories of communicative rationality and communicative planning

This chapter presents the theoretical framework based on the theories of communicative rationality and communicative planning. Jürgen Habermas" critical theory of communicative rationality forms the theoretical foundation for communicative planning theory which advocates the application of a collaborative model of decision-making. It discusses different procedural theories and planning frameworks such as "Collaborative Planning" (Healey, 1997), "Action Planning" (Koenigsberger, 1964) or "Community Action Planning" (Hamdi and Goethert, 1997). In a last section, the contemporary discourse of urban governance and the inclusion of civil society organisations in urban service delivery are critically discussed.

This chapter provides the theoretical and analytical basis for the thesis and presents the guiding theories for communicative action and participatory planning processes. Our theoretical framework is grounded in the critical theory of the German philosopher Jürgen Habermas (1981, 1984). Habermas" main oeuvre "*Theorie des kommunikativen Handelns*" (Habermas, 1981) is a leading work of modern social theory. In 1984 the English translation entitled "*Theory of Communicative Rationality*" was published (Habermas, 1984), according to Habermas a „hopelessly academic work". Habermas" theory of communicative rationality answers a key question of 20th century sociology: how and through which actions do humans organize and shape their relations with others? And, how can we defend and expand democratic discourse against the rationalisation and scientific dominance of modern capitalist societies? (Müller-Doohm, 2008).

Communicative rationality is understood as a set of conditions for discourse which can result in emancipatory knowledge - that is, knowledge that goes beyond the self-fulfilling rationalizations that societies develop. Communicative rationality represents an ideal, similar to that of scientific rationality, which is never fully achieved in practice though it is a template against which we can judge communicative practice (Habermas, 1981).

Habermas" work provides the guiding theoretical framework for the planning theory termed „communicative" which we discuss in sections 3.1 and 3.2. In recognition of the limitations of system rationality of modern society, it deals with the ethical dilemmas about professional knowledge and expertise. While Habermas does not deny a role for instrumental rationality and scientific method, his focus is on emancipatory ways of knowledge generation. He states that it is not only appropriate to be motivated by practical interest in political and social life, but also that such motivation leads to deeper knowledge (Innes, 1995).

According to Habermas, the three pillars of knowledge generation are self-reflection (*Selbstreflexion*), public discourse (*Diskurs*) and practical know-how (*Praxis*), which ideally should be linked (Habermas, 1981). Accordingly, Innes states that *"Theory and practice intertwine in emancipatory knowing. Theory only makes sense through practice and vice-versa"* (Innes, 1995).

Later, Habermas developed the construct of „deliberative democracy" which supports the idea that legitimate law-making arises from the public deliberation of citizens. This envisages a process in which all individuals affected by a decision deliberate and take part in discursive debate producing rational collective decisions (Dryzek, 1990). This process of learning and deciding is a template for assuring representation of all major points of view and equalizing information.

Habermas" work on the importance of open public debate had and still has a transformative impact on the planning field. Growing out of the German school of critical theory, Habermas seeks to reverse the tendency of bureaucracy and instrumental rationality and replace it with the public realm through open, democratic debate (Habermas, 1981). Key to Habermas" thinking on communicative rationality is in his approach of „making sense together" while „living differently" and the importance of public reasoning in a pluralist society. What Habermas attempts is to "*rescue the concept of reason from the narrow instrumental rationalism with which it has been captured by the liberal economists, and to re-work it to provide a rich resource for democratic debate in our contemporary times*" (Healey, 1997: 50).

Underlying Habermas" theory of communicative rationality is his preoccupation with the idea that instrumental rationalism, seen as a liberating force at the time of the Enlightenment, has now become a source of new bondage or „enslavement". Habermas

argues that this enslavement has occurred because the power to make decisions has been "[…] *removed from the individual and communities through the development of an "objective" truth and vested with those that construct, and have the knowledge to appeal to, this decision framework*" (Outhwaite, 1994: 6).

Communicative rationality as defined by Habermas is communication that is oriented to achieving, sustaining and reviewing consensus, thus shifting the concept of rationality from the individual to the social. By doing so, Habermas effectively replaces "scientific" measures of rationality with criteria for democratic debate based on communicative processes. The foundation of Habermas" (1984) theory is his rejection of the societal concept that individuals come together and interact only with the goal of maximising their own self-interests. He argues that if maximising self-interest is the determinant of individual behaviour then collaboration will only take place when each individual believes participation will lead to personal benefit (Habermas, 1984). Instead, Habermas sees society as a construct of individuals whose consciousness is continually „under construction" through interactions with other individuals. The decision-making model that Habermas proposes is the theory of „communicative action", in which he states that interaction involving collective reasoning, debate, and analysis (i.e. participation) can help develop a unified vision of reality, and thus create social integration, group solidarity and coordinated action. Habermas thus sees consensus-reaching processes as central to the human experience (Wikipedia, 2011). Essentially, Habermas" communicative action theory suggests participation should be "fair", representing the full range of relevant stakeholders and equalising power between participants (Reed, 2008).

According to Flyvberg, the success of this discourse ethic is subject to five key requirements (Flyvberg, 2001):
- *Generality;* no affected party shall be excluded from the discourse;
- *Autonomy;* all participants should have the equal opportunity to present and criticise validity claims;
- *Role taking;* participants must be willing and able to empathise with each other"s claims;
- *Neutrality;* existing power relations must be neutralised so that the differences have no effect on the creation of consensus; and

- *Transparency;* all participants must openly explain their goals and intentions.

New political theorists such as Joshua Cohen have taken Habermas‟ theory of communicative reality into the political realm by advancing the cause of "deliberative democracy" for problem-solving and discussing alternative courses of action (Cohen, 1996).

3.1 Application of Habermasian theory to communicative planning

"Neither scientific inquiry nor the economics of instrumental rationality can provide 'objective criteria' to which we can appeal when arbitrating disputes. We must construct our ways of validating claims, identifying priorities, and developing strategies for collective action through interaction, through debate. It is this idea that underpins Habermas' theory of communicative action with its communicative ethics." (Healey, 1997, p. 53)

Habermas‟ theoretical underpinnings on discourse ethics are today seen as the basis for communicative (or collaborative) planning as one of the most persuasive post modern planning theories of the past decades. Notions of dialogue, collaboration and conversation are critical to Habermas‟ thinking and have become central to this body of planning theory. Communicative planning encompasses a wide range of planning frameworks and approaches and include: collaborative planning (Healey, 1997; McGuirk, 2001), transactive planning (Friedmann, 1973), consensus building (Innes & Booher, 1999) and partnership planning (Mitchell, 1997). These approaches all belong to the family of communicative planning and essentially describe a planning methodology that pools knowledge and resources from two or more stakeholders and involves a sharing of power and a responsibility for collective outcomes. In a nutshell, it is the belief in the process of collective reasoning and debate versus technical expertise and rational decision-taking (Murray, 2006).

According to Forester (1993) and Healey (1997), key characteristics of communicative planning processes include:
- Interdisciplinary approach and cross-disciplinary integration;

- Continuous stakeholder participation during the planning and implementation process;
- Education of citizens and community organisations and inclusion of less organized interests in the planning process;
- Consensus is used to make decisions.

But why has the „communicative turn" in planning theory been so pervasive in the past two decades? Murray (2006) identifies the following benefits of communicative planning:
- the ability to combine information, knowledge and skills from multiple stakeholders;
- to generate agreement and consensus over possible scenarios and solutions;
- to create a sense of ownership over the outcomes;
- to achieve mutual learning and personal growth from participants;
- to bring about increased democratisation of the decision making process.

Within the planning literature we can identify three main arguments which support communicative or collaborative planning practice. The first derives from Habermas" theory of communicative rationality discussed at the beginning of this chapter. It is based on the belief that communicative planning promotes democratic principles in decision making and better reflects the pluralistic nature of contemporary society. It is a response to the technocratic and expert-dominated systems and rational views of planning dominant in the 1960s and 1970s. Communicative planning"s decision-making process proposes a more inclusive approach that reflects the „heterogeneous world" in which we live (Healey, 2003).

The second argument acknowledges that in democratic and pluralistic societies, planners operate in a context where power and responsibility for action is fragmented between different actors. Today"s planning realities in a capitalist political economy must deal with a multitude of interests and diverging agenda"s including private business, government and civil society (Murray, 2006). Planning issues have become increasingly complex and intractable as the world has become increasingly globalised (Innes and Booher, 1999). This complexity therefore requires a fresh approach that allows developing and managing relationships between multiple stakeholders in democratic and culturally heterogeneous society. Planning therefore needs to be more aware of power relations and more sensitive to local needs and demands (Healey, 1997).

The third argument derives from political economy and contemporary urban governance discourse. It states that the pervasive policies of decentralisation and principles of subsidiarity that attempt to devolve decision-making to local levels ask for more responsive and inclusive "collaborative approaches". Additionally, planning and management of urban areas is today fragmented between a number of government departments and agencies located within multiple layers of government (ibid, 1997).

In her seminal work published in 1997, Patsy Healey lays out the main defining principles of communicative planning theory as follows:

- Planning is an interactive and interpretive process;
- The methods require respectful interpersonal and intercultural discussion;
- Focus is placed on processes where public discussion occurs and where problems, strategies, tactics, and values are identified, discussed and where conflicts are mediated;
- During the process, a reflexive capacity is developed that enables participants to evaluate and re-evaluate;
- Participants in the discourse gain knowledge or other participants in addition to learning new relations and understandings;
- Accepts diversity of views and heterogeneity of contemporary society;
- Participants are able to collaborate to change the existing conditions; and,
- Participants are encouraged to find ways of practically achieving their planning desires, not simply to list their objectives. (summarised by Allmendinger, 2009).

The relationship to Habermas" critical theory of communicative rationality is obvious and it is this theoretical foundation that distinguishes communicative planning theory from other discourse-oriented and cooperative approaches to planning (e.g. Advocacy Planning by Davidoff, 1965). Communicative planning theory offers opportunities for exchanging ideas, bringing stakeholders together, and encouraging the development of negotiated decisions and outcomes (Healey, 1997).

However, in comparison with the clear-cut comprehensive rational and systems approach described in section 3.2 below, there is no unified theory of communicative planning theory. This fluidity and ambiguity has made it so popular in the recent past and enabled it to become the dominant theoretical foundation for what constitutes planning in pluralistic societies today. Allmendinger (2009) states that

"...communicative planning is an attempt to find a way forward for planning, to justify its existence and provide a normative basis, which it has lacked since the rational comprehensive approaches of the 1970s" (Allmendinger, 2009: 220). However, it has merely moved the highly abstract Habermasian theory of communicative rationality to the abstract. *"It holds out the prospect of change but draws back from prescribing it because change cannot be prescribed under communicative planning"* (ibid: 221). There have been efforts in the past decade to operationalise Habermasian theory for municipal development and social work, e.g. Helmut Richter‟s *Kommunalpädagogik* (2001) which seeks to widen communicative interaction between citizens and local authorities in modern democratic societies.

As we show in section 3.4 „Communicative planning approaches in the global South‟, it is in planning frameworks for rapidly urbanising cities of the developing world that communicative planning has provided the most convincing approaches in moving from theoretical discourse to reality.

3.2 From rational planning to communicative planning theory

In this section we analyse the origins of „modern‟ urban planning and its dominant form in the post-war period. Modern urban planning emerged in the latter part of the 19th century in Western Europe as a response to the rapid industrialisation and urbanisation and the perceived evils of the rapidly expanding city. The planning of urban areas was seen as an intrinsic part of the modern interventionist state and Keynesian economics (Hall, 1988). The main features of this approach to planning was (i) a focus on physical planning and the design of human settlements, with social, economic and political matters lying outside the scope of planning, and (ii) the production of deterministic blueprint master plans with an ideal end-state (UN-Habitat, 2009). The idea that spatial development plans could be directly implemented reflected the traditional conception of planning as a „spatial blueprint‟. In the 1960s, this deterministic approach was challenged by a new "objective" approach of rational planning[2].

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[2] Rational planning is used as a generic term to describe the body of planning theory developed in the 1960s and 1970s with a strong emphasis on the importance of rationality in decision making and a concern with the processes, procedures and techniques utilized by planners (Wong, 1998).

Rational comprehensive planning assumes that the environment is controllable by using scientific knowledge and modern technologies and that there is a general public interest (Fainstein, 1996). The paradigm of rational planning in the 1970s attempted to put forward an all-rounded, long-term comprehensive approach to provide guidance on change in the environment. This approach required clear specifications of goals, objectives and targets and the use of quantitative techniques, which allowed the planner to predict and forecast future urban growth. Rationality for decisions and actions within this planning paradigm is *"...constructed predominately through techno-scientific analysis and deductive logic, and through the prevailing voices which appeal to those forms of knowing and reasoning"* (McGuirk, 2001: 196).

The comprehensive rational approach led to the academicisation of planning and the widespread inclusion of social scientists and economists in urban and regional planning. The planner was no longer considered as a *designer* of human settlements but rather as a value-free "*homo economicus*" who used sophisticated expert systems to identify all possible options, evaluated them against specific criteria and then chose the best solution for the general public interest (Fainstein, 1996). The more well-known rational planning techniques developed during this period include N. Lichfield's "Planning Balance Sheet"; B. McLoughlin's "Systems Planning Framework", and M. Hill's "Goal Achievement Matrix and Analysis of Interconnected Decision Areas (AIDA)" (Wong, 1998; Hickling, 1978).

Planners functioned on the assumption that the "public interest" could be articulated and identified. They therefore reasoned that planning was concerned with three major activities:

  i identifying the public interest,
  ii translating it into concrete plans, and
  iii incorporating the planning process into the centre of the urban decision process. (Blecher, 1971).

The belief of comprehensive rational planning as a benign force is nicely summarised by McLaughlin (1969): *"Planning seeks to regulate or control the activity of individuals and groups in such a way as to minimise the bad effects that may arise, and*

to promote better 'performance' of the physical environment in accordance with a set of broad aims and more specific objectives in the plan" (McLaughlin, 1969: 59).

While comprehensive rational planning has led to more strategic and action oriented plans, it has been subjected to major criticism since the 1980s. Critics of rational planning highlighted its over-reliance on so-called objective techniques and models to predict and forecast the future. Increasingly, there were also doubts on the objectivity and rationality of the data that was collected and analysed (Habermas, 1984, Innes, 1996, Healey, 1997) and the recognition that experts/planners have their own biases and that scientific expertise has its limits in the public realm. The techno-scientific approach can also produce misleading or distorted information and unjustified conclusions and as Innes notes *"[...] science and other ways of knowing are shaped and distorted by power in a society."* (Innes, 1996: 186)

Wong goes so far to state that the techniques and methods developed under the rational planning approach provided a technical façade behind which planners claimed their professional credibility (Wong, 1998). The reality of rational planning in the past decades proved that there is virtually no designated role for the people affected by planning and the proposed objectives and measures are imposed on the public without prior consultation. Its conception of planning as a *"[...] value-neutral, rational process ignored the political reality of pluralistic social values which led to contentless and contextless planning* (Wong, 1998: 223). Forester (1993) lists the realities for which the rational comprehensive approach is unable to find the correct response:

- *"ambiguous and poorly defined problems;*
- *incomplete information about the background of the problem;*
- *incomplete information about the range and content of values, preferences and interests;*
- *limited time, limited skills and limited resources"*. (Forester, 1993: 50)

The demise of the comprehensive rational approach to urban and regional planning since the 1980s in Western Europe and the United States has led to a diversity of planning frameworks and approaches. Most prominent among these are Strategic Spatial Planning, Regulatory Planning and Strategic Environmental Planning and Management (Fainstein, 1996, Healey, 1997). The shortcomings of top-down and expert-led approaches and the ineffectiveness of externally imposed forms of planning and project delivery have led to the rise of new forms of "people-centred"

communicative and collaborative planning approaches which place greater emphasis on structuring and enabling beneficiary participation. In the next section 3.3, we discuss theories of participation in development, including contemporary critiques of participatory practice. In section 3.4 we then present contemporary commununicative planning frameworks applicable to lower and middle-income countries.

3.3 Theories of participation in development

Participation in development emerged out of the recognition of the limitations of top-down development approaches. As mentioned in 3.3, conventional, expert-driven planning and project delivery came under increased scrutiny and criticism since the 1970s. This resulted in a shift towards participatory research and an increase in the adoption of participatory planning methods by the development community. Influential thinkers in this respect were Fritz Schumacher with his seminal work "Small is Beautiful" (1976) and Robert Chambers, the father of participatory rural appraisal (Chambers, 1983). Much has been written in the past decades about the anticipated or actual benefits of participation in development, commonly termed ‚participatory development". During the history of its development, participation has become loaded with ideological, social and political meaning, giving rise to a wide scope of interpretations (Lawrence, 2006).

The concepts underlying participatory approaches to development are many and they have continued to evolve in the past decades. This section provides an overview of the most pertinent theories which help explain and appraise participation in development. It provides a theoretical context within which the understanding of different approaches to community participation in improving urban environments can be assessed.

We first provide a simple definition of participation and compare two different frameworks for community participation which both attempt to categorize process and capacity and the nature of "empowerment". A simple definition adopted from Stoker (1997) defines participation as members of the public taking part in any of the processes of formulation, passage and implementation of public policies. Admittedly, this is a wide definition encompassing policy, decision-making as well as implementation. A more narrow definition appropriate for the purpose of this thesis is the *"[...] active involvement of the local population in the decision-making concerning the development of projects or in their implementation."* (IRC, 1981: 3).

Sandy Cairncross, one of the leading water and sanitation sector experts believes that rural and urban water and sanitation projects and programmes are particularly receptive to community participation because it helps in:

- Improving designs;
- Reducing costs of construction;
- Facilitating and reducing costs of operation and maintenance;
- Improving the realisation of project benefits;
- Encouraging the community to participate in new development initiatives. (Feachem, 1980).

While these arguments are widely used by development partners all over the world, there is precious little evidence that supports the above propagated strengths of participation for development. In fact, there is only one meta-study that looks at the causality between project performance and participation in the water and sanitation sector – however, the study is limited to rural water supply projects in India only (Prokopy, 2005). There is also an increasing disillusionment among project and programme managers who have failed to see the above mentioned claims realised (Reed, 2008).

3.3.1 Arnstein's ladder of participation

The first theoretical work attempting to classify different levels of participation is Arnstein"s famous „ladder of citizen participation' (Arnstein, 1969). Even though it was developed in the context of the United States in the 1960s, the framework is useful because it describes a continuum of increasing stakeholder involvement, from „weak" to „strong" forms of participation (Figure 3.1). The participation ladder features eight levels of participation with indirect "manipulation" or pseudo-participation at the bottom of the ladder. Real power and control by stakeholders is to be found on the top three notches: partnership, delegated power and citizen control. At this level, Arnstein asserts that stakeholders can form genuine partnerships, bargain and engage in trade-offs with power brokers. However each of the steps represents a broad category where there are dozens of variations and experiences.

Figure 3.1: Arnstein's ladder of participation
Source: Arnstein (1969), p. 216

In reality, the different steps of the ladder are rather more a complex continuum as presented on the following pages.

Critique of Arnstein's participation model focused on two major points of contention:

(i) The implication that the higher rungs of the ladder with more participation are always better than less or no control. This overlooks the fact that communities don't necessarily always strive for increased control and that very often different levels of participation are acceptable in different contexts and settings (Wilcox, 1999).

(ii) There are far more complexities when analysing community participation such as dimensions of power, available capacity and actual resources to participate. Skelcher (1993) refers to this as the „paradox of empowerment" - the failure of planning processes to truly empower which results in a community becoming increasingly disinterested and ultimately „disempowered".

Central to the differentiation between strong and weaker forms of community participation is determining which issues the community are allowed to be involved in. Control of the agenda is a key factor as well as the inclusion of both operational and strategic issues. In most projects and programmes, operational issues tend to get on the agenda, whilst the strategic issues are decided elsewhere. Hart *et al*, (1997) emphasise the difference between strategic and operational decisions: *strategic power* involves setting targets, allocating priorities and determining policy. *Operational power* is having the ability to decide how these things are carried out.

Hart therefore proposes a stakeholder power matrix that recognizes that participation and power are on a continuum, rather than being a series of "levels". It is also more realistic towards the notion that more participation is always more beneficial and allows

different degrees of participation in relation to different types of decision (Hart *et al,* 1997).

Hart‟s power matrix (Fig. 3.2) differentiates between four potential levels of stakeholder power: (i) arm‟s-length power, i.e. strategic level power; (ii) comprehensive power, i.e. both strategic and operational power; (iii) disempowerment, having neither strategic nor operational, and (iv) operational power.

Figure 3.2: Stakeholder power matrix according to Hart *et al*, 1997.

Hart *et al's* model is certainly more attuned to political realities than Arnstein‟s model as it recognises the key role of agenda setting and clout in the political environment. It also recognises that stakeholder participation does not take place in a power vacuum and may reinforce existing privileges and powers. Only if stakeholders have a stake in both setting criteria (criteria power) and procedures and operations (operational power) can one speak of "comprehensive power", or comprehensive participation (ibid, 1997).

3.3.2 Process and Capacity Issues

Research on participatory planning and implementation in the past two decades have focused on why participatory approaches, although well intended have led to the opposite - the failure to empower results in the community becoming disenchanted and disinterested in engaging with the process (CAG, 2005).

The theorizing of participatory approaches is often split into means/ends classifications (Oakley and Clayton, 2000; Cleaver, 1999), distinguishing between *efficiency arguments*, i.e. seeing participation as a tool for achieving better project results, or *empowerment arguments,* i.e. the processes to enhance social capital and the capacity of individuals to improve their living conditions. Recent attention has turned to the

importance of the processes and the structures that need to be in place to ensure „real"
participation. This includes both individual skills and the wider "enabling environment",
including supporting agencies and institutions (Lüthi *et al*, 2011; WSP, 2011). It is the
relationship between and the individual interests of the community and the intervening
agencies or "external bodies" (see Fig. 3.3 and 3.4) that define the level or degree of
participation and responsibility assumed. "External body" is here used as a metaphor
for institutions such as local government, professionals or practitioners. This external
body is nearly always the government or some manifestation of the government.

Hamdi and Goethert (1997) thus relate the different levels of participation based on the
definition of roles between the community and this external body or "outsider" (Fig.
3.3). The type of participation involved is a central point of negotiation before the
planning process starts. This is necessary to avoid conflicts in perception between
participatory partners with differing expectations (Hamdi and Goethert, 1997).
Important is that both government and community interests are equally legitimate and
will influence the negotiations.

Levels of Participation	Community Roles		Outsider Roles
Full control	Principal	>	Resource
Shared control	Stakeholder	=	Stakeholder
Consultative	Interest group	<	Advocate
Nominal	–		Surrogate
None	–		Surrogate

Figure 3.3: Roles of community and outsider related to levels of participation
Source: adapted from Hamdi & Goethert (1997), p. 68.

Whilst the bottom two rungs (none and nominal) cannot be classified as participative
practice per se, consultative participation is probably the most widely practiced form of
participation in both lower and higher income countries. There are several forms of
consultation, ranging from information gathering and decision making, from large
group consultation to individual surveys and interviews. Consultation with larger
groups in the form of public assemblies, community surveys and individual interviews
are effective in soliciting information or presenting ideas, but it is clear that the strategic
power will continue to rest with the outside agency.

McConville (2011) further differentiates the involvement of stakeholders during the
five key steps of sanitation planning, namely: (i) problem identification, (ii) definition
of objectives, (iii) design of options, (iv) selection process, and (v) action planning.

Using Arnstein's participation ladder she analyses stakeholder participation of users (beneficiaries), neighbourhood and municipality and tracks their varying degrees of participation according to Arnstein's ladder (Figure 3.4).

Figure 3.4: Participation of stakeholders in the HCES process
Adapted from: McConville, 2011.

Different stakeholders have different perspectives and expectations about engaging in participatory approaches. This becomes evident in any multi-stakeholder planning process. Figure 3.5 outlines the differing stakeholder perspectives according to the various levels of participation. The differentiation between internal and external perspectives regarding the merits and benefits of participation are fundamental to any multi-stakeholder process that involves finding consensus or compromise. This becomes more challenging where shared and full control is envisaged, as real power-sharing arrangements need to be debated and agreed upon. Therefore, reaching an understanding on the different perspectives is a key first step in assuring a successful multi-stakeholder process.

Successful tools and instruments for ensuring shared and full control in community participation include partnership agreements, action plans, community development budgets, round tables or joint planning workshops. Several of these planning instruments have been tested and validated during the course of this research and are presented in more detail in Chapter 6.

Form of Participation	What participation means to the implementing agency	What participation means for those involved
Full control (transformative)	Partnership with non-governmental actors, collaborative decision-making and imple-mention	Joint analysis and development of plans; empowerment to enable people to define objectives, control resources and take action.
Shared control (representative)	Established systems are used for expression of voice, improving accountability; provides a means of organizing different views.	Leverage, direct or indirect influence
Instrumental	Efficiency, to draw on beneficiaries resour-ces,increase cost effectiveness and improve O&M	Access to facilities and services that are normally provided only to those that can afford to pay.
Consultative	Better informed decision making with no loss of control	Policies and plans that are more appropriate, but no guarantee that consultation outcomes are taken into account.
Nominal	Legitimization to show it is doing something, pre-empt opposition.	Inclusion, in the hope of gaining access to potential collective or individual benefits.

Figure 3.5: Participation from different stakeholder perspectives
Source: adapted from UN-Habitat, 2009, p. 33.

The term "community" needs further clarification as it embraces a wide range of different contexts and social configurations. At the most general level, a community is a group that perceives itself as having strong and lasting bonds, particularly when the group shares a geographic location. One measure of community is regular participation by individuals in its activities (Gottdiener and Budd, 2005). However, community is not a singular concept but in reality represents a mere umbrella under which shelter a multitude of varying, competing and often conflicting interests. Urban communities, especially in dense and informal settlements are far from homogeneous. Urban fragmentation and socio-cultural diversity make for the heterogeneous nature of urban settlements. More often than not, communities are not united and socially homogeneous and are characterized by socio-economic or gender differences. Within virtually all communities, there are community divisions and conflicting interests, for instance between women and men, between the poorest and the better off, between landlords and tenants or between different ethnic groups (Lüthi *et al*, 2009). This division and exclusion can also become a defining element and even lead to misrepresentation in community-based organisations (CBOs) or residents" associations: women and the poorest community members often take only passive role and community leaders trying to personalize benefits and resources. Melo and Baiocchi warn of the pitfalls of participation when „horizontal" governance structures favour elite interests and dominance (Melo and Baiocchi, 2006).

3.3.3 Contemporary critique of community participation

Much of contemporary critique of participation in development has been on the instrumental use of participation (often termed 'functional participation') and the inability to achieve social transformation or real empowerment. The body of literature taking a critical view of participatory development mainly focus on two limitations:

i   technical limitations, i.e. a re-examination of the methods and tools and their deficiencies, the time and resources needed (Cleaver, 1999; Feacham, 1980), and

ii   theoretical, political and conceptual limitations of participation (Cooke and Kothari, 2001; Mansuri and Rao, 2004; Murray and Ray, 2010).

The first group of criticism delves on methodological limitations of participation and the identification of technocratic limitations (Feacham, 1980).

They propose adjustments to the methodology and tinkering with the „toolboxes of procedure and technique" of participation. The focus is on procedural deficiencies and the perceived higher costs and longer planning timeframes associated with organising participation at community level. Likewise, it is argued that community participation in programme delivery will require external bodies which will increase the overall programme costs by the employment, training and supervision of the teams of community level workers that are necessary for successful community involvement (Feacham, 1980). However, recent empirical studies from the water and sanitation sector have shown that increased participation in planning and implementation do not necessarily lead to longer planning timelines or the need for more human and financial resources (ADB, 2009; Lüthi and Kraemer, 2012).

The second critique is more fundamental and questions the "pitfalls of participation" (Melo and Baiocchi, 2006) or the "tyranny of participation" (Cooke and Kothari, 2001; Biggs, 1998) by addressing what they see as fundamental flaws in participatory development processes as it is practiced in the global South. These critics state that participation fails to sufficiently address issues of power and control of information and other resources which are fundamental determinants of social change (Cleaver, 1999). In worst cases it can create "dysfunctional consensus" (Cooke, 2001, p.19), discouraging minority perspectives from being expressed. Similarly, Geddes points out that there are limits to inclusion as those that ideally *should* be involved often lack the

capacity and resources to fully engage (Geddes, 2000). Many recent studies analyse guided or manipulated participatory processes, where better-placed community members are able to take advantage of the open and horizontal process for their own ends. This so-called "elite dominance" leads to further cementing social stratification in poor communities (Geddes and Martin, 2000; Cooke, 2001; Guarneros and Geddes, 2010). Similarly, Fung and Wright warn that the real danger of participatory decision-making is that some participants will use their power to manipulate and enhance positions motivated by particular interests (Fung and Wright, 2001). Elite dominance is an issue that demands special attention and careful planning provisions to prevent marginalising the urban poor or minorities, as recent case studies have proven (ADB, 2010; Sherpa *et al*, 2012).

Murray (2010) argues that especially in the water and sanitation sector, *"There is extremely limited evidence of the positive impacts of participation on urban sanitation projects. [...]...functional participation can lead to interactive involvement by "locals", but more often it happens that locals are co-opted into agreeing to externally defined objectives; and thus, participation achieves little in way of long-term sustainability* (Murray, 2010: 65).

Murray concludes that positive impacts of community participation in the sanitation sub-sector are sparse in the academic literature and that community participation has had mixed results with respect to improving the operation and maintenance of newly built facilities (Murray and Ray, 2010). This does not come as a surprise as the engineering-dominated sanitation sub-sector to this day is dominated by expert-driven, technocratic realities - much more so than the drinking water sector.

Recent literature also notes that there is a mismatch between good practice as described in theory and planning guidance and its implementation on the ground (McConville, 2010). Although participatory planning and decision making frameworks have been tested and applied for decades and considerable experiences have been gained, there is still a gap between what exists as theory and what is actually practiced on the ground. As McConville points out, there is a *"large amount of rhetoric for community-based and participatory approaches in the sanitation field, while at the same time the sub-sector is striving to meet strict treatment standards"* (McConville, 2010: 80).

In this research, we conduct a detailed evaluation of the participation processes in three selected case study areas and attempt to investigate the validity of the many claims that have been made for stakeholder participation in the environmental sanitation sub-sector. This includes a stakeholder analysis, a step-by-step analysis of the tools and processes utilised and the attempts made to enable „informed decision making" by stakeholders that normally do not have sufficient expertise to meaningfully engage in highly technical debates. In the last two chapters of this thesis we then analyse the success factors of participatory planning in environmental sanitation.

3.4 Communicative planning approaches in the global South

There are a great variety of frameworks and approaches in the health and environmental sanitation sectors today. An overall classification can be made by dividing these into:

- Programming frameworks (including HCES)
- Sanitation promotion (including CLTS)
- Hygiene Promotion (e.g. Community Health Clubs), and
- Participatory Planning Tools (including Participatory Rural Assessment) (WSSCC, 2010)

Figure 3.6 below provides an overview of these frameworks and tools used by national and international agencies and institutions in the water and sanitation sector and situates the household-centred approach in the international and sectoral landscape. Our main focus in this research is on the "Programming Frameworks" depicted at the top of Figure 3.6. Therefore other planning and promotion tools will not be dealt with in greater detail.

This section looks at communicative planning and programming frameworks and approaches that have been tried and tested in low and middle-income countries in the past decades which focus on urban planning and/or basic service provision in rapidly growing urban areas. The selected approaches strive to utilise multi-stakeholder planning processes in order to find the best possible solution for all stakeholders, including the marginalised urban poor.

Figure 3.6: Planning and promotion tools for environmental sanitation   Source: WSSCC, 2010

Four innovative planning frameworks that deal with environmental sanitation (and related infrastructure development) in the global South can be noted since the 1960s: *Action Planning*, *Community Action Planning*, the *Strategic Sanitation Approach* and *Community-Led Total Sanitation*. All four incorporate aspects of communicative or collaborative planning which stress the importance of inter-disciplinarity and community participation.

3.4.1 Action Planning

The initial step towards more responsive and community-based schemes in urban planning in the global South was undertaken by Dr. Otto Koenigsberger. Koenigsberger, born in 1908, was an architect and planner who studied at the TU Berlin in the 1930s. He was one of the first to realize that the conventional planning methods did not provide answers to the rapid urban growth in developing countries. Cities in Asia and Africa were growing and changing faster than the European cities did even at the height of the industrial revolution. Koenigsberger questioned the relevance of master plans for cities in low income countries - „a static concept providing for limited and predictable change for cities of finite size". As early as 1951 Koenigsberger wrote to a colleague: *"The longer I did planning work in India the firmer became my*

conviction that master plans and reports are not enough. It is necessary to create a live organisation, preferably anchored in the structure of local government, which constantly deals with planning problems and keeps the basic conception of the plan alive" (Wakely, 1999: 1).

The new approach which he advocated since the early 1960s was termed "Action Planning". It describes a process of planning appropriate to the rapidly growing cities and towns of the global South. This was his pre-eminent contribution to urban development and several years later in Singapore, he refined and tested his concept. The Action Planning approach entails distinct operations or processes (Wakely, 1999):

- A *reconnaissance survey* comprising a rapid survey to pinpoint the dominant features and characteristics of the city and its social groups;
- The *guiding concept* is in essence a broad structural perspective plan responding to the most urgent problems revealed by the reconnaissance;
- *Action programmes* are a series of inter-connected sector development strategies in which the city planning authority would then play a dynamic role in promoting and steering private sector investment in the search for commercial and social returns;
- *Monitoring and feedback* should ensure constant and effective learning by doing in terms of progress achieved and the problems encountered in carrying out a programme and in terms of gathering public reactions and responses. This will inform successive programme revisions.

Although Action Planning received immediate intellectual and professional acclaim, only 30 years later has it become widely accepted internationally. A big step forward was certainly the fact that „informal" and „popular" forms of community organisation were acknowledged as an integral part of urban development that should not be ignored. Although the Action Planning approach did foresee a pro-active role for decision-making of constituent communities, especially of urban newcomers and the urban poor, Action Planning utilised a more informed planning that implemented „participation by consultation", where stakeholders are consulted on their opinions and proposals are then amended, taking into account participants" views (Koenigsberger, 1964).

3.4.2 Community Action Planning (CAP)

Community Action Planning grew out of communicative planning processes developed since the 1970s and belongs to the family of community design approaches which facilitate people's active involvement in the creation and management of their built environment. The planning approach was developed by Prof R. Goethert at MIT and further improved in collaboration with Nabeel Hamdi from the Oxford Brookes University. Originally termed "micro-planning", it encompasses a *"[...] community-based process in design and development which enables programmes for neighbourhood upgrading to be prepared and implemented locally, collaboratively and quickly"* (Goethert and Hamdi, 1988: 7).

Community Action Planning (CAP) is an interdisciplinary, collaborative, and community-based planning technique. It facilitates participation in the creation and management of a community's entire built environment including its sanitation facilities.

The technique has evolved from practical experience in many parts of the world. It is part of an emerging group of "community planning" or "community design" approaches which make it easier for people to participate in the creation and management of their built environment. The underlying philosophy of CAP is interdisciplinary, collaborative, and community-based. The assumption is that better environments can be created if local communities take the driving seat and work closely and directly with a range of specialists (WSSCC, 2010). The main output of Community Action Planning is a development plan which includes a list of prioritised problems, strategies and options for dealing with the problems, and a rudimentary work programme describing who, when and what is to be done. Integral to the approach is the shared relation between the professional technical inputs and the community. The main difference to the similar household-centred approach is that CAP deals with the entire built environment, including infrastructure and basic urban services. CAP has been applied since 1988 in Sri Lanka, Bangladesh, Chile, Peru, Kenya, South Africa and Poland (Hamdi and Goethert, 1997).

3.4.3 The Strategic Sanitation Approach (SSA)

SSA was the first attempt to introduce more responsive and less expert-driven frameworks to environmental sanitation planning. SSA was developed by the UNDP

World Bank Water and Sanitation Programme in the 1980s and documented in Wright"s (1997) review. The main underlying principles of SSA are that it is demand-responsive and incentive-driven. This requires implementing agencies to make a greater effort in assessing what potential users want and can afford. Only then should sanitation systems and support structures be designed that are best suited to their needs. The strategic planning process differs from sectoral planning in its global approach and from the classical master planning approach in its methodology and its orientation – more flexible and responsive and less static (SuSanA, 2008a).

Key concepts of the strategic planning process are the twin principles of *demand* and the attention paid to incentives. The former is strongly linked to a household"s ability and *willingness to pay*. While this has raised the debate on appropriateness of limiting demand to economic terms only - it is the first sectoral approach that specifically addresses the issue of household demand and what people actually want and are willing to pay for (SuSanA, 2008a).

3.4.4 Community-Led Total Sanitation (CLTS) was initiated in Bangladesh in 1999 as an innovative methodology for eliminating open defecation (Kar, 2005). The basic thrust of CLTS is to mobilize communities to change their behaviours and raise awareness of disease transmission routes. CLTS uses community development principles and a participatory approach to empower local communities to stop open defecation and promote the building and use of latrines through the creation of a sense of shame within the community. This in turn then triggers collective action to improve the sanitation situation.

The method is widely regarded as successful and has been applied across many countries in Asia and Africa. A more detailed discussion of CLTS is provided in chapter 5. CLTS has been applied since the year 2000 in over 40 countries in Asia and Africa. In recent years, there are also innovative attempts to test CLTS in an urban context, albeit limited to informal settlement areas that have very high incidence of open defecation. Recent evidence from national CLTS programmes in rural Karnataka in India question the way the method is being replicated in some areas (Chatterjee, 2011). It is argued that the move from open defecation to improved sanitation relies on community-led coercion using humiliation, fear and sensationalist scare tactics rather than democratic grass-roots initiatives.

Another popular sectoral participatory approach that was disseminated widely in the past decade is the "PHAST" approach (Participatory Hygiene and Sanitation Transformation), developed by Sara Wood, Ron Saywer and Simpson-Hébert for the World Health Organisation and the World Bank‟s Water and Sanitation Programme (Wood *et al*, 1998). This hygiene promotion and behaviour-change approach is not further considered here as it is geared towards rural communities and cannot qualify as a full planning/programming approach as the ones discussed above (WSSCC, 2010).

3.5 The Household-Centred Environmental Sanitation approach (HCES)

For the benefit of this thesis, the contemporary planning framework that stands at the centre of this thesis, the Household-Centred Environmental Sanitation approach (HCES), is discussed in more detail here. The direct links to communicative planning as discussed above are explored further in the two published papers presented in chapters 5 and 7 respectively.

The **Household-Centred Environmental Sanitation** (HCES) has been developed by experts at the Swiss Federal Institute of Aquatic Science and Technology in response to the Bellagio Principles (WSSCC/Eawag, 2000). The Bellagio Principles were agreed upon in the year 2000 by sector experts and define that decision making must be informed by diverse stakeholders making strategic choices, that the export of waste should be minimized, that sewage and waste should be considered a resource, and that sanitation should equally pursue human dignity, human health, and the protection of the environment.

The household-centred approach (HCES) is one of several planning and programming frameworks that have been developed in the past decades to improve planning and programming for delivery of environmental sanitation services. It provides a comprehensive analysis of urban environmental sanitation needs and a systematic approach to plan improvements.

HCES is specifically geared towards unplanned urban and peri-urban areas. It is an area-based planning approach which targets unserved or under served urban communities. At an early stage of conceptualization, it was realized that the specific

needs of these communities cannot be effectively met by starting from the perspective of the traditional city master plan. The approach was thus developed in such a way as to concentrate on those domains closest to the residents: the household and the neighbourhood. Thus, the planning approach adopted by HCES as the name implies aims to solve problems where they occur rather than exporting them downstream (Eawag, 2005). Since 2007, the HCES approach has been applied in the following countries: Costa Rica, Burkina Faso, Mali, Kenya, Tanzania, Mongolia, Nepal and Laos. It has recently been field tested by a number of organisations including the Swiss Federal Institute for Aquatic Science and Technology (Eawag), UN-Habitat, the Swiss NGO Helvetas and the Umweltforschungszentrum (UFZ) in Leipzig, Germany.

The planning process starts by focussing on household and community decisions on service needs and then moves outwards from the household to the neighbourhood, before considering the impact of the town and its hinterland. HCES adopts a neutral approach with regard to technology choice taking into account economic factors (ability and willingness to pay) and social benefits such as privacy, dignity and convenience. The aim is to link expression of needs at the community level with those resources available locally and those that require additional inputs from external agencies. Like other communicative planning frameworks it provides a flexible approach for working with disparate and diverse communities to reach agreement between them and formulate a common plan.

In its ten step approach, HCES works towards the empowerment of communities to organise themselves and participate in development interventions. The workshops, focus group discussions and stakeholder meetings are accompanied by exposure activities (e.g. construction of pilot facilities or sanitation bazaars) and capacity development interventions to enable community organisations or private sector service providers to absorb and utilize future infrastructure improvements. In line with environmental sustainability, the social, economic and technological aspects of conservation and reuse of resources are considered. What CLTS and HCES have in common is the realisation that in poor rural and urban contexts a significant amount of sanitation is organised by the households themselves and is not a publicly delivered service common to higher income areas.

The household-centred approach relies on a sound balance between expert-based inputs (e.g. dealing with institutional issues, enabling environment and the interface with city-

wide service provision) and more bottom-up processes such as problem and needs identification and defining appropriate and affordable solutions. The planning framework is open-ended and flexible and not prescriptive in nature.

While great importance is attached to involving urban communities from the start, low-income communities are not always capable of and/or willing to self-finance the planning and implementation of improved environmental sanitation services. It is therefore essential to explore a multi-stakeholder and cross-sectoral approach that involves key stakeholders and decision-makers such as local governments, utilities and sector institutions. HCES demonstrates that urban communities have the ability to make substantial financial contributions to improved urban habitats, as shown in Chapter 7.

The household-centred approach puts stakeholder participation at the centre of the 10-step planning process. Stakeholder participation in HCES should be considered during all stages – from concept development and prioritization and choice of options, through implementation, to monitoring and evaluation of outcomes. Engagement with stakeholders as early as possible in decision-making is seen as a means to reach high quality and durable decisions. This doesn"t mean that external experts (outsiders) should not engage and contribute to finding appropriate solutions. But they are considered as one of many stakeholders that are to be involved.

Lessons learned from three decades of urban infrastructure planning show that "urban governance" or "enabling environments" and the local power dynamics at play are a central tenet for achieving sustainable and replicable solutions. Political will is perhaps the single most important factor in achieving sustainable improvements in un-served urban areas (Lüthi et al, 2009a). The HCES case study of the informal settlement of Waruku, Nairobi exemplifies this in many ways. After many months of community-based planning with the local community and the Nairobi service provider, the entire informal settlement was razed to the ground on 11. August 2009. Inside sources say that a son of the former President claimed ownership of the settlement area. All squatter residents were evicted and the previously erected sanitation block was bulldozed.

Figure 3.7: Destruction of Waruku informal settlement in Nairobi (August 2009) Image: Maji na Ufanisi

3.6 Local governance in urban service delivery

This section explores the relationship between practices of urban governance and the delivery of urban basic services. Governance is a normative concept (*what ought to be*) and broadly refers to the patterns of interaction between civil society and government. It means different things to different people and institutions and there is no „one‟ definition of governance. However, much of the discussion of „governance‟ focuses on the national level and this often ignores urban governments and local governance issues (Satterthwaite, 2005). International finance institutions like the World Bank and the Asian Development Bank highlight efficient public sector management and the rule of law as key factors[3]. The World Bank Institute (WBI) defines governance as „ *the traditions and institutions by which authority in a country is exercised for the common good. This includes (i) the process by which those in authority are selected, monitored and replaced, (ii) the capacity of the government to effectively manage its resources and implement sound policies, and (iii) the respect of citizens and the state for the institutions that govern economic and social interactions among them"* (World Bank Institute, 2010).

A more dynamic definition of governance for the sake of this study adopts the definition by Stoker (1998: 18): "…*governance identifies the power dependence*

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[3] The Asian Development Bank for example defines governance at a national level as „*the manner in which power is exercised in the management of a country's economic and social resources for development*‟ (ADB, 2002)

involved in the relationships between institutions involved in collective action. ...governance is about autonomous self-governing networks of actors".

It is thus clear that governance is a broader notion than government, whose principal elements include the constitution, legislature, executive and judiciary. According to Stoker (1998), governance involves interaction between these formal institutions and those of civil society. This comprises the processes and institutions through which citizens and groups articulate their interests, exercise their legal rights and mediate their differences outside the control of the state. Jenkins (2004) also provides a broader definition that goes beyond the instrumentality of policy-making: *"Governance is the sphere of relations between government and other actors in civil society or non-governmental sectors – including the private sector. It also refers to the process of interaction between these in defining roles and relationships. The idea of governance is that government does not work in isolation, but in the above sphere and through these types of relations..."* (Jenkins, 2004).

At a more localised level, governance can be understood as the negotiation between the formal and the informal, including the involvement of citizens, local associations, interest groups, etc, to attain a common purpose, such as the delivery of public services. The Centre for Democracy and Governance provides a well-founded definition of local governance: *"Local Governance is governing at the local level viewed broadly to include not only the machinery of government, but also the community at-large and its interaction with local authorities. ... Where local governance is democratizing, local governments are increasingly responsive to and interactive with the community. They are more participatory, transparent, and accountable to local residents. Services are increasingly provided in response to citizen demand and priorities.* (Centre for Democracy and Governance, 2000: 12). This definition entails that the responsibility for managing a city‟s affairs goes beyond the public sector or local government authority and includes a variety of local stakeholders that all have a specific role to play in decision making (Walk, 2008).

3.6.1 Contemporary urban governance discourse

Recently, the theoretical discourse on local or urban governance has become very diversified, but contemporary understanding of urban governance focuses very much on „governance-beyond-the-state‟ models where a widening of stakeholders in decision-

making and multi-stakeholder coordination plays an important role and the involvement of civil society organisations is the defining feature of urban governance theories and models (Pierre, 2005; Stoker, 2008; Walk, 2008, ODI, 2011). Governance focuses attention on changes in the processes and ways of governing, different ways of doing politics and new informal and formal relationships and networks between actors drawn into increasingly complex patterns of decision making (Blakely, 2010).

Comprehensive urban governance theories thus deal with horizontal partnerships of stakeholders within cities, their interactions, modes of negotiation and fusion of public and private resources. Benz and Papadopoulos (2006) characterise a comprehensive (local) governance concept which comprises four main elements: (i) relationships between actors organised in networks define contemporary decision-making, (ii) interest group participation is an essential component of governance, (iii) modes of governance vary in negotiation processes as interaction can be characterised both by competition and cooperation, and (iv) institutions are central and characterise governance as they determine inclusion, mode of interaction and influence the linkage between actors. (Benz and Papadopoulos, 2006).

However, as Blakely (2010) underlines, governance has found it hard to escape from the shadow of government. He points out two paradoxes of new thinking on urban governance:

- despite accounts of the ‚hallowing out" of the state as a result of an increasing plurality of governance arrangements, the power of the state has not necessarily been diminished;
- even when local governments support and facilitate citizen participation; these efforts do not necessarily empower citizens (Blakely, 2010).

One could therefore argue that this paradox rests on the newer governance model's failure to recognize the continuing centrality of government to governing. Indeed Jordan *et al,* (2005) state that many of the available interpretations of governance *"are not precise enough to differentiate new modes of governance from traditional forms of government"* (Jordan *et al*, 2005: 480). These tensions and interplay between government authority and civil society organisations is at the heart of contemporary local governance discourse.

In recent years, many organisations and experts have tried to operationalise good urban governance practice as a normative concept and develop tools that can be used to achieve this aim (UN-Habitat, 2007; GDRC, 2010). The Global Development Research Centre in Japan, for example, defines four key aims of good urban governance: (i) greater local participation; (ii) efficient urban management, (iii) accountability and transparency, and (iv) accessibility. Likewise, much literature consists of sector governance assessments which are also normative in approach, appraising performance against criteria or characteristics for the „good governance" of urban services. These approaches are helpful in prescribing the state of governance of service delivery, but fall short of describing the underlying processes behind obstacles to sector reform (ODI, 2011).

Governance analyses attempt to measure performance against certain pre-established criteria or characteristics of the state. This type of assessment has been characterised as focused on the prescription of an often narrow set of strategies (e.g. participation, transparency, or accountability) and most of these are donor-driven blueprints that seek to improve sector performance in the global South (see for example UNDP, 2008; EC, 2008; or AfDB, 2010).

3.6.2 Sector governance: specific characteristics of the water supply and sanitation sector

What are the specific challenges for governance for the field of sanitation - what makes the sanitation sub-sector particularly challenging? A unified sector governance framework is particularly difficult, given the diverse nature of the sector and its sub-sectors: water and sanitation, rural and urban – all with different service delivery contexts and demands. The sanitation sub-sector also holds some specificities that pose particular challenges: service providers cannot be neatly classified between public, private and civil society, in most cases there is a mix of different stakeholders involved in each domain. Also, public utilities find it difficult to work with community organisations and are not used to negotiate with collective customer groups or community-based organisations (as witnessed in the case of Dodoma, Tanzania in chapter 6.3).

Statements such as that made by the Global Water Partnership "*the world water crisis is mainly a crisis of governance*" (GWP, 2000) reflect the recognition that institutional

deficiencies or poor governance are key determinants in explaining the poor state of service delivery in the global South. Poor governance in the water supply and sanitation sector particularly impacts service delivery for the following reasons:

- Lack of political motivation and political will: water and sanitation is relatively low on the political agenda, resulting in a lack of political pressure for watsan investments in poor and marginalised settlements (ODI, 2011);
- Overlap in jurisdiction, national regulations and poor coordination in statutory rights and responsibilities;
- Weak local governments which are characteristic for strongly centralised states, with resources concentrated in strong sectoral parastatals (e.g. case studies in chapter 6). Local government institutions lack the necessary capacity, skills and resources to fulfil their governance and service delivery roles effectively;
- Lack of coordination between local authorities, local service providers and other stakeholders in planning and programming (Cross and Morel, 2005).
- Continued top-down and over-engineered solutions that tend to lead to highly visible, big infrastructural investments with a bias towards conventional „networked" solutions that fail to deliver affordable solutions for poor residents (Lüthi *et al,* 2011b).

The willingness of public sector authorities to engage with and involve civil society in local „horizontal" governance (as opposed to a vertical top-down interface) opens the debate towards participatory governance. Herrle *et al* (2006) analyse the deficits and synergies in local governance arrangements in cities of the global South pointing out possible synergies between state institutions and civil society organisations along the dimensions of legitimacy, power and influence and access to resources (Figure 3.8). According to Herrle, negotiation and consensus-building form vital elements of contemporary local governance systems and imply horizontal modes of governance (Herrle and Fokdal, 2011).

Indeed, it is precisely those local authorities that are making the most significant progress towards improved service delivery that have embarked on new forms of participatory governance between state institutions and civil society organisations (Ley, 2009). Witness progress made in the recent past in cities like Durban, South Africa,

Mumbai, India or Belo Horizonte, Brazil in providing equitable access to basic urban services such as water and environmental sanitation to the urban poor.

It is clear that cooperation and negotiation do not take part in a void – they take place in a political and institutional context and necessitate sufficient "space for negotiation". These spaces are rarely provided by government-initiated negotiation processes but rather through pressure from civil society organisations (Moser and Sollis, 1991).

Deficit and synergy areas of state and civil society actors *(Herrle et al, 2010)*		
Dimension	**State institutions**	**Civil society organisations**
Legitimacy	Legitimised in democratic systems through free and fair elections, but risk of delegitimisation by excluding large segments of poor urban residents	Broad legitimacy with the urban poor but problems related to representation and weak internal accountability
Synergy through cooperation	Strengthening of of the state's legitimacy for the urban poor **and** better recognition and involvement of civil society organisations, however:	
	Danger of 'hollowing out' of state authority by new modes of horizontal governance	Risk of losing legitimacy within own constituency by being co-opted by the state
Power & influence	High level of power and leverage for sectoral projects and programmes, but complex multi-sectoral pro-poor programmes cannot be delivered alone	Direct access to complex social structures and processes, but fluid and in-transparent decision making
Synergy through cooperation	High degree of programme success **and** improvement of living conditions for the urban poor	
Resources	High dependency on external funding sources coupled with high degree of intra-governmental competition for power and (scarce) resources	Savings and investments by the urban poor is often underestimated, but overall dependency on external capital remains
Synergy through cooperation	Stronger lobbying needed to mobilise public and private funding sources; cooperation instead of competition in accessing external funding	

Figure 3.8: Areas of deficits and synergies of state and civil society actors
Source: adapted from Herrle *et al*, 2006

3.6.3 From urban governance to participatory governance

In the past decade, international governance discourse has incorporated "participatory governance" as a more inclusive form of framing local level political processes (Walk, 2010). Participatory governance implies a particular emphasis on the inclusion of people who are marginalised or excluded from conventional governance mechanisms. Participatory governance differs from „good governance" in its emphasis on the inclusion of groups whose interests and priorities tend to get marginalised in society.

This involves horizontal partnerships and real participation involving different stakeholders within a given urban context. Satterthwaite thus states that *"the most fundamental test of whether 'participation' is real is whether it is addressing inequality"* (Satterthwaite, 2005: 9).

Participatory governance implies a need for greater and deeper participation within the relationships between citizens and government, going beyond one-off participation in a specific neighbourhood or a single development (ibid: 11). Satterthwaite (2005) and Ley (2009) agree that the most significant examples of innovations in participatory governance come from nations where (i) political and fiscal decentralisation of government authority has been implemented, and (ii) representative organisations and federations of the urban poor have developed and given a voice to civil society in the recent past.

In order to ensure participatory governance and guarantee a new constellation and interplay between state institutions and civil society institutions at local level, a number of prerequisites must be given, which we term as an „enabling environment". The enabling environment can be defined as the set of inter-related conditions that impact the potential to bring about sustained and effective change (Lüthi *et al*, 2011). A detailed discussion on which elements need to be addressed in an enabling environment is presented in the conclusions of this study.

In the next chapter we present the challenges of environmental sanitation service provision in low-income areas of the global South. We address impacts on the urban poor, service equity considerations and the growing challenge of urban environmental pollution in urban areas.

4. Service provision for low-income urban areas

The fourth chapter describes the situation with regards to urban sanitation on a global scale. It focuses on current levels of coverage of sanitation facilities, the quality of these facilities and the resultant impacts on health and environmental pollution. This chapter introduces the systems approach for organising and defining sanitation systems and the concept of „sanitation domains".[4]

4.1 Trends in global urbanization

In 2008, for the first time in history, over half of the World"s population were recorded to be living in urban areas. This equates to approximately 3.3 billion people, and by 2015 the urban population is expected to reach 60% (UN-Habitat, 2005). According to the United Nation"s Population Fund (UNFPA, 2007) urban population will grow to 4.9 billion by 2030 and rural population will decrease by 28 million between 2005 and 2030 (Figure 4.1). Therefore at a global level all future population growth is expected to be in towns and cities. The majority of this growth is expected to occur in low and middle-income countries and it is predicted that 95% of the urban population growth will take place in the developing world over the next two decades, and 80% of the world"s urban population will be located there by 2030 UNFPA, 2007).

This rapid urban growth in the global South has global implications in terms of international migration, consumption patterns and climate change, among others. Population growth in urban areas will grow more than tenfold between 1950 and 2030 – from 309 million to 3.9 billion. In those 80 years, the global South will change from 18 per cent to some 56 per cent urban.

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[4] Some figures and text excerpts in this chapter are taken from Lüthi *et al*, 2011b, Sustainable Sanitation in Cities

Figure 4.1: Urban and rural population trends 1950-2030   Source: UNDESA, 2007

Urban population growth varies from continent to continent and country to country, e.g. between 2000 and 2030, Asia''s urban population will double from 1.36 billion to 2.64 billion. Africa''s urban growth rate will be even higher, growing from 294 million in 2000 to an estimated 742 million in 2030 (UNFPA, 2007). Driven by the recent economic boom in Sub-Saharan Africa, where six of the world''s ten fastest-growing economies are situated, urban growth rates are expected to rise unabated. Indeed, half of the increase in population over the next 40 years will be in Africa.

The majority of this growth will be in smaller (less than 0.5 million inhabitants) and medium (1 to 5 million inhabitants) urban centres. In 2006, three-quarters of the urban population already lived in these smaller cities and this percentage is expected to continue growing. However, the outstanding feature of urbanisation in the global South in the 21st century is the fact that population growth will be composed, to a large extent of poor people (UNFPA, 2007).

4.2 Urban slums and the urban poor

Although cities provide the focal points for major socio-economic transformations that drive national economies, they are also centres of poverty with large populations living in informal settlements and slum areas. Empirical results show that the poor urbanize faster than the population as a whole (Ravaillon *et al*, 2007). However, the urbanization

of poverty must be understood in the context in which it occurs. The accelerated economic growth in China and India in the past two decades, while leading to rising income inequality (especially in urban areas), have lifted over half a billion people out of $1-a-day poverty between 1981 and 2004 (UN Habitat, 2008).

According to UN-Habitat, almost one billion people (one in six people) were living in informal settlements in 2005 (Figure 4.2). This is expected to increase to 1.4 billion by 2020, with the biggest growth taking place in Africa and South Asia (UN-Habitat, 2008).

Figure 4.2: Urban population living in slums by region (% of total)   Source: The Economist, 2007

Existing governance structures are also reluctant to legalize informal settlements and continue to treat them as non-existent. This leads to a consistent policy of under-estimating the scale and depth of urban poverty by using flawed statistics that are often based on outdated projections. The lack of formality of these settlements means that they are often not entitled to be connected to municipal infrastructure and services. Thus, a main feature of urban population growth is the fact that it is composed, to a large extent by poor people living in the unplanned and un-served informal settlements-also referred to as „informal urbanisation".

The lack of tenure security and the challenges it presents for urban development in the South is central to the understanding of the lack of urban service provision. Informal urbanisation is a response to the lack of adequate and affordable urban land for the increasing populations living in urban centres. Current tenure discourse states that

households lacking security of tenure are less likely to invest in their homes and basic infrastructure (Hardoy, Mitlin and Satterthwaite, 1992; Payne, 2002) and that secure tenure generally leads to improvements at the household level (Durand-Lasserve and Selod, 2007). This is in contrast to current policies of urban upgrading by bi- and multilateral institutions. Formal regularisation of tenure in informal settlements is largely avoided by the donor community as it is considered to be too complex and ingrained in political controversy. Indeed, the past decades have seen a withdrawal of official development assistance from urban land tenure reform and formal land titling programmes, realising that de-facto tenure security can also be achieved with semi-formal arrangements that avoid overly bureaucratic legalisation procedures (Milbert, 1999; Durand-Lasserve and Royston, 2002). Current donor upgrading policy delinks land titling and infrastructure development and is focused on the broader objective of poverty reduction and sustainable livelihoods (Payne, 2002; Gulyani and Basset, 2007).

Scott links current the urban tenure discourse with sanitation development and finds that:
- Formal tenure is not a prerequisite for improved sanitation;
- Tenure security does matter for household investments;
- Some household sanitation options such as sewage networks can be precluded for informal settlements;
- Tenants are lower on the sanitation ladder than landlords (see section 4.6) (Scott, 2011).

4.3 Complexities of service provision

A key determinant on demands for urban services is the population growth rate – but by far not the only challenge. Existing water and sanitation service provision in urban areas is characterised by intermittent services, frequent breakdowns, poor or non-existent maintenance and lack of sufficient finance. Also, the water and sanitation sector is characterised by frequent political interference leading to low tariffs that are unable to guarantee cost recovery (Cross and Morel, 2005).

Conditions in the urban context are significantly different from the rural environment, leading to substantive and particular implications for implementation and management of urban services. For example, socio-cultural complexities tend to be greater than in

rural areas due to the diversity of ethnicity and religious affiliation, the general lack of community homogeneity, and transient and unstable populations. Therefore, although reference is often made to the "urban poor" as a homogenous group, in reality there are significant differences and conflicts of interest among and between them. That is the main reason why devising common intervention strategies for transient urban communities is especially challenging.

Figure 4.3: Image of Kibera, Nairobi - illustration of "urban complexity"   Source: author

Providing effective water and sanitation services for dense and complex urban environments such as the notorious informal settlement of Kibera, Nairobi (Figure 4.3) presents a number of key challenges:

- fears of low-cost recovery making utilities weary about servicing these settlements;
- lack of tenure and regularised conditions of the population;
- uncontrolled development matched with high densities and congestion;
- physical challenges because of the area these settlements occupy (often flood-prone or on steep terrain)
- difficulty of employing conventional management (i.e. customer-based) arrangements in the delivery of water and sanitation services for informal settlement areas. (Cross and Morel, 2005).

Institutional fragmentation is a special challenge for the sanitation sub-sector. Depending on the political structure of the city, the division of responsibilities relating to sanitation can be an institutional headache. Responsibilities for sanitation service

provision are often fragmented and accountability for environmental, health and water resource impacts related to poor sanitation are housed in different ministries. This fragmentation makes coordinated action difficult and can even lead to conflict between stakeholders for resources and areas of influence.

Poor urban governance further complicates issues. The need to provide services in exchange for votes often takes precedence over more rational planning processes. For example, politicians looking to gain votes in a certain neighbourhood are more likely to promise or deliver service provision. In this way, certain neighbourhoods may receive extra services while some that count less in the political power struggle will receive none.

In addition to demands for investment in other urban services such as transportation, energy and water, local authorities are faced with myriad problems related to sanitation provision. The reasons for slow progress in the sanitation sub-sector both in developed and developing areas in cities of the global South are manifold and explain why performance both at policy and implementation levels have been so weak and sanitation continues to be neglected by municipal, national and international decision-makers. A number of the main shortcomings for both policy and implementation for the sanitation sub-sector are given below:

- Weak institutional and poor policy frameworks.
- Lack of political will due to low prestige of the sub-sector.
- Inadequate and poorly utilized resources.
- Inappropriate approaches and national standards & regulations.
- Neglect of consumer preferences (Lüthi *et al*, 2011b).

Unlike rural contexts, sanitation in high density urban areas faces complex issues of sanitation as a private *and* a public good. Conventional sewerage systems require vast investments and tend to be expensive to operate and maintain. They are also dependent on a well resourced institutional set-up, with an advanced regulatory and enforcement framework and well trained staff to function properly. Many utilities in lower income countries are not able to meet these criteria and are challenged to meet the complex demands for service provision in burgeoning cities typified with rapidly expanding unplanned and informal settlements. Many public utilities are prone to corruption and tend to follow political objectives rather than operating on commercial principles. Too

many of these agencies make large financial losses, employ too many people, lose much of their water, and offer an unacceptable level of service (Roth, 1987).

These challenges, which reflect poor sector governance arrangements especially at national and sub-national levels, are the key factor that explains why access to urban infrastructure and sanitation services remain low in low-income urban areas.

4.4   Access to urban infrastructure and sanitation services

Many cities continue to experience population growth that far exceeds the ability and resources of local authorities to sufficient coverage of infrastructure or provide adequate levels of sanitation services. As a result, there is considerable diversity in the levels of service provision within different parts of cities. These range from high income and high water consumption areas connected to sewerage systems, to pour flush toilets connected to cess pools, to no service provision at all. Most middle and upper income groups live in urban areas which ensure that average incomes and the proportion of people with services is higher in urban areas. However, this does not mean that the poorest of the urban population, most of them living in unplanned informal settlements, have better basic services than their poorer rural counterparts. In addition, proximity does not necessarily mean access to improved services and many governmental authorities are reluctant to accept the extent of how many of their citizens lack access to water, sanitation, habitable dwellings and secure land tenure.

The majority of the urban population living in low income settlements use some form on-site sanitation but many of these facilities are rudimentary and poorly maintained. These systems are considered to be inadequate from a public health perspective. Excreta flows out from cesspools into the streets, is dropped indiscriminately through open defecation, or tossed over the wall as "flying-toilets" or a bucket of washwater. It is these conditions and the corresponding degradation of living conditions, health and economic opportunities that led to the inclusion of sanitation as one of the United Nations Millennium Development Goals (MDGs). But, target 10 of Goal 7 seeks to halve the percentage of people living without adequate sanitation by 2015.

Those living in more affluent conditions are more likely to have an in-house flush toilet connected to a septic tank or sewer. But many of these are also poorly maintained which, as described below, can cause both local and downstream public health concerns.

The provision of sanitation services to urban communities is a challenge that urgently needs to be addressed. As shown in Figure 4.4, although sanitation coverage is significantly higher in urban areas than rural areas, 40% of the developing region‟s urban population still lacked adequate sanitation in 2008 (JMP, 2008). In situations not unlike from those found in historical accounts, inhabitants in many urban areas suffer from ill health, lost income, inconvenience and indignity due to the lack of access to a proper toilet.

The United Nation‟s International Year of Sanitation 2008 highlighted the enormous increase in the number and use of improved sanitation facilities in accordance with the MDG target on basic sanitation. According to recent estimates, around 400,000 people will have to be provided with adequate sanitation daily during the period 2001 and 2015 to meet the sanitation target of the MDGs. But, these global statistics hide large discrepancies between the "haves" and "have-nots", regionally variations as well as within individual cities.

Figure 4.4: Sanitation coverage in urban areas in percent, 2006   Source: Lüthi *et al*, 2011b

4.5 Impacts of poor sanitation

Although urbanization offers economic opportunities, increasing human density also corresponds to increasing quantities of waste. Excessive waste accumulation leads to environmental degradation, water pollution and a multitude of related health and livelihood impacts. The growth of cities and its implications for resource consumption and climate change is already showing to be the single largest influence on global development in this century. Since the majority of urban growth will continue to occur

in the cities of the developing world, what happens there will have real impacts for the rest of the world, negatively as well as positively.

The size of the urban waste problem is huge and growing. Given that an average human produces about 1.5 litres of excreta per day, a city of one million discharges 1500 cubic meters of waste daily. This does not include the volumes of greywater (more than 20 times as much) and solid waste that accumulate in streets, drains and waterways. For the majority of households served, various forms of on-site sanitation which need emptying once every year or so (sometimes more, sometime less), there is rarely any form of treatment. Faecal sludge is either discharged illicitly by both registered and unregistered truck drivers into open drains, sewers or land on the outskirts of cities.

4.5.1 Health impacts

Inadequate sanitation and water supplies and poor hygiene are critical determinants for diarrhoeal diseases and infectious diseases transmitted by the faecal-oral route. Even those facilities that exist are often poorly managed resulting in serious environmental health concerns. Poor maintenance combined with over-use frequently results in latrines that are degrading and a source of disease transmission. Poor sanitation limits the impact of drinking water quality improvements.

Acute epidemics of cholera may grab the headlines but it is the impacts of repeated gastro-intestinal infections that cause prolonged bouts of diarrhoea that are of greater concern. As a result, around 4000 people, mostly children, die every day as a result of diarrhoeal diseases (WaterAid, 2009). This accounts for more than 40% of the total number of deaths related to unsafe water, inadequate sanitation facilities and poor hygiene behaviour (ibid).

The total disease-attributable to diarrhoea in all age groups equates to 73 million disability-adjusted life years (DALYs). Taking into account the additional health burden associated with malnutrition caused by diarrhoea (approximately 20 million DALYs, this is equivalent to the burden associated with Acute Respiratory Infections (95 million DALYs). In addition, other „neglected" tropical water, sanitation and hygiene related diseases such as trachoma, schistosomiasis and chronic infestations by intestinal parasites (nematode worms), affect over one billion people globally and constitute a further health burden on 19 million DALYs. Africa and South Asia account for over half the cases of childhood diarrhoea.

The public health consequences of poor water and sanitation are notably severe for young children, especially infants less than two years old. Diarrhoea remains the second leading cause of death among children under five globally; killing more children than AIDS, malaria and measles combined. Nearly one in five child deaths - about 1.5 million each year - is due to diarrhoea.

Repeated diarrhoea exacerbates malnutrition which stunt children''s growth and, although intestinal worms are unlikely to cause mortality directly, they are responsible for substantial disability. Up to two thirds of all schoolchildren in some African countries are infected with parasitic worms. Malnutrition has been estimated as an underlying cause between 35% and 53% of child deaths globally. Over half of this malnutrition-associated mortality is associated to diarrhoea and nematode infections caused by poor sanitation. Women are affected disproportionately by lack of access to clean water and basic sanitation and are at higher risk of exposure to water and sanitation-related diseases. 1.3 billion women and girls in developing countries live without access to private, safe and sanitary toilets. In addition, poor menstrual hygiene can lead to increased health problems such as infections and infertility and women may also suffer from other illnesses resulting from poor sanitation such as urine retention due to lack of access to latrines. Women without toilets can spend a considerable time each day queuing for public toilets or seeking secluded spots to defecate, during which time they put themselves at risk from rape or other violence (UN-Water, 2006).

Studies have shown that investments in sustainable sanitation in developing regions brings an average return in US$9 (depending on the intervention) for every US$1 invested by increasing productivity, reducing healthcare costs, and preventing illness, disability and early death (Hutton *et al,* 2007).

But although sanitation related disease causes more deaths than either HIV/AIDS or malaria, it received significantly less funding (Figure 4.5).

Figure 4.5: Neglect of sanitation in global health financing   Source: WaterAid, 2009

4.5.2 Pollution of water resources

Even improved and hygienic sanitation facilities that solve problems related to contamination of the household and local environment are often the source of pollution due to a lack of treatment. A relatively small proportion of waste is treated, but without reuse of nutrients, there are major sustainability issues that are of increasing concern due to the depletion of limited phosphorus resources which are required to make fertilizer on which modern agricultural farming practices are dependent. These approaches fail to address the problems associated with the disposal of residual wastes from areas of human inhabitation. In doing so, waste disposal and treatment processes consume energy; consuming more resources and potentially generating more waste. Thus, virtually all forms of modern sanitation are essentially unsustainable because waste is often simply transferred from one environmental medium to another.

Eutrophication is the enrichment of freshwater and marine systems with nutrients, particularly nitrogen and phosphorus. In freshwater systems, phosphorus is normally limited, so when excessive amounts are re-leased from agricultural runoff and municipal sewage sources it causes serious water quality problems. Algal blooms result and alter aquatic eco-systems eliminating species of fish and vegetation by clouding the surface of the water and decreasing oxygen levels in deeper waters and sediment. Eutrophication has been a serious environmental concern in much of the developed world for the past 30 years, and is now a global concern.

A major reason for the degradation of natural watercourses relates to the poor management of excreta and treatment. None of the aforementioned sanitation systems

have been successful on a global scale at controlling the discharge of organic waste into the environment. It is estimated that more than 90% of sewage in the developing world is discharged directly into rivers, lakes, and coastal waters without treatment of any kind. For example, statistics from India show that only 17 of 3700 cities and large towns have any kind of primary sewage treatment (Davis, 2006). Other countries report similarly low treatment rates, for example Argentina reports treating 10% of its sewage and Colombia only 5%, while only 2% of cities in sub-Saharan Africa have sewage treatment, and only 30% of these are operating satisfactorily (UNEP, 2002).

4.5.3 Economic impacts

The above impacts can all be quantified in economic terms. Illnesses related to poor sanitation have a direct impact on household finances in terms of the financial outlay to pay for medicines and primary healthcare as well as the loss of working days due to sickness. In addition, the ill-health of one-member of the family has repercussions on the others.

Chronic infections have long-term impact in terms of future educational performance. Diseases sap nutrients and calories and lead to listlessness and trouble concentrating in the classroom. Girls are also reluctant to attend schools, and parents are disinclined to send them, if there are no safe, private toilets for them to use. Malnutrition and poor state of health amplified by diarrhoea is particularly a problem for those who depend on their physical strength to earn a livelihood. Thus, a greater share of the socio-economic burden falls on poor communities, who rely upon income from labour, making worse inequalities in society. In the longer term, illnesses drain household savings, lower learning ability, reducing productivity and impacting upon development objectives. Ill-health is the single most common trigger for the downward slide into poverty.

Contamination of the natural aquatic resources also has major economic implications, both directly in terms of the cost of having to treat water more extensively after abstraction and indirectly in terns the impact of the polluted waters on tourism.

4.6 Sanitation as a system

For this research a comprehensive definition of sanitation is adopted that includes (i) a safe environment for urination and defecation (the so-called user interface), (ii)

collection and treatment of human waste, and (iii) safe disposal or productive end use of treated waste (World Water Assessment Programme, 2009).

The vast majority of households will remain served by some form of on-site sanitation for the foreseeable future. These on-site technologies may be proper septic tanks but are often some rudimentary and poorly constructed pit latrine or cesspit.

The quality of on-site sanitation technologies is assessed as „steps" of the „sanitation ladder" (JMP, 2008; Kvarnström et al, 2011). The concept of the sanitation ladder was introduced in 2005 by Lenton *et al* (2005) and adopted by the WHO/UNICEF Joint Monitoring Programme in 2008 (JMP, 2008). The sanitation ladder is now a well-established concept within the water and sanitation sector to measure progress in meeting the Millennium Development Goals (MDGs). The four-step ladder is a technology-based concept that includes the proportion of the population:

i.   practising open defecation
ii.   using an unimproved sanitation facility
iii. using a shared sanitation facility
iv.   using an improved sanitation facility (JMP, 2008).

Table 4.1 below shows the different classifications of the four steps used by the Joint Monitoring Programme (JMP) since 2010.

Steps	Description of what counts towards achievement of each step
Improved	Facilities that ensure hygienic separation of human excreta from human contact, e.g.: pit latrine with slab, septic tank, composting toilet.
Shared	Acceptable technology standard shared by two or more households
Unimproved	Facilities that don't ensure hygienic separation of human excreta from human contact, e.g. simple latrines without a slab.
Open defecation	Defecation in fields, forests and bodies of water

Table 4.1 : Sanitation ladder used by the JMP for monitoring sanitation coverage

Adapted from: Kvarnström *et al*, 2011

Concerns about the use of technology-based indicators have since been raised due to issues of quality, reliability and sustainability of the facilities that were being monitored (Kuznyetsov, 2007; Kvarnström et al, 2011). Sanitation systems that are not properly maintained will not provide the intended health benefits. Kvarnström *et al* therefore suggest changing international monitoring from a technology-based approach to a

function-based approach to monitor sustainable access to water and sanitation. The function-based sanitation ladder includes health functions (e.g. excreta containment, safe access and availability) and environmental functions (e.g. nutrient reuse, integrated resource management) (Kvarnström et al, 2011).

Current sanitation systems-thinking frames urban sanitation as a multiple stage *sanitation system* that goes beyond the household user interface that involves public processing decisions (from collection to treatment and safe disposal) (Tilley *et al*, 2008; Scott, 2011). A sanitation system - contrary to a sanitation technology - considers all components required for the adequate management of human wastes from cradle to grave. Each system represents a configuration of different technologies that carry out different functions on specific waste inputs or waste products (SuSanA, 2009). A system however, is not a simple combination of different technologies and products that can be chosen at will; technologies must be linked logically and the process steps match each other.

By using the sanitation system and its technology configurations for the entire sanitation chain from user interface to reuse and disposal, other aspects can now be further highlighted such as the implications for operation and management, business & management models, service and supply chains required, possible involved stakeholders, and finally the associated risks for users and waste handlers (ibid).

In the Compendium of Sanitation Systems and Technologies (Tilley *et al*, 2008) five functional groups of sanitation systems are defined: (i) the user interface, (ii) collection and storage/treatment, (iii) conveyance/ transport, (iv) (semi-) centralised treatment, (v) use and/or disposal (Fig. 4.6).

Figure 4.6: Functional groups of a sanitation system   Source: Tilley *et al*, 2008

- The **user interface** describes the type of toilet, pedestal, pan or urinal that the user comes in contact with; it is the way that the user accesses the sanitation system. This represents the first stage of the sanitation system and involves

hygiene behaviour and human decision-making allowing 100% access to improved sanitation.

- The **collection and storage** describes the ways of collecting, storing and sometimes treating waste products that are generated at the user interface.

- **Conveyance** describes the transport of waste products from one functional group to another. In non-networked (i.e. sewered) systems relying on on-plot technologies, this processing stage is the most unreliable one.

- **(Semi-) centralized treatment** refers to treatment technologies that are generally appropriate for large user groups. The operation, maintenance, and energy requirements for treatment technologies are more intensive and require varying inputs of expertise.

- **Use and/or disposal** refer to the methods in which waste products are returned to the environment, as either useful products or reduced-risk materials (Tilley *et al*, 2008).

Current thinking in environmental sanitation policy in the global South builds on this systems approach. It realises that influencing user behaviour at household level is the key first stage of efforts to reduce diarrheal morbidity and mortality in a sustainable way (Stanton *et al*, 1992). This must then be complemented by downstream „processing" stages resulting in a safe disposal or re-use of waste products. In cases where resource and nutrient recovery is not utilised, households "export" waste to the neighbourhood, town, or downstream population. In such cases, it is crucial that the sanitation system boundary is extended to include these larger spatial configurations (SuSanA, 2009).

4.7 Decision-making domains

Contemporary environmental sanitation planning frameworks today consider spatial, institutional and decision-making "domains" necessary for planning (Eawag, 2005; IWA, 2006, Lüthi *et al*, 2011, McConville, 2011). Contemporary infrastructure planning approaches recognise five organisational and geographical delimitations or domains/zones: (i) household, (ii) peri-domestic or community, (iii) ward, (iv) city, and (v) city fringe (Figure 4.7). Each domain is used as the basis for analysis of stakeholder interests and factors that influence the identification of appropriate sanitation systems.

Figure 4.7 The domains of decision-making in HCES   Source: Lüthi *et al*, 2011

Scott (2011) advances this concept further by linking the different domains to service provision and decision-making domains in the urban arena. The three domains are thus limited to (D1) household, (D2) sanitation service providers and (D3) city-wide planning and management (Figure 4.8). Like the household-centred approach, it places the household at the centre but adapts it to the „sanitation systems‟ approach outlined in section 4.6 above. The three decision-making domains represent the main levels of involvement of the primary stakeholders in environmental sanitation planning.

Figure 4.8 Decision-making domains and service provision   Source: Scott, 2011

The disconnect between these three domains are the main reason why efforts to achieve higher urban service coverage has not gone to scale – the masterplan/blueprint approach at city-wide level consistently neglects the urban poor, whilst household level investment programmes fail to deliver scalable and affordable results. The next chapter discusses two new sectoral approaches: the urban-focused Household-centred Environmental Sanitation (HCES) and the rural-focused Community-led Total Sanitation (CLTS) approaches. Both hold great potential for more realistic and appropriate sanitation planning at scale.

5. Community-based approaches for addressing the urban sanitation challenges [paper 1]

Christoph Lüthi, Jennifer McConville*, Elisabeth Kvarnström*

Department for Water and Sanitation in Developing Countries (SANDEC)

Swiss Federal Institute of Aquatic Science and Technology, Eawag, P.O. Box 611, Tel. +41-44-8235614

Dübendorf, Switzerland christoph.luthi@eawag.ch

*EcoSanRes Programme, Stockholm Environment Institute, Kräftriket 2B, 10691 Stockholm, Sweden

Tel: +46-8-6747441

Abstract

Urban sanitation presents one of the most significant service delivery challenges related to poverty alleviation and sustainable development in the developing world. The past decade has witnessed innovations in service delivery approaches for un-served rural and urban settlements with a clear policy shift to community-based approaches which attempt to overcome the supply-led, over-engineered sanitation solutions of the past decades. This paper presents two examples of new developments: the urban-focused Household-centred Environmental Sanitation (HCES) and the rural-focused Community-led Total Sanitation (CLTS) approaches. The internationally renowned CLTS approach has achieved considerable success since its introduction, by harnessing community and small private sector capacity to solve sanitation problems locally. Experience with validation of the HCES approach in a variety of urban sites in Africa, Asia and Latin America is presented in the second part of the paper- highlighting some of the lessons learned. The paper closes by arguing that a combination of HCES and CLTS, two field-tested methodologies, has the potential to improve the sustainability of sanitation service interventions.

5.1. Introduction

Rising tensions and recent riots in South Africa"s townships in July 2009 (BBC News, 2009) have demonstrated that service delivery backlogs in urban areas will continue to present significant political impacts for many developing countries in the years to come. Many of the world"s cities experience population growth that far exceeds their absorptive capacity in terms of conventional shelter, water, sanitation infrastructure, public health services, employment, education, food supplies and environmental

protection. Urban areas in developing countries are especially at risk since it is predicted that 95% of the urban population growth will take place in the developing world over the next two decades, and 80% of the world"s urban population will be located there by 2030 (UNFPA, 2007). While the majority of the poor will still be living in rural areas, empirical results show that the poor urbanize faster than the population as a whole (Ravaillon, 2007). However, the urbanization of poverty must be understood in the context in which it occurs. The accelerated economic growth in China and India in the past two decades, while leading to rising income inequality (especially in urban areas), have lifted over half a billion people out of $1-a-day poverty between 1981 and 2004 (UN Habitat, 2008). In Sub-Saharan Africa though, the urbanization process has not been associated with falling poverty and in many countries rural and urban poverty prevalence is almost the same (UN Habitat, 2008).

The challenges of sanitation service delivery are exacerbated by the fact that many poor urban residents live in the unplanned and underserved informal settlements commonly known as slums or in expanding peri-urban areas. Urban administrations do not have the capacity and often are not planning for service provision in these marginalized areas. This is reflected in the most recent United Nations Joint Monitoring Programme reports which predicts that the number of the world"s urban population without access to a safe source of drinking water will increase from 137 million (2006) to 296 million (2015) and those without access to improved sanitation will increase from 661 million to 898 million respectively (JMP, 2008).

In these expansive urban and peri-urban settlements, irregular water supply and "on-site sanitation" is the norm. Yet, despite on-site low-cost sanitation being the reality for the vast majority of the developing world"s urban population, much of the focus for policy-makers is still on network sewerage and centralised systems designed and implemented without consultation or participation of stakeholders and beneficiaries (Eawag, 2005, Rosemarin *et al*, 2008). Many governments and international donors continue to propagate over-engineered and heavily subsidized solutions assuming that "one size fits all" will improve access to all persons living in developing cities. Hardware subsidies in form of infrastructure and connection subsidies can be found in countries as diverse as India, Senegal or Ecuador, but all have faced similar problems, they tend to be expensive programmes with limited reach that encourage subsidy dependency and discourage ownership. These national or regional programmes tend to favour high-cost

designs and be poorly targeted so that they hardly ever reach the poorest segments of urban society and stifle market provision and innovation in the sanitation sub-sector (WSSCC, 2009). Furthermore, local authorities and utilities by-pass informal settlements and will not invest in new infrastructure because they lack formal tenure and are seen as "illegal". The result is an increasing gap between the "haves" and "have-nots" in basic services and municipalities that are locked into expensive systems without the possibilities to extend coverage to those that need it.

Despite this trend, there have been a number of recent innovative initiatives for extending the coverage of sanitation services in both rural and urban contexts. These approaches are based on demand-driven and participatory approaches that both motivate community involvement and encourage appropriate technology that better fits the realities in the field. They promote participatory processes where solutions result from the inputs of local stakeholders, and not solely from "conventional wisdom" or "prescriptive" planning (Atkinson, 2007). This paper examines two of these approaches, one from a rural perspective and the other more urban, in order to extract key lessons for improving service delivery in the growing complexities of the urban environment.

5.2. The heterogeneous city

The rapid rates of urbanization mean that conventional city planning can no longer keep pace with population growth and urban sprawl. The result is that cities are a patchwork of formal and informal settlements, new and old infrastructure, and a wide variety of cultures and classes. Especially in the informal areas, the slums and peri-urban fringe, the modern city can often be described as a fusion between rural and urban environments (Figure 5.1). One of the key challenges to urban service delivery is recognizing this complexity and providing adaptive solutions which meet people"s needs.

Rural and urban settlements offer different challenges regarding planning and the implementation of improved urban services. Rural areas tend to have significantly lower service coverage rates the world over. The largest disparity between urban and rural sanitation coverage can be found in Latin America and the Caribbean (86% to 52%) and Southern Asia (57% to 23%). Sub-Saharan Africa is worst off, as both rural and urban sanitation coverage are both off track to meet the MDG target coverage (42%

vs. 24%) in 2015 (JMP, 2008). Thus, the focus in the rural sanitation sector is often simply on hygiene and behaviour change and encouraging communities to move towards open-defecation free environments, i.e. the first step towards participation in sanitation services that ensure hygienic separation of human excreta from human contact. In the heterogeneous city, many of the rural attitudes and norms are still present in pockets of the city population, so that it is still relevant to consider planning tools and service provision approaches that are traditionally adapted to the rural environment.

Fig. 5.1: The diverse city: different urban contexts demand context-specific solutions for improved urban
services. Map of Nouakchott, capital city of Mauritania   Source: Lüthi *et al*, 2011b

On the other hand, urban areas, especially the fast-growing non-tenured informal settlements differ significantly from poor rural areas. This has important implications for implementation and ratcheting-up service coverage in the urban context. Issues that come into play such as the political economy, institutional complexity/ fragmentation and urban socio-cultural diversity all make for a daunting policy environment to achieve progress (Susana, 2008b). Some of the key challenges that make the urban area more challenging than the rural environment are:

- *Heterogeneous populations:* people from different origins, ethnic backgrounds, social norms make for heterogeneous nature of urban settlements;
- *Land tenureship* is a key issue that needs to be addressed as it is much more difficult to achieve sustainable infrastructure solutions with tenants or absentee landlords in a commoditized urban land market;
- *Sanitation chain:* Urban sanitation presents great challenges in the development of integrated solutions for managing a variety of waste streams that go beyond

achieving defecation free environments (e.g. proper disposal of household wastewater; faecal sludge management) (Tilley *et al*, 2008);

- *Technology choice:* dense urban settlements limit the feasible technology options available (Mara and Alabaster 2008);

- *Institutional fragmentation:* rural institutional responsibilities are mostly straightforward while in the urban sphere a multitude of different stakeholders have a claim: local authorities, health departments, utilities, communities, etc.

The rest of this paper focuses on two approaches to sanitation service delivery and how they have overcome some of these challenges by integrated processes for achieving environmental sanitation systems with creation of local demand and acceptance, especially by the urban poor.

5.3. The household-centred environmental sanitation approach

HCES is a multi-sector planning approach geared towards service delivery in poor urban areas: It integrates water supply, storm-water and sewage management; facilitates the incorporation of input from diverse actors, and utilizes the concept of urban zones for enhancing the implementation of decentralized options. The HCES guidelines (Eawag/WSSCC, 2005) propose a 10-step process initiated with a direct request from a community or community leader and culminating with the implementation of plans developed during the planning process. Figure 5.2 shows the 10 steps involved.

Fig 5.2: Defining elements of the HCES approach: an enabling environment framework and the 10-step planning process Source: Eawag, 2005

The HCES approach belongs to the family of communicative planning frameworks which focus on participatory, bottom-up methodologies where planners solicit the participation of a variety of stakeholders in a democratic planning process (Hamdi and Goethert, 1997).

Successful implementation of the HCES approach requires the dissemination of information on affordable and sustainable sanitation options to those responsible for improving environmental services, such as municipal officials, urban planners, and community representatives or chiefs. To fulfil their new roles, process stakeholders need to be provided with information and assistance so that their capacity to make decisions, implement and manage services grows. Widening the scope of possible adapted and affordable solutions from storage to transport to treatment and disposal/re-use (see Figure 5.3 below) is a cornerstone of the household-centred approach.

A further feature of HCES is the environmental sustainability concept based on circular resource management systems, addressing environmental sanitation problems as close as possible to their source and emphasis is placed on resource conservation and waste reduction. This underlines recent sectoral developments that have targeted alternative approaches and solutions to the increasing environmental sanitation problem.

Figure 5.3: Example of a sanitation system configuration involving storage (septic tank), transport (motorized emptying) & treatment (constructed wetland) Source: author

Innovations follow the paradigm to develop a set of technologies which facilitate and allow best re-use of human waste products. Some examples are urine and faeces separation and their re-use in agriculture (Pronk *et al*, 2007; Tilley *et al*, 2008), greywater separation and re-use (Morel and Diener, 2006) or faecal sludge collection and treatment for re-use (Koné *et al*, 2007).

- *HCES validation in Africa and Asia*

From 2006 until 2009, the HCES approach was tested in seven different urban and peri-urban sites across Africa, Asia and Latin America. The two cases from Laos and Tanzania presented below validate the methodology and highlight some key lessons about the usefulness of the household-centred approach. The selected pilot sites were all situated in either unplanned informal or recently formalized low-income settlements, peri-urban city fringe settlements (peri-urban interface).

Example 1: Lao PDR [Hatsady Tai Village, Vientiane]

Hatsady Tai is a small community of about 100 households in the central part of Vientiane with a lack of basic environmental sanitation services. This densely populated neighbourhood is well organised and community members took an active role in the HCES process. Through the HCES process Hatsady Tai village has succeeded in implementing new sanitary facilities plus small-bore sewers and improved drainage lines to prevent future flooding. No households were relocated and around $80m^2$ of private land was provided voluntarily for new infrastructure by two private landowners. Beneficiaries and local enterprise contributed about 10% of the total project budget (US$ 72´000), the rest was funded by a small project fund from the Swiss research programme NCCR North-South. The success of this case shows the importance of involving all key stakeholders, including the community and private sector from the very start of the planning process.

Contextual Challenges in Hatsady Tai Village, Vientiane

The following section summarise the main challenges faced during planning and implementation of the approach and highlights strengths of the planning process. Some of the challenges were external to the project (e.g. on-going institutional reforms at the national level) and therefore, could not be addressed by the project coordination team. The following section focuses on the internal challenges and lessons learned during the 18 month planning and implementation process.

Institutional challenges

The institutional separation of the planning and implementation of the solid waste component and the liquid waste components (drainage, sanitation) compromised the effectiveness of the project elements. The share of responsibilities between Water Resources & Environment Administration (WREA) (coordination of the solid waste

management component) and the Public Works Institute (PTI) (coordination of the liquid waste management component) with limited coordination and information exchange meant that (i) community consultation was not well organised and thus partly inconsistent or repetitive; (ii) one planning team could not benefit from the interactions of the other team with the community; and (iii) operation and management procedures were defined separately, generating a feeling of confusion among the community.

Involvement and capacity of key stakeholders

The importance and the decision-making power of the district authorities were under-estimated. This key stakeholder was not involved early and actively enough in the planning process, which compromised full political commitment and thus the smooth management and execution of the project. This was especially felt during Step 8 (finalisation of environmental sanitation service plans) and Step 10 (implementation), when top-down decisions were taken by the district authorities, which put into question the outcomes of the participatory planning process. Project implementation (i.e. construction) was complicated by the fact that the local contractor (selected based on the lowest tender) was not involved in the planning process, and thus did not understand the participatory solution-finding process that had taken place in the past 12 months. This resulted in ineffective community mobilisation (community contracting) and communication difficulties with the community.

The project did not put sufficient emphasis on training and human resource development prior to the planning and implementation of the project. Some training was carried out, but it was not oriented specifically enough towards the core stakeholders of the project. Lack of planning capacity of local authorities and community-based organisations is clearly one of the main bottlenecks in urban areas characterised by weak institutional settings. This needs to be addressed early on by community-based approaches such as HCES.

Differing expectations within the beneficiary-implementer-backstopper relationship

There were different interests and expectations among the community (i.e. the beneficiaries), the implementing agency (Public Works Institute - PTI) and the backstopping agency (Eawag). The community expected the implementing agency to provide services as quick as possible. Eawag, as a research institution, was mainly interested in the planning process, and requested well-defined working plans and

progress documentation. PTI, as the main implementing agency, found itself in the centre of this conflict. Despite contractual agreements and agreed ToR for each party of the project coordination committee, the roles and responsibilities were interpreted in as many ways as there were parties. Clear project monitoring, feedback and accountability procedures were missing.

Limited willingness/ability to pay

During implementation, it was found that the residents were not able to pay the planned household sanitation improvements and were reluctant to take out loans despite the micro-credit scheme established at the neighbourhood level. This reluctance was not recognised early enough, and not well addressed in community consultation and awareness campaigns. This eventually led to friction between residents and the project coordination committee during implementation. Issues such as the financial contribution by households or the cost sharing for the retrofitting of buildings had to be settled by the negotiation committee.

Example 2: Tanzania [Changombe, Dodoma]

An unplanned but formalized settlement north of the town centre, Changombe offers some of the worst sanitation-related problems in Tanzania's capital city with regular outbreaks of cholera. There are only four public water standpipes, serving a population of 35'000 and many households continue to rely on contaminated high-level groundwater. Innovations in the HCES planning approach included the construction of three demonstration facilities at schools and public buildings based on community priorities identified in an options workshop. These pilot facilities allowed community members to test and better understand novel sanitation facilities adapted to dry, water-scarce environments. The planning process has led to a strengthening of community capacity and self-organisation and has managed to raise awareness about the water - sanitation - health nexus. The municipality in collaboration with a local NGO, are now in the process of setting up a micro-credit facility for funding improved sanitation at household level in Changombe.

Contextual Challenges in Chang'ombe settlement, Dodoma

In the following we summarize some of the context-related challenges faced during the validation process in Dodoma.

Institutional Challenges

The main institutional challenges were in dealing with the two most powerful institutions in Dodoma: the Dodoma Urban Water Supply and Sewerage Authority (DUWASA), and the Capital Development Authority (CDA). Both institutions found it difficult to "buy-in" to a new participatory process that diverges from the status quo and fosters experimentation outside of the norms within which they are deeply embedded. DUWASA carries the term "sewerage" in its name and is above all, interested in expanding its sewerage network to all planned areas of town, even if almost 90% of Dodoma's citizens will continue to rely on on-site systems like septic tanks and simple latrines. DUWASA currently does not operate any exhauster trucks (although it is planning to purchase one in 2010), but does allow faecal sludge to be disposed of in the waste stabilisation ponds, and believes that centralised sewerage is still the most efficient and safest way for excreta removal.

Inflexibility on the part of the utility has at times caused uneasy relations between the HCES project unit and DUWASA representatives; DUWASA did not attend the workshops and showed general disinterest in the planning process. However, following the options workshop (July 2008), the DUWASA Sanitary Engineer did start to show interest and contributed to the experts meetings. The willingness to invest in the purchase of a new exhauster truck shows that DUWASA began to see a potential money-earning market in emptying the thousands of on-site facilities in Dodoma. Overcoming „"institutional inertia"" takes time and comes in gradual steps, but it appears as if DUWASA is making steps in the right direction.

The Capital Development Authority (CDA) is a powerful institution that holds all public land in Dodoma and wields overall planning authority. This means that unlike other local authorities in Tanzania, Dodoma Municipality has no major assets and no real planning authority. CDA managed to regularize the entire unplanned settlement of Chang"ombe in 2007 and ensured that the inhabitants secured tenure. The promised upgrading of roads and drainage systems has been delayed due to lack of funds. It also created some project delays by initially refusing to grant construction permits to the three planned pilot facilities in Chang"ombe.

As in Laos, a further challenge was the limited management capacity at all levels; capacity that is needed to carry out this kind of comprehensive planning approach in a secondary city in Africa. There are too few professionals who understand sanitation

options at household and community levels, a lack of expertise to carry out statistically sound sample surveys, and a lack of skilled moderators/communicators who combine communication skills with knowledge about community dynamics. Professional capacity development requires considerable attention in the future. Given the low capacity in terms of time and human resources, the HCES approach in its current format is still too demanding for the reality of small and medium-sized African towns.

An important learning is that planning and programming for safe sanitation is not only about logistical and financial issues; there is another obstacle to improving hygiene and sanitation: getting people to change their behaviour - especially in the expanding peri-urban settlement areas. This is where the CLTS participatory approach to empower local communities may add value to the structured HCES planning approach.

Strengths

The 14-month planning process in Dodoma brought together a great many stakeholders from public, private and civil society (local and international NGOs). During the process, officials and community representatives shared their views and discussed viable options for improving environmental conditions. A good degree of agreement was achieved during the workshops and group work sessions. Initial resistance from the water and sewerage utility could be partially overcome. Due to the many workshops, focus group discussions and social events (e.g. official opening of the school toilets at Chang"ombe Primary) there is now a great willingness to improve urban environmental conditions in the neighbourhood. This is crucial for raising demand for funds from the microfinance project to be used for sanitation.

Key project features of the HCES validation include:
- efficient planning and implementation costs (planning costs below US$ 2.- per inhabitant and implementation costs of between US$ 30 to 60 per beneficiary);
- reasonable planning timeframe of 15 – 20 months - depending on context and size of settlement, and
- ability to attain real participation in project selection, project design to operation and maintenance of works (this is currently being studied in more detail through an ex-post cross-country evaluation).

5.4. Community-Led Total Sanitation (CLTS)

Community-Led Total Sanitation was initiated in Bangladesh in 1999, as an innovative methodology for eliminating open defecation (Kar, 2005). It has attracted much attention for its simplicity of approach and the rapid results that follow. Success stories of the CLTS approach in rural areas show that after a single-day triggering event in which communities are led to experience disgust at the present sanitation situation, villages achieve open-defecation free status within a month (Kar & Chalmers, 2008). CLTS uses a participatory approach to empower local communities to stop open defecation and promote the building and use of latrines through community-led action instead of subsidies. Although there are many variations in the specifics of the approach all apply the core elements of (a) working with the whole community rather than individuals, and (b) focusing on stopping open defecation rather than construction of a particular type of latrine, hence no subsidies for hardware. The approach has shown positive results and proven to be a strong triggering mechanism for community hygiene behaviour change, especially in rural South and Southeast Asian, as well as in several African countries.

Where it has been implemented in rural areas of Asia and Africa, CLTS has resulted in a very large uptake in latrine construction and latrine use. In Bangladesh, where CLTS started, more than 16,000 rural villages have been declared open-defecation free (ODF) and the approach is now recognized in national policy (MoLG, 2005). In the Southern Region of Ethiopia, with a population of 14 million, a locally adapted version of CLTS has been developed and used within an existing institutional setting, the Bureau of Health, using its own funding sources to run the process and this has led to a pit latrine ownership increase from 13% in 2003 to 88% in 2008 (WSP 2007). In a study of the WaterAid supported CLTS interventions in rural Bangladesh (Evans *et al*, 2009), the general outcome showed continued up-grading and repairing of latrines, sustained behaviour change and highly cost effective program implementation.

As noted earlier, many of today‟s rapidly urbanizing cities contain a heterogeneous mix of people, infrastructure and service provision which are representative of both urban and rural attitudes and standards. The great strength of the CLTS approach is in triggering behaviour change and mobilizing community action to reinforce this change. Poor hygiene practices and open defecation are not problems restricted to rural areas

and therefore hygiene promotion campaigns are frequently included in urban sanitation programs. The CLTS success with mobilizing behaviour change and increasing community involvement makes the adaptation of this tool to urban setting an attractive possibility.

- *CLTS validation*

Although most of the experience with CLTS comes from the rural context, the success of the method inspired authorities in the urban municipality of Kalyani near Kolkata, India to introduced CLTS in its informal settlements. The Kolkata Metropolis has over 12 million inhabitants, of which about one third are estimated to live in slums. Prior to the CLTS intervention the area was characterized by a high rate of open defecation. Since 2003, the DFID supported Kolkata Urban Services for the Poor (KUSP) Programme, has been active in providing sanitation solutions to the Kalyani urban poor. Originally, almost a third of its budget (US$ 17.7 million in 2003-2004) was spent on infrastructure, with the highest priority given to household toilet construction (SEI, 2008). The KUSP provided slum households with free toilets (cost of US$ 236). However, it was noted that the subsidized facilities often had low usage rates, were poorly maintained, or were used for other purposes than defecation. In addition, the programme realized that the subsidy approach would not be able to reach 100% of the population at the same time as it was creating a dependence on external subsidies.

In 2005, the concept of an urban CLTS was conceived under the KUSP and with the support of the Chairman of Kalyani Municipality who showed the political will to make Kalyani an Open Defecation Free (ODF) City (SEI, 2008). A pilot CLTS exercise was conducted in the Kalyani slums with the objective to test the approach of „self mobilisation" in an urban slum and to empower the local community through community participation. The CLTS program was coordinated and facilitated by the chief health officer of Kalyani Municipality who was keenly interested in the approach. The CLTS process sensitised all levels of stakeholders about the method, including elected municipal councillors and departmental heads of the municipality, local NGOs and CBOs, health workers, and community people including local community leaders. It was made clear that the goal was behaviour change and not the model of toilet. However, the first piloting failed, primarily due to high expectations for subsidies.

In the other four pilot areas however, the CLTS approach „clicked." There were natural community leaders who emerged to take on the process of promoting ODF and

eventually other community projects. All five slum settlements were declared ODF within six months, although it took longer in the first slum. The approach has now been spread to the rest of the municipality and 44 out of the 52 slums in Kalyani were declared 100% ODF by 2007. The municipality established a monitoring system in which ward representative publicly kept track of the number of ODF slums under their supervision. Several thousand slum dwellers have built their own toilets and some slums have also started projects to repair tube wells and clean drainage ways, showing how CLTS can act as a springboard to other community development initiatives.

The lessons learned for this urban CLTS experience highlight the influence of subsidies, natural leaders, and political will. It was found that subsidies and the associated politics are hurdles for community self-mobilisation. At the same time it was found that the CLTS approach was less expensive than scaling up a large subsidized program, and investment in software approaches proved more cost effective than infrastructure investment (SEI, 2008). In the first five months of CLTS, ten slums covering more than 800 households constructing their own toilets, mobilizing more money than what KUSP could offer as subsidy. The natural leaders who were so instrumental in motivating the change were encouraged for their work, but at a small cost to the municipality.

The role of the natural leaders in the process was also emphasised. After the triggering process these leaders took over the role of motivating change in the other slums. However, it was also noted that there was initially more resistance in the slums with stronger tribal connections and, as would be expected, less social cohesion in those slums with more migrant populations. The lack of legal status in some slums was also a challenge, which underlined how importance the support and involvement of the local authorities was to the success of the program. However, local leaders could also act as gate-keepers and the Kalyani experience showed how crucial political will is in implementation of a CLTS approach.

The results from the urban experience in Kalyani support the lessons learned from rural work with CLTS. Key lessons learned from these rural CLTS experiences are the importance of (i) leadership that is well-informed, well-respected and well-connected, (ii) an affordable product, (iii) latent demand by a critical mass of early adopters, (iv) the right context and (v) the tipping point (WSP, 2007). However, the WaterAid study

of CLTS (Evans *et al*, 2009) also supported the need to institutionalize the results of CLTS interventions. It emphasized that triggering is only one point along a trajectory towards improved sanitary conditions and that closer involvement of local politicians and service-providers could led to improvements in the sustainability of ODF status and sanitation infrastructure. This conclusion is also highlighted from the Southern Region experience in Ethiopia where the Bureau of Health definitely sees the need to build on the existing momentum achieved by CLTS and take further steps towards a more sustained sanitation situation (WSP 2007). There appears to be room for the institutionalization and formalization of CLTS, which could fit it better to the urban context. Given the results achieved through CLTS in the Kalyani slum there seems to be a potential for CLTS to be a tool for urban authorities for achieving behavioural change and genuine community participation.

5.5. Experiences in applying people-centred approaches

Creating a demand-driven approach means working in a participatory way with a wide range of stakeholders. Multi-disciplinary participation throughout the planning, decision-making, and implementation processes is seen by many planning scholars as a critical means of achieving more equitable and thoughtfully designed cities (Friedmann, 1992, Allen, 2008). Participatory planning frameworks allow actors from different spheres and sectors (public, private, para-statal) to work together thereby changing individual and institutional perceptions. Working together and trying to find common ground and workable solutions adds value in many ways.

Experiences with CLTS in rural and peri-urban settings show the power of collective action and the need to involve the entire community in change. Achieving an ODF community is not the work of one individual but requires the full participation of all inhabitants. However, it also underlines the role of natural leaders and local politicians, and the influence that they can have on motivating or hindering successful action. A core element of the CLTS philosophy is therefore the need to sensitize all stakeholders and keep them informed (Kar, 2006). The strength of CLTS is in its ability to trigger community action and develop a sense of community pride and empowerment through joint action. However, in the urban setting the approach has stumbled at hurdles related to local politics and technology subsides. CLTS is a powerful behaviour change tool, but by itself lacks institutional weight. It has also been criticized for motivating a desire

for sanitation without providing the capacity and knowledge for developing appropriate sanitation systems.

Experiences in testing the HCES process in the urban context also stress the importance of developing people‟s capacity, skills and local knowledge, in a way that is parallel to CLTS. It also shows the importance of an open-ended and flexible planning framework which makes the planning more relevant to local conditions, increases people‟s control over their livelihoods and helps promote community-based action (Eawag, 2005). Validation of the household-centred approach highlighted the following lessons, which are in line with participatory planning principles:

- Participation should be relevant and time-efficient to the project end-users;
- Methods and tools used respect the knowledge and experience of all stakeholders;
- There is an emphasis on learning and knowledge for action;
- The process must acknowledge and address inequalities of power amongst participants.
- The process must remain flexible, even within a set of guiding principles such as HCES.

Critical analysis of the HCES experiences has also shown that user participation can take on many forms and degrees of empowerment, from weak „„participation by consultation‟‟‟to more empowering „„interactive participation‟‟‟; where stakeholders are fully involved in the analysis and action planning, right down to project implementation and infrastructure improvements. The choice of which approach to use depends on the complexity of the issues and the purpose of the engagement. There is no „„one size fits all‟‟ formula but a number of tools and techniques that can be applied. Ideally, a good participatory process features three elements:

   i. participatory methods and tools (e.g. pocket voting or problem mapping exercises)

   ii. a flexible process for the planning and sequencing of events

   iii. a set of guiding principles (as is the case with the HCES or CLTS Guidelines)

In order to achieve genuine participation, it is important to empower local people by raising their skill-level and capacity for action. A key issue is information-sharing from

the outset of any project or programme. Individual and collective capacity development deserves special attention for the household-centred approach as this is the main sphere of decision-making. While capacity development is not explicitly mentioned in the existing Guidelines, experience in the different pilot sites has shown that while training and awareness-raising workshops were carried out in several of the case studies (e.g. Laos and Tanzania), this aspect deserves more attention and resources. In the future, planning efforts must address the capacity deficiency at community and municipal levels in a more structured way (Lüthi *et al*, 2009).

This recognized need for capacity development, awareness-raising and triggering for behavioural change within HCES is perhaps the first step in bridging the divide between urban and rural approaches to sanitation service delivery. In the past, urban sanitation planning tools and guidelines, such as HCES, have been designed to work mainly within a formalized administrative network with defined roles and procedures that give structure to subsequent actions. Although they might challenge decision-makers to find innovative solutions the tools still worked within the framework of urban government and policies, with minimal impact on the actions of households or individuals.

In contrast, rural sanitation tools such as CLTS are often designed to work directly at the household level. The origin of many of these tools is often based in Participatory Rural Appraisal (PRA) and SARAR techniques which seek to stimulate individuals to identify and solve their own problems. Tools like PHAST (Participatory Hygiene and Sanitation Transformation) aim to overcome community resistance to change by creating a space for dialogue and raising awareness of the consequences of poor sanitation. While the hygiene message in these tools often targets individual behaviour change, they have also been effectively used for community mobilisation. In the absence of strong administrative units, rural tools focus on individuals and community action as the drivers of sanitation improvements.

A comparison of CLTS and HCES clearly shows the differing perspectives from which they were developed (Table 5.1). However, when considering the heterogeneous urban reality of the contemporary cities of the South, it is also clear that these approaches can complement each other.

	HCES (2005)	CLTS (1999)
Context	Urban and peri-urban	Rural and peri-urban
Main aim	Improve service delivery for environmental sanitation	Motivate behavioural change to stop open defecation
Countries tested	Applied since 2007 in urban areas of Costa Rica, Burkina Faso, Kenya, Tanzania, Laos, Nepal and Mongolia	First applied in Bangladesh, since then in over 20 countries in Asia and Africa
Stakeholder involvement and methods used	Multi-stakeholder format, focus on primary stakeholders, - Include community in all planning steps	- Participatory Rural Appraisal techniques, - Mobilize entire community into collective action
Technology choice	- Technology neutrality - Waste seen as a resource	- Mainly simple pit latrines (first rung of the sanitation ladder)
Infrastructure funding	- Link to existing municipal and national funding vehicles; full cost recovery	- 0% subsidy approach

Table 5.1: Overview of the two presented planning approaches HCES and CLTS

Source: adapted from Susana, 2008a

5.6. Financing community-scale infrastructure projects

Experiences with communicative planning processes in the past decades have shown that multi-stakeholder approaches with community involvement can lead to cost effective solutions. In many cases, they have been shown to be less expensive than hardware, supply-driven solutions which fail to meet people"s needs and desires. For example, rural-based CLTS implementation delivers direct benefits for poor households thanks to its self-help, zero subsidy approach.

In dense urban environments, however, capital costs for infrastructure services are beyond the means of the poor and various forms of government or donor-funded subsidies for capital investments are needed, as is the case for drinking water supply. In the HCES cases presented earlier, this was provided in form of a micro-credit for sanitation which provides households credit for household infrastructure improvements below Tanzanian market rates or via external donor funds matched by private local funds in the case of Vientiane in Laos.

In order to move to scale and beyond one-off, small scale projects, approaches must be able to tap into decentralized urban infrastructure finance. Targeted funding vehicles include poverty-oriented grant financing of International Finance Institutions (e.g. the World Bank"s Social Funds) or national Municipal Development Funds (MDFs). In a further example from an on-going HCES site in Kathmandu Valley in Nepal, follow-up

grant funding for implementation has been secured from UN-Habitat‟s Water for Asian Cities (WAC) programme.

5.7. Conclusion: creatively combining the best of both worlds

This paper argues that the two approaches reviewed in this paper, HCES and CLTS have complementary features making a combination of both approaches ideal for tackling sanitation service delivery in a sustainable manner in challenging urban and peri-urban contexts. The CLTS approach with the triggering and stimulating of positive behavioural change has its strengths in creating genuinely meaningful action through a community-led and community-owned process. However, CLTS cannot maintain a more complex sanitation system as exemplified in Figure 3 as this involves stakeholders at higher levels than the community. HCES on the other hand, with its forte as a structured planning methodology with multi-stakeholder involvement does ensure sustainable basic urban services, especially for disenfranchised urban areas, but is less strong in triggering behavioural change which may be necessary in many urban and peri-urban settings.

The spotlight in this paper on novel, but field-tested approaches to service delivery in urban and rural contexts, has sought to focus much needed attention on the process of bringing about effective and sustained access to sanitation. An important feature of both planning tools is that they take a position of technology neutrality; they attempt to broaden the set of technology solutions that get implemented, such that choices are better matched to the economic constraints and management capacity of a given area (Murray, 2009). This technology neutrality improves chances for sustainability of the sanitation service delivery down the line. Technology neutrality forces the stakeholders to think actively on their demands they have on the sanitation system and what functions the systems should supply. The CLTS process stops at the choice of toilet/latrine, since CLTS in its pure form is only aspiring excreta containment, whereas the technology neutrality of HCES goes all the way through from collection to treatment and reuse/disposal by explaining the variety of options available for each step. An open approach to technologies, in combination with an understanding of the capacity of the service delivery entity on their capacities to deliver the desired functions,

will improve chances of a technology choice that meets the demands of the users and the management capacity of the service delivery entity.

Urban and peri-urban areas are complex with regard to meeting infrastructure needs and the problems facing them are heterogeneous and are interlinked, but this does not mean that they are impossible to solve. Solutions will require a planning approach to environmental sanitation that is more inclusive, participatory, comprehensive and multidisciplinary. Service provision in such a mixed environment will require an integrated planning process and a variety of technologies that meet the needs of the poor, rich and middle income groups. Planning will need to recognize the mixture of rural and urban characteristics within the peri-urban interface and draw on established strengths within these respective fields. Sanitation plans should utilise behaviour change and community mobilization techniques at the same time as establishing an institutional framework that supports the Bellagio principles[5]. For this to work, a specific enabling environment needs to be put in place - government support, political will and support at all levels, legal framework, institutional arrangements, required skills, credit and other financial arrangements, information and knowledge management. Here some of the experiences with HCES can provide insights and inspiration for the way forward.

Each sanitation context is unique from a physical, social, economical, environmental and institutional point of view, which needs to be reflected in the planning of the sanitation service delivery. This demands a creative approach where a combination of different existing sanitation planning tools can improve the likelihood of sustainable sanitation service delivery through catering for the specific demands in the context at hand. Several organizations and consulting services have already started to move in this direction. For example, to achieve a higher level of adaptation to the West African peri-urban context, the EU project Netssaf proposed a planning model combining HCES with PHAST and other awareness raising tools (Netssaf, 2008). A combination of the IWA planning tool Sanitation 21, participatory tools and social marketing has also been proposed for sanitation planning and implementation in Northern Ghana (Kvarnström and McConville, 2007). This paper therefore suggests that a combination of several

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[5] The Bellagio Principles were formulated in the year 2000 by urban sanitation experts and place the principles of human dignity, good governance and resource recovery in the focus of future urban sanitation delivery. See WSSCC, 2000 for the full text.

methodologies and structured planning approaches have the potential to improve the sustainability of sanitation service interventions in underserved urban areas.

Acknowledgements

The following Chapter 6 presents the process learnings in the three collected case study areas. It is important to note that the evaluation of the planning processes did not seek to establish a causal relationship between community-based planning efforts and actual project outcomes as most project interventions were still under implementation at the time of writing. Rather, our primary focus was on the processes that took place at the community level, on the project dynamics and the institutional environment in each context.

6. *Case studies: Laos, Nepal and Tanzania* [NCCR dialogue Nr.22]

Christoph Lüthi, Antoine Morel, Petra Kohler and Elizabeth Tilley

Department for Water and Sanitation in Developing Countries (SANDEC)

Swiss Federal Institute of Aquatic Science and Technology, Eawag, P.O. Box 611, Tel. +41-44-8235614 8600 Dübendorf, Switzerland. Case studies first published in NCCR North-South Dialogue No. 22, University of Bern, 20009, 129pp.

This chapter presents the three selected case studies in Laos, Nepal and Tanzania. The chapter focus is on process learning and it documents and synthesizes the three HCES planning and implementation processes to draw out important lessons learned. This contributes to a greater understanding of „real world" practicality, i.e. what „works" and what does not in specific contexts. All three cases are analysed according to physical and socio-economic characteristics, stakeholder analysis, the enabling environment and a procedural analysis of the individual planning steps. Each case study also contains a final section on constraints and strengths of the application of the planning approach.

6.1 Hatsady Tai, Vientiane, Laos (2007/2008)

Lao PDR is a landlocked and mountainous country surrounded by Cambodia, China, Myanmar, Thailand and Vietnam. Vientiane, the capital city of the Lao PDR, is by far the largest urban area. The current population of the Vientiane Capital City is estimated at 600,000 and is growing at a rate of 3.3 percent per annum. Lao PDR is essentially rural, but since the mid-1980s the expanded marketing and commercial opportunities following economic liberalisation stimulated rural-urban migration, including a large proportion of poor people in search of better livelihoods. These poor migrants usually arrive in low-income villages such as Hatsady Tai, characterised among other things by inadequate environmental sanitation services.

6.1.1 Project site

Hatsady Tai is a typical low-income, unplanned urban village. The village is a high-density but low-prestige settlement in the city centre, excluded from higher-level infrastructure upgrading initiatives. Many buildings were illegally built on public land. Hatsady Tai is located in the centre of Vientiane, in Changthabuly District. It has

common borders with Ban Hatsady Neua in the North, Ban Nahaidieuo in the East, Ban Nongchan (Morning Market) in the South, and Ban Sisaketh in the West (Figure 6.1).

Hatsady Tai was selected as an HCES case study for the following reasons:

- The urban environmental sanitation services (UESS) in Hatsady Tai were inadequate, leading to environmental degradation, deterioration of the living conditions and increased health threats.

- The improvement of UESS in Hatsady Tai was perceived as a priority issue by local authorities and residents alike.

- The socio-economic and socio-cultural disparities within village boundaries reflected Vientiane‟s typical characteristics (Table 6.1).

Population:	275 inhabitants (2008)
Area, density:	1.4 hectares, 196 persons per hectare
Income:	50% of households earn less than 500,000 Kip per month (<US$ 55 per month)
Average household size:	4.9 persons
Household head:	1/5 women, 4/5 men
Education of household head:	22% of women and 61% of men have secondary (or higher) school education.

Table 6.1: Demographic information on Ban Hatsady Tai, Vientiane

Source: Lüthi *et al*, 2009

Geography, topography, climate

Lao PDR has two distinct seasons. The dry season lasts from November to April, and the wet season from May to October. The temperature in Vientiane ranges between 12°C (December/January) to 38°C (March to May). The relative humidity is generally 75–80% during the rainy season and 65–70% during the dry season. The average annual rainfall is around 1,600 mm in Vientiane, of which about 85% occurs during May to September.

Hatsady Tai was built on a former natural wetland, which was drained in the late 1950‟s to cope with increasing rural-urban migration. The groundwater level in the project area is very high, averaging 0.5-1.0m below ground level.

Current status of the urban environment

Environmental Health

In 2007, the prevalence of water-borne diseases in Hatsady Tai was high, with 14.5% of the population suffering from diarrhoea. While the Municipal Health Department of Vientiane organised awareness campaigns in the village on bird flu, dengue fever and other diseases, there was a lack of awareness about environmental sanitation and its impact on public health (Duannouluck, *et al*, 2008).

Water Supply

Vientiane draws its water from two intakes, both upstream and downstream of Vientiane, on the Mekong River. In 1998, 81% of the urban households had access to potable water (UN-HABITAT, 2001). In Hatsady Tai, water is supplied by Nam Papa Lao, a state-owned enterprise. Households are connected to water meters and pay a monthly charge of about US$ 2 – 3/month to the service provider. The average per capita consumption in Hatsady Tai is estimated at 80–120 litres per day. Most residents of Hatsady Tai are satisfied with quality, reliability and costs of the water supply (Duannouluck, *et al*, 2008).

Sanitation and Drainage

It was estimated that almost all (94%) households had access to private sanitation facilities. Most households use pour-flush toilets with soak pits (90%) or septic tanks (10%) as onsite wastewater disposal or pre-treatment facilities. Sanitation facilities are often poorly designed, constructed and maintained. Flat terrain, a high groundwater table and low soil permeability further contribute to system failure. There is no sewer system in the project area. Septic tank effluent and other wastewaters such as greywater are discharged into the mostly uncovered, natural drainage system. Some households (10%) discharge their greywater into their soak pits, others (15%) discharge on open ground. Women are usually responsible for the in-house maintenance of the toilet facilities. Septic tank and soak pit emptying is a problem for almost 50% of the village (mainly in the low-income core), since vacuum trucks cannot access the pits. In these cases households empty their pits manually by making a hole in the pit and allowing the sludge to run into the stormwater drains. This leads to blockages of the drainage

network, frequent flooding and odour nuisance: problems often mentioned by the residents (Duannouluck, *et al*, 2008).

Solid waste

In Hatsady Tai, solid waste is collected twice a week by a private service provider, contracted by the VUDAA (Vientiane Urban Development Administration Authority), who also defines collection frequency and collection fees. As alleys and streets within the village are too narrow and do not allow access for four-wheel vehicles, the service provider does not collect solid waste in the project area - residents organise collection and transportation of solid waste to the main road. Waste dumping and burning within the community boundaries are common practices which contribute to drainage blockages, localised flooding, odour problems, aesthetic nuisance and an increased risk of fire. Waste segregation and recycling is done by a minority of the households (40%). The average daily waste production is 0.75–1.00 kg per capita, consisting mainly of organic material (30%), plastic (30%), paper (15%), glass, cans and other metals (25%) (Duannouluck, *et al*, 2008).

Figure 6.1: Location of Hatsady Tai (yellow) in Vientiane with project boundaries (red)

Source: Google Earth, 2010

6.1.2 Partner institutions

Figure 6.2: Stakeholder map of main HCES stakeholders in Hatsady Tai

Source: Lüthi *et al*, 2009

The three case studies presented in this chapter make a distinction between (i) process stakeholders, (ii) primary stakeholders, and (iii) secondary stakeholders. Process stakeholders are understood as the key stakeholders who are responsible for driving the HCES process and essential to achieving the main outcomes of the HCES validation process (Fig. 6.2 above). Primary stakeholders are those institutions which have a "stake" in the planning process or have the potential to affect or be affected by planning decisions. Secondary stakeholders are other stakeholders who may take part in workshops or meetings but are not essential to the planning process.

Process Stakeholders

Public Works and Transportation Institute (PTI):

PTI is a governmental agency under the Minister of Public Works and Transport (MPT). PTI has many years of experience in the implementation of donor-funded projects related to environmental sanitation services and urban development. PTI was selected as the main HCES project coordinator early in 2007 after being recommended by several governmental and non-governmental institutions. PTI also chaired the project coordination committee (PCC).

Water Resources and Environment Administration (WREA):

WREA was established in July 2007 as part of the efforts of the Government of Lao PDR to improve the management of water resources and the environment. It is operating under the Prime Minister"s Office. On the provincial level, WREA is implementing programs aimed at increasing public awareness on issues such as health, environmental education, and poverty reduction. WREA coordinated the solid waste management component of the HCES project in Hatsady Tai.

Hatsady Tai Village Environmental Unit (VEU):

The Village Environmental Unit (VEU) was formed in March 2008 during Step 4 of the planning process. The main mandate of the VEU was to ensure community ownership of the UESS during and after project planning and implementation. The VEU is led by a president, and consists of three sub-groups (financial team, technical team and advisory team). Members of the VEU include community representatives of the different neighbourhoods, mass organisations (Lao Women Union, Lao Elderly Association, Lao Youth Union, Lao People"s Revolutionary Party), and local authorities. More than 50% of the VEU are women (defined in the Management Regulations). The VEU is presided over by the political head of the village, called the „Naiban".

Primary Stakeholders

Eawag-Sandec

The Department of Water and Sanitation in Developing Countries (Sandec), Swiss Federal Institute of Aquatic Science and Technology (Eawag) was in charge of

coordinating the validation of the Household-centred Environmental Sanitation (HCES) programme internationally. Eawag-Sandec also assisted the PCC in implementing the 10-step process in Hatsady Tai. Sandec provided US$ 16,500 to PTI for the coordination of the planning activities.

Asian Institute of Technology

The School of Environment, Resources and Development (SERD) of the Asian Institute of Technology (AIT) in Bangkok, Thailand, provided technical and scientific assistance to the HCES project.

Changthabuly District Authorities

Plans related to urban development, public health, transportation etc., are decided at district level. For that reason, district authorities (Vice-Governor, Public Health Office, Public Works and Transportation Office) were involved as advisors in different steps of the HCES planning process. They played a central role in the negotiations with households (relocation of houses, household connections) and with private service providers (solid waste collection).

Mass Organisations, Civil Society

„‚Mass organisations‟‟‟in the Lao PDR participate widely in development activities and perform some functions that NGOs do in other countries. While closely linked to the governing Lao People‟s Revolutionary Party (LPRP), these mass organisations have extensive organisational networks stretching from the top of the central hierarchy down to the village level. Mass organisations involved in the HCES project include the local branches (at the village and district level) of the Lao Women‟s Union (LWU), the Lao Youth Organisation (LYO), and the Lao Front for National Reconstruction (LFNR).

Xaichalearn Construction Company

Xaichalern Comp. Ltd. was contracted based on a competitive bidding procedure. Xaichalern implemented the liquid waste management component developed by the project team. Components included the rehabilitation of 15 private toilets, the construction of the drainage system, and the construction of the small-bore sewer system with semi-centralised treatment.

NCCR North-South

The National Centre of Competence in Research (NCCR) North-South, through its PAMS programme, provided US$ 48,000 for field-testing and implementation of the HCES approach in Vientiane. (www.north-south.unibe.ch). PAMS are a vehicle for testing the applicability of development research results. Each project is designed to implement strategies developed jointly by researchers and local stakeholders. Based on a transdisciplinary approach to development research, PAMS are meant to promote mutual learning and knowledge-sharing between academic and non-academic partners in sustainable development.

VUDAA

The Vientiane Urban Development and Administration Authority is responsible for the planning, implementation, management and control of basic urban infrastructure such as roads, drainage, solid waste collection and disposal, and sanitation in Vientiane. VUDAA was involved as an important discussion partner and advisor in the development of the UESS plans. VUDAA also facilitated an awareness raising workshop on the benefits of improved environmental sanitation services.

Secondary Stakeholders

A wide range of institutions was involved in the planning process. Though they had little influence on the decision-making process, they deserve to be mentioned here:

NUoL

The National University of Lao PDR supported PTI in conducting field investigations and in facilitating community consultation workshops.

Private consultants

Two small engineering consultancy companies (PDC Survey and Design Co. Ltd., A+ Architecture Co. Ltd.) were involved in the project on a mandate basis. They conducted the topographic survey of the study site, and did detailed designs of drainage, sewer and community wastewater treatment systems.

Sacombank

The branch of this bank located in the project area financed one drainage line (approximately US$ 3,800).

WSP, UNICEF, UN-HABITAT

Experts from these international organisations were invited to participate in different strategic workshops.

National sector agencies

The Lao Agency for Rural Water Supply and Sanitation (Nam Saat), the Department of Housing and Urban Planning (DHUP), and the Water and Sanitation Authority (WASA) were consulted in several workshops and were regularly informed on the progress of the project.

6.1.3 The Enabling Environment

An enabling environment is the set of interrelated conditions that impact the potential to bring about effective change. This includes the political, legal, institutional, financial, economic, educational, technical, and social conditions that are created to encourage and support certain activities. This chapter reviews the main features of the enabling environment of Lao PDR in general, and for Vientiane in particular.

Laws, policies and strategies

National policies, and the strategies adopted to implement them, support the basic principles of the HCES approach. Increased access to adequate urban environmental sanitation services (UESS) is recognised as an important element of socio-economic development, and is highlighted as a priority intervention in the government"s Sixth Five-year Socioeconomic Plan 2006-2010. The Prime Ministerial Decree 14 provides for a decentralised planning system, delegating planning and implementation responsibilities to the district and village level, respectively, and promoting community participation in the development process. However, a number of factors hinder the effective implementation of the decentralisation policy, including the lack of supportive planning guidance. In practice, participatory planning has not usually been successfully applied in sub-district planning. The HCES planning approach was acknowledged by

national (MPT, DHUP, WASA, PTI) and provincial authorities as a promising framework.

Legislation, regulations and standards are partly hindering, partly enabling: Legislation related to urban planning and environmental sanitation service provision has evolved quickly in Lao PDR. Inconsistencies have surfaced in different pieces of legislation as a result of different ministries leading the development of sector-specific legislation. Principal inconsistencies include overlapping mandates given to different ministries and a lack of regulations and supporting environmental standards. Finally, the enforcement of standards and codes remains minimal. The main laws and related management instruments which affect the provision of UESS include:

- Water and Water Resources Law, and the related National Water Sector Strategy and Action Plan.

- Environmental Protection Law and the related Regulation on the Monitoring and Control of Wastewater Discharge

- Land Law and the related Regulations of Land Uses and Titles

- Hygiene and Disease Prevention Law; and the related Drinking Water Standard, Water Supply and Sanitation Standard

- Urban Planning Law; and the related Regulation related to Urban Planning, Housing, Domestic Drainage System and Design.

Institutional framework

The definition of national urban development strategies and the elaboration of master plans are the responsibility of the Ministry of Public Works and Transportation (MPT), but district authorities have gained important decision-making power in the framework of the decentralisation process which was launched by the Government of Laos in 2000. Village development plans are decided at the district level. In Vientiane, VUDAA is responsible for the implementation, management and control of basic urban infrastructure such as roads, drainage, solid waste collection and disposal, and sanitation. VUDAA‟s mandate also includes the collection of fees for the use of urban services and infrastructure. In Hatsady Tai, this mandate is handed over to a private service provider. Private Sector Participation (PSP) for design, construction and

management of water supply and sanitation infrastructure is steadily increasing, especially in Vientiane.

The duties and responsibilities of the main institutions working in the field of urban planning and environmental sanitation are presented in section 6.1.2.

Land tenure and property rights

Lack of access to land and housing is a critical issue in Vientiane. In 2001, women ranked insecurity of tenure as the second priority problem after flooding. According to that study, lack of formal land rights make people reluctant to invest in their houses and services (UN-HABITAT, 2001). Since 2000, the government has had the strategy to move toward the implementation of a land registration system and issue titles to all landholders. In Hatsady Tai, about one-third of the land still belongs to the government. Many private buildings were partly constructed on public land without a permit.

Skills and Awareness

Under-developed governmental staff capabilities, both in terms of quality and quantity, are a major constraint in the promotion of sustainable environmental management in Lao PDR (World Bank, 2006). Technical capacities at the provincial, district and village level are generally low. The government is working with several donors to strengthen the capacities of staff through both management and on-the-job training (e.g. in the framework of the Mekong Water and Sanitation Initiative financed by UN-HABITAT or the Small Towns Water Supply and Sanitation Sector Project financed by ADB).

Financial arrangements

The government of Laos has limited financial resources for urban infrastructure service provision. In the past, investments related to environmental sanitation upgrading were funded through international grants and loans. While sanitation improvement initiatives are still mainly financed through foreign investments, some financing mechanisms and policies have been introduced to reduce the dependency on international donors, including the Lao Environmental Protection Fund (EPF), the principle of cost recovery of environmental sanitation service provision, or micro-credit schemes. In Hatsady Tai, a village development fund is used to finance micro-credits for community development initiatives.

6.1.4 The planning process: Request for assistance (Step 1)

The HCES planning process was launched in mid-2007. An Eawag-Sandec-AIT exploratory mission took place in January 2007 to inform relevant national and provincial authorities (PTI, MPT, DHUP, WASA, VUDAA) and international organisations (WSP, ADB) about the project goal and objectives, to select potential sites for validation, and to identify viable process stakeholders. PTI was finally appointed as the project coordinator. A Memorandum of Understanding and a contract between PTI and Eawag-Sandec were drafted, after which the partners started the planning process with the identification of the enabling environment. Hatsady Tai was selected as the project site following an official request for assistance, submitted by the village authorities to PTI.

Launch of the planning and consultative process (Step 2)

The project was officially launched during two workshops conducted in July 2007. Prior to the official launching workshop, a community workshop was organised, which aimed at identifying the main issues in the village, mapping current environmental sanitation services, and discussing the suggested planning process (HCES approach).

Community workshop

The half day community workshop was organised in the village meeting room of Hatsady Tai and was attended by 60 community members, representatives from local authorities, mass organisations, PTI, and Sandec (25 women, 35 men). The goal of the workshop was to present and discuss the project idea and the HCES planning procedure, to conduct a rapid assessment of the current UESS, and to identify the main stakeholder groups in the village. Focus group discussions and problem mapping were used as the main participatory assessment methods.

Official launching workshop

The project was officially launched on 11 July, 2007 in the framework of a multi-stakeholder workshop conducted at PTI. The objectives of the workshop were to validate the project site, to formalise the process (i.e. the HCES methodology), to identify relevant stakeholders, to review the current political and legislative environment in Lao PDR, and to set up a project coordination committee. The workshop was attended by participants from relevant national, provincial and district

level authorities, NGOs, academia, and village representatives. A main issue mentioned by the workshop participants was the necessity to identify funding sources at a very early stage of the project. As a result, PTI (together with Eawag-Sandec and the „Naiban‟) developed a project proposal which was successfully submitted to the Swiss-funded NCCR North-South programme (PAMS project, $48,000 USD).

Assessment of current environmental sanitation services (Step 3)

The environmental sanitation services were assessed by a multi-disciplinary team lead by PTI in close collaboration with the community and the local authorities. Data related to socio-economic conditions, health and hygiene conditions, the state of housing and shelter, land tenure, administrative organisation, current UESS etc., were collected using three methods: (a) household surveys (48 households were interviewed), (b) key informant interviews (village, district and provincial authorities; service providers), and (c) the generation of detailed maps of the project site using satellite images and conventional surveying tools. The outcomes of the participatory rapid assessment and mapping exercise conducted in Step 2 were used as a basis for the detailed assessment.

In brief, the UESS assessment revealed that current environmental sanitation services were poor and demand for improvements was high. Most households (90%) rely on old and defective cesspits for wastewater disposal. The project area is regularly flooded due to inadequate stormwater drainage. Access roads are very narrow and not accessible for service vehicles such as solid waste collection trucks or vacuum trucks. The assessment also concluded that the community and the local authorities were eager to improve the prevailing conditions, and willing to actively participate in the process. The assessment report was approved by the community and the local authorities during the Step 4 workshop attended by all relevant stakeholders (Duannouluck, *et al*, 2008).

Assessment of user priorities (Step 4)

A one-day community consultation workshop was conducted on 18 January, 2008. Fifty-three people (26 women, 27 men, see Figure 6.3) participated in this workshop, facilitated by PTI and Eawag-Sandec. The objective of the workshop was to endorse the assessment report, to define UESS priority issues, and to elect a Village Environmental Unit (VEU). In the afternoon, there was a special session facilitated by WREA, aimed at raising awareness of the health and environmental implications of inadequate

environmental sanitation, and at creating demand for improved services. VUDAA presented two urban infrastructure projects that were successfully implemented in other neighbourhoods of Vientiane.

Participants were asked to assess the quality of the assessment report and to prioritise UESS components (water supply, drainage, sanitation, solid waste) through anonymous pocket voting. Votes of women and men were analysed separately. Figure 6.3 below shows that drainage was ranked as the highest priority issue by both women and men, followed by solid waste and sanitation.

Terms of Reference (ToR) and members of the Village Environmental Unit (VEU) were suggested to the community by the Head of the village (Naiban) together with PTI. The ToR and the members of the VEU were approved by a majority vote. The first VEU meeting was presided over by Mrs. Khamvanh (mayor of the village), and consisted of 6 women and 3 men, representing the different interest groups in the village (residents, mass organisation, local authorities) and the project coordinator, PTI.

Identification of Options (Step 5)

Possible options to improve the current UESS in Hatsady Tai were determined in two steps (expert meeting, project coordination meeting). The UESS assessment report (outcome of HCES Step 3), the priorities defined by the community (outcome of HCES Step 4) and a draft version of the Compendium of Sanitation Systems and Technologies (Tilley *et al*, 2008) were used as starting points for the identification of viable options.

Figure 6.3: Priorities set by the community related to environmental sanitation services (white-men/ turquoise-women).   Source: Lüthi *et al*, 2009

Expert meeting

The applicability of different sanitation systems was first assessed by urban planning and sanitation experts from PTI, Eawag-Sandec, and MPT (9 February, 2008 at PTI). The different sanitation systems suggested by Tilley *et al*, (2008) were discussed and their applicability to Hatsady Tai assessed based on a list of pre-defined questions. The main factors which influenced the pre-selection were:

a) people traditionally use water for flushing and anal cleansing,

b) the reuse of human waste (including urine) is not culturally accepted in Lao PDR,

c) the housing density is very high,

d) the soil infiltration capacity is low and hinders localised infiltration of wastewater,

e) the existing water-based sanitation system is well accepted.

Project coordination committee (PCC) meeting

Three systems pre-selected by the expert group were then adapted to the local context (with translated and simplified system templates) and discussed within the Project Coordination Committee (PCC). The PCC concluded that a combination of two sanitation systems would most efficiently manage the main sanitation products (stormwater, blackwater, greywater), and build on the existing sanitation services.

The suggested system consisted of rehabilitating and converting existing cesspits into sedimentation chambers for the pre-treatment of blackwater and greywater, and connecting the chambers to a solids-free, shallow-depth sewer system with semi-centralised anaerobic treatment. The effluent of this system would be discharged together with effluent from existing household septic tanks to an improved stormwater drainage network that would be connected to the city drainage network. Faecal sludge management would be handed over to private service providers.

Development of UESS plan (Step 6/7)

The first plans of the UESS were drafted by PTI, with the support of a private consulting company (A+ Architecture Co. Ltd.). The plans included possible layouts of the system (i.e. the placement of drainage channels, sewer and semi-centralised treatment systems, technological options for drainage and wastewater treatment), cost estimations, and O&M requirements for each component. A solid waste management concept was developed by WREA and the VEU. The drafted plans were first discussed within the PCC, and later presented and discussed at a community consultation workshop (6 May, 2008). Although the basic sanitation concept was approved by the participants, a series of recommendations and requests were formulated to address perceived shortcomings (e.g., a revision of the topographic map, cost estimation for household infrastructure upgrading). Table 6.2 below gives an overview of the contributions and cost-sharing arrangements agreed between the community and the local authorities during the development of the urban environmental sanitation services plan (UESS).

The beneficiaries agreed to:	The local authorities agreed to:
- cover investment costs at household level (retrofitting of cesspits, connection to sewer system, approx. US$ 30 per capita);	- support low-income households in mobilising funds for household infrastructure improvements;
- retrofit some buildings which hinder implementation of UESS;	- review and adapt institutional setup and implement regulations to guarantee sustainable management of UESS (financial management, O&M);
- provide land for implementation of drainage and semi-centralised wastewater treatment;	- negotiate the connection to city services (drainage, maintenance of wastewater treatment systems etc.) with higher level authorities;
- contribute (in kind, labour or cash) to implementation and O&M of UESS;	- assure that community contributes to implementation and O&M of UESS.
- cover the costs for O&M (US$ 0.6 per capita per month).	

Table 6.2: Implications of the project approved by beneficiaries and local authorities in the framework of Steps 6/7. Source: Lüthi *et al*, 2009

Finalising the UESS plans (Step 8)

This step took place in three stages.

First, the PCC revised the plans developed under Step 6 and 7, by integrating the outcomes of the community consultation process. Detailed infrastructure improvement plans were developed and the cost estimation for household infrastructure improvements was re-assessed. Management regulations (defining the institutional setup, financial mechanisms, O&M procedures) were drafted based on national and international experience.

In a second step, the revised plans were presented and discussed at a key stakeholder consultation workshop (6 August, 2008), where representatives of relevant sector agencies, district authorities, regulatory bodies etc., participated. The plans were critically reviewed, and possible improvements to the plans were identified. The UESS plans were ultimately approved by all key stakeholders, and commitments were made. An important outcome of that meeting was the decision by the District authorities that all roads in the project area should be widened to a minimal width of 4 metres to guarantee fire protection. This decision had important implications as it required 13 buildings to be renovated. For that purpose, a relocation negotiation committee was established, headed by the District Vice-Governor. The following were the main

commitments made by the different parties within Step 8 of the HCES planning process:

- PTI will contract a private construction company for the implementation of the liquid waste management concept (based on competitive bidding); finalise the management regulations; define detailed project timeline, will second VEU in construction supervision; will develop final project reports.
- Naiban and VE will collect household contributions for household infrastructure improvements; supervise construction work; assure household participation in construction; negotiate with households which need to retrofit their houses; implement management regulations.
- VUDAA will approve and support connections to wider city infrastructure (drainage); advise WREA in the implementation of solid waste management concept.
- WREA will implement solid waste management concept, support PTI in the development of management regulations; develop final project report.
- District authorities (Vice-Governor) will support Naiban in the identification of funding sources for low-income households; lead relocation negotiation committee.

In a third step, management regulations for the environmental sanitation services were developed. The process started with a VEU workshop held on 7 August, 2008 in which the institutional setup and the responsibilities of the VEU were adapted and the management principles were defined. PTI was given the mandate by the VEU to develop detailed management regulations and O&M procedures. These regulations were finally endorsed by the District authorities and the VEU in April 2009.

Monitoring, Evaluation and Feedback (Step 9)

A project performance monitoring and evaluation procedure was developed by the PCC at the start of the project. A set of indicators was defined based on the project framework and objectives. Gender specific indicators were defined whenever possible and appropriate. A post-project evaluation was conducted in 2010 to assess the sustainability of the project and the long-term impacts on the village and its community (see chapter 7 for results).

Implementation (Step 10)

An official invitation to bid for the procurement of the construction services was published in December 2008. The bidders were evaluated based on price and the quality

of the bid. Xaichalern Construction Company was selected from among the four domestic bidders to implement the plans related to stormwater drainage, household sanitation infrastructure, and wastewater collection and treatment. WREA implemented the solid waste management component following the ToR defined in a contractual agreement with PTI.

The construction of the liquid waste management component started on 2 January, 2009, and was completed on 30 March, 2009. Community members participated voluntarily and informally, e.g. by providing food and shelter for the workers, by deconstructing obstructing parts of their houses, by participating in the village cleaning campaigns, etc. The construction work was done manually without any heavy machinery. The usual problems were encountered during construction, such as groundwater infiltration, obstructing water supply pipes, tree roots etc. Thirteen buildings had to be retrofitted to allow construction. Minor conflicts between the construction company, the construction supervisors (PTI), the Project Coordination Committee (PCC), and the residents of Hatsady Tai were solved ad-hoc. More serious issues such as the partial deconstruction of three houses or the collection of residents" financial contributions to household sanitation improvements was managed by a negotiation committee, chaired by the District Vice-Governor.

The implementation of the solid waste management concept started with a village cleaning campaign (17 January, 2009). The concept consisted of:

- improving household waste management practices (i.e. segregation, recycling, composting);
- organisational adaptations (i.e. transfer of SWM responsibilities from an accredited service provider to local authorities and VEU); and
- financial reforms (i.e. re-negotiation of waste collection tax).

Solid waste management equipment including 70 collection baskets and conventional cleaning equipment was provided to households and to the local authorities, respectively. Small-scale composting schemes were installed in 15 households. In the period from January to February 2009, WREA conducted 10 household inspection campaigns to assess the living conditions in the houses in general and the waste

management practices in particular. A rating system was introduced to reward families with improved living conditions.

The resulting physical interventions, as well as other outputs from the planning and implementation process are summarised in the next section.

Timeline

Figure 6.4: Timeline of HCES activities in Hatsady Tai (months) 2007-2009

Source: Source: Lüthi *et al*, 2009

6.1.5 Project outcomes

The project benefited about 275 residents in the centre of the village by providing improved urban environment sanitation services, i.e. stormwater drainage, liquid and solid waste management.

The project‟s institutional interventions have focused on the establishment of a VEU who is in charge of the management of the environmental sanitation services. Management regulations which define the responsibilities and roles of all members of the VEU, the local authorities, and the residents, were developed and implemented.

The project tried to adequately consider gender issues by including the Lao Women Union (LWU) in all strategic steps of the project. Gender sensitivity was directly addressed in a training course on gender equality and environmental sanitation and in

the different community workshops. Special attention to gender issues was given when establishing the VEU committee (at least 40% female representation).

No household was relocated during the upgrading of Hatsady Tai''s environmental sanitation infrastructure. Approximately 80 m^2 of land were provided voluntarily by two private land owners. Thirteen households were forced to renovate and retrofit their buildings in order to allow the construction of the drainage network (mainly fences or walls and land along the drainage).

The main interventions related to infrastructure, management, capacity building and awareness-raising are summarised in Table 6.3 on the next page.

Project outcomes and impact

Mid- to long-term effects of the project can only be assumed at this stage. It is expected that the project will have a beneficial impact on both the health and well-being of the community, and on the neighbourhood''s economy.

Health benefits will come from: (i) improved environmental sanitation infrastructure; (ii) increased use of domestic sanitation facilities (due to increased awareness); (iii) increased knowledge and awareness of health and hygiene issues.

The village''s economy will benefit from enhanced productivity as a result of health improvement and increased urban efficiency arising from improved drainage and sanitation.

Infrastructure improvements	
Sanitation:	Rehabilitation/construction of 15 private toilets, including improved squatting pan, storage chambers, and connections to the sewer system.
	Construction of a wastewater collection and treatment system servicing 32 households, comprising (a) a small-bore sewer (265m), and (b) 3 community septic tanks treating the effluent of the sanitation facilities and greywater which is conveyed in the small-bore sewer.
Drainage:	Construction of 4 drainage lines (303m). The drainage lines are partly covered (168m) and partly open (135m). For the purpose of drainage improvement and increased accessibility, 13 houses were backfitted or reconstructed.
Solid waste:	Provision of basic solid waste collection equipment (waste baskets) to 70 households. Small-scale composting schemes provided to 15 households (for testing and demonstration purposes).
O&M equipment:	Installation of a storage room in the community hall, with material for the O&M of the UESS.
UESS management Improvements	
Institutional reforms:	Creation of a Village Environmental Unit (VEU), with appropriate representation of the different local stakeholders (authorities, community representatives, mass organisations), and clear ToR and reporting procedures for all stakeholders.
SWM concept:	Revised solid waste management concept, with re-defined responsibilities (i.e. house-to-house collection of SW by contracted community members), installation of sub-collection points, adjusted waste collection fees.
Management regulations:	Revised management regulations with updated infrastructure plans, O&M procedures for liquid and solid waste management components, financing procedures, reporting structure.
Awareness raising and capacity building	
Training courses:	Half-day training course on improved solid waste management (type and amount of solid waste generated, segregation of solid waste at source, recycling possibilities, income generation through solid waste recycling, etc.) for 53 community members.
	Half-day training course on household solid waste composting for 15 community members.
	Five-day training course for local authorities on gender sensitive environmental management, with participation of members of the PCC (Naiban, PTI) (funded by AIT and CIDA).
	One-day training course on O&M for improved UESS conducted for 20 VEU members and community representatives (scheduled for June 2009).
Awareness raising activities:	Community workshop facilitated by WREA and VUDAA on improved solid waste management, and the role of women in UESS provision (45 community members)
	Awareness raising through community dialog, i.e community involvement in the assessment of current environmental sanitation services (Step 3), definition of priority issues (Step 4).
	Village cleaning campaigns (2) coordinated by WREA. Slogans such as "Cleaning is the behaviour of civilized people" were displayed during the campaigns.
	Ten participatory assessments of indoor and outdoor living conditions of 70 households, with rating and awarding procedure.

Table 6.3: Interventions related to the improvements of environm. sanitation services in Hatsady Tai. Source: Lüthi *et al*, 2009.

HCES planning and implementation costs

Eawag-Sandec signed a contract worth US$ 16,500 with PTI for the HCES validation in Vientiane. An additional US$ 48,000 was provided for the planning and implementation process through a NCCR North-South funded PAMS project. Other expenses were covered by the households (including household sanitation improvement, land provision; approximately US$ 4,000) or third parties (US$ 3,800 provided by Sacombank for the construction of a 60m long drainage network). The total planning and implementation costs equalled US$ 263 per targeted beneficiary (275 inhabitants).

Xaichalern Company Ltd. was sub-contracted for the implementation of the liquid waste infrastructure component (i.e. the stormwater drainage and wastewater collection and treatment system). The contract was worth US$ 27,000 (US$ 20,000 material costs and US$ 7,000 labour costs). The solid waste management component was planned and implemented by WREA. The contract worth US$ 5,600 included a planning, evaluation and documentation costs (US$ 2,500), implementation costs (US$ 1,900), and costs related to training (US$ 1,200). Project costs and cost-sharing are summarised in table 6.4.

	Total expenses	Covered by			
		Sandec	NCCR N-S (PAMS)	Beneficiaries	Sacombank
	(US$)	(US$)	(US$)	(US$)	(US$)
Personal costs (salaries, consultancy fees, DSA)	11,000	4,500	6,500	–	–
Equipment/Infrastructure	40,000	5,000	27,200	4,000	3,800
Field work expenses, consumables	10,700	5,000	5,700		–
Training courses	4,000		4,000		–
Travel expenses	4,200	1,000	3,200		–
Miscellaneous (taxes, VAT, etc.)	2,500	1,000	1,500		–
Grand Total	72,400	16,500	48,100	4,000	3,800

Table 6.4: Overview of project costs and contributions by beneficiaries

Source: Lüthi *et al*, 2009

Contribution by the beneficiaries

The contribution by the beneficiaries to the total costs is difficult to quantify. Non-monetary contributions including workshop attendance, participation in meetings, informal discussions, provision of food for construction workers etc., were considerable in this project. Despite being able to accurately quantify the monetary value of these

contributions, the original target of a 10% contribution by the beneficiaries to the total costs (i.e. US$ 7,300) can be assumed.

Operation and maintenance costs

The operation and maintenance costs of the improved environmental sanitation services are expected to amount to US$ 0.5-0.6 per beneficiary per month. This is equal to less than 1% of the average monthly income of the poorest households in Hatsady Tai. These costs cover the labour and material costs for the routine inspection and maintenance of the liquid waste management system (drainage network, wastewater collection and treatment system), the replacement of equipment, and the amortization of the infrastructure assuming a life span of 30 years. The O&M cost estimation was used to define monthly O&M tariffs for the residents of Hatsady Tai. A monthly fee of US$ 0.5 was defined by the VEU. Approval by the residents is still pending (as of April, 2009). The fee will be re-assessed on a yearly basis by the VEU.

6.1.6 Challenges, constraints and strengths

The following sections summarise the main challenges faced during planning and implementation of the project, and highlight strengths of the planning process.

Challenges and constraints

While there is no reason to question the overall success of the project, a series of challenges was faced. Some of the challenges were external to the project (e.g. national institutional reforms) and therefore, could not be addressed by the project coordination team. The following section focuses on the internal challenges, which could have been partly avoided if recognised and addressed early enough.

Project management capacities

The project did not put sufficient emphasis on training and human resource development prior to the planning and implementation of the project. Some training was carried out, but it was not oriented specifically enough towards the core stakeholders of the project (i.e. members of the PCC) and not focused enough on the specificities of participatory assessment, planning and implementation of urban environmental sanitation services. Surveys, workshops, focus group discussions, and other critical steps were not well prepared and were conducted intuitively, without a

clear methodological framework. This resulted in patchy and statistically irrelevant information that had to be partly reassessed.

Coordination between implementing agencies

The institutional separation of the planning and implementation of the solid waste component and the liquid waste components (drainage, sanitation) compromised the effectiveness of the project elements. The share of responsibilities between WREA (coordination of the solid waste management component) and PTI (coordination of the liquid waste management component) with limited coordination and information exchange meant that (i) community consultation was not well organised and thus partly inconsistent or repetitive; (ii) one planning team could not benefit from the interactions of the other team with the community; and (iii) operation and management procedures were defined separately, generating a feeling of confusion among the community.

Involvement of key stakeholders

The importance and the decision-making power of the district authorities were under-estimated. This key stakeholder was not involved early and actively enough in the planning process, which compromised full political commitment and thus the smooth management and execution of the project. This was especially felt during Step 8 (finalisation of ESS plans) and Step 10 (implementation), when top-down decisions were taken by the district authorities, which jeopardised the outcomes of the participatory planning process. Project implementation (i.e. construction) was complicated by the fact that the local contractor (selected based on the lowest tender) was not involved in the planning process, and thus did not understand the participatory solution-finding process that had taken place for more than one year. This resulted in ineffective community mobilisation (community contracting) and communication difficulties with the community.

Differing expectations within the beneficiary-implementer-backstopper relationship

There were different interests and expectations among the community (i.e. the beneficiaries), the implementing agencies (PTI, WREA) and the backstopping agency (Sandec). The community expected the implementing agency to provide services as quick as possible. Sandec, as a research institution, was mainly interested in the

planning process, and requested well defined working plans and progress documentation. PTI, as the main implementing agency, found itself in the centre of this conflict. Despite contractual agreements and a clarified ToR for each party of the PCC (i.e. PTI, WREA, VEU, Sandec, AIT), the roles and responsibilities were interpreted in as many ways as there were parties. Clear project monitoring, feedback and accountability procedures were missing. Eawag-Sandec"s role in particular was misinterpreted by the local partners (project funding and coordination rather than back-stopping), which resulted in a general lack of pro-active leadership among the local partners.

Limited willingness/ability to pay

During implementation, it was found that the residents were not able to pay the planned household sanitation improvements and were reluctant to take out loans despite the micro-credit scheme established at the village level. This reluctance was not recognised early enough, and not well addressed in community consultation and awareness campaigns. This eventually led to friction between residents and the project coordination committee during implementation. Issues such as the financial contribution by households or the cost sharing for the retrofitting of buildings had to be settled by the negotiation committee, which was presided over by the District Vice-Governor.

Narrow range of applicable technologies

The range of institutionally accepted sanitation technologies for urban areas in Lao PDR is quite limited and very much based on the principle of "flush and forget". Cultural barriers such as the reuse of treated human waste in agriculture were perceived as insurmountable by the project coordination team. This strongly affected the ability to apply new and innovative technologies, and resulted in rather mainstream technical interventions.

Strengths

Despite the numerous challenges listed above, the project was perceived as very successful by all participating stakeholders. The following section summarises the factors which contributed to the project success.

Demand responsive approach

The project responded to a clear call for assistance by the community and its political leaders to improve the environmental sanitation services. Furthermore, it was in line with the initiative of the government to develop standardised participatory urban planning methodologies.

Highly recognised project coordinator

PTI has a proven track-record of successful projects in the field of urban planning. This was very useful in the identification of possible project partners (e.g. WREA), the establishment of a planning team, and the mobilisation of high-profile actors in strategically important moments (e.g. launching workshop, finalisation of UESS plans, setting up of relocation negotiation committee etc.).

Local political support and leadership

The Naiban played a central role in managing the project and negotiating solutions between the different actors. She helped to bridge the difficult gap between the interests of the community and the higher level authorities, ensured community participation, and mobilised additional funds for the implementation of the drainage system. Under her leadership, new development plans are being developed (e.g. road improvement), and potential funding sources are under investigation.

Community mobilisation and contributions

The participation of the residents in the planning process was extremely positive and beneficial. The majority of the community participated in the consultation meetings and training courses. Three households provided parts of their land for the installation of semi-centralised wastewater treatment systems; thirteen house owners were willing to remove or replace parts of their houses to allow the construction of the drainage system.

Community-based management structure

The Village Environmental Unit (VEU) proved to be a good instrument to guarantee community representation in the project coordination committee. The VEU members were officially approved by the community, thus giving them the authority to define environmental sanitation service plans for the village. The VEU was fully involved in all strategic decisions of the project, including the selection of a suitable environmental

sanitation system, the negotiation with residents on the placement of sanitation infrastructure, the definition of O&M requirements, and the division of responsibilities. The VEU was increased to fourteen members during Step 8, and is now in charge of operating and maintaining the improved sanitation services (Figure 6.5).

Involvement of women

Attendance of community members at the project meetings and workshops over the 18 month planning period indicates that the interest of women in environmental issues was more pronounced that those of the male community members. This was well recognised by the project coordination team, who ensured adequate representation of women in the PCC and the VEU. Gender sensitive planning was guaranteed by involving gender specialists from the Lao Women Union in all relevant steps of the project, and by providing training to key project staff on gender aspects in environmental management.

6.1.7 Conclusions

The pilot project in Hatsady Tai helped to improve urban environmental sanitation services for the 275 residents by adopting a demand-led and participatory planning approach. More than 300 metres of stormwater drainage and three community wastewater collection and treatment systems were constructed, and a solid waste management concept was implemented. Regulations and operations and maintenance procedures for the management of the new services were developed and endorsed, and a series of training courses and awareness-raising workshops for environmental sanitation were organised for community members and local authorities.

The fact that the project responded to a clear call for assistance by the community and its political leaders significantly contributed to its success. A important conclusion is that although time consuming and combersome, a comprehensive stakeholder analysis must be conducted at a very early stage of the project. The analysis should also determine the influence and the interest of the different actors on the project. This analysis should ultimately lead to the definition of a strategy on how and when to involve/consult/inform the different actors in the different stages of the project. Another important factor for project success in Vientiane relates to local political support and

Figure 6.5: The Village Environmental Unit was involved in every step of the decision-making process

Source: Lüthi *et al*, 2009

leadership. The village head (Naiban) was the key node in the project᾽s partnership network. She successfully established the difficult link between the interests of the community and the higher level authorities. In Lao PDR, top-down decision-making processes still prevail (and are partly still expected by the community), and hinder true participatory approaches. Capacities must be created to facilitate participatory planning processes. The most important pre-condition for the successful application of a participatory planning approach, such as the HCES approach, is that all involved stakeholders, especially the community, understand the rationale of such processes, their respective roles, and the additional effort required.

6.2 Nala, Nepal (2009/2010)

Population:	2275 inhabitants with 388 households (2009)
Area, density:	54 hectares, 43 persons per hectare
Income:	67% of Nala households fall below the national poverty line
Average household size:	5.86 persons
Ethnicity:	86% are Newars (the locally dominant ethnic group), followed by 9% Dallits (the socially disadvantaged group in Nepal) and 5% from other castes.
Education of household head:	The literacy rate in Nala is 87.5%.

Table 6.5: Demographic information of Nala, Kavre District, Nepal
Source: Sherpa *et al*, 2012

6.2.1 Project site

Nala is a peri-urban settlement located in Kavre district located about 30km east of Kathmandu and is within half an hour"s drive of the nation"s capital city. The town is one of the important historic towns in the trade route of Kathmandu to the eastern part of Nepal and Tibet. Nala was selected as a project site because the township lacks complete toilet coverage. Open defecation and unmanaged wastewater are a threat to the community and water borne diseases are common in the area. Thanks to previous efforts to improve the water supply by the international NGO WaterAid, there already was a well organised village development committee. In addition, there are several micro-credit groups for women. Several agricultural cooperatives are active, supporting the merchandising of Nala"s agricultural products.

Geography, topography and climate

Nala is one of the many booming small towns around Kathmandu that have recently benefitted from better road access in the past decade. The plains around Nala are highly fertile and Nala is indeed known as the centre for the production of potato seedlings that are exported all over the country.

Environmental health

Nala has a health post providing general treatment. There is currently no doctor in Nala, but there are several in the neighbouring town of Banepa. There are two simple pharmacies in the settlement. The dominant diseases in Nala are (in order of importance): diarrhoea, typhoid, pneumonia, malaria and intestinal worms (CIUD,

2010). As a majority of these are by faecal-oral transmission, there is a clear need for improved environmental sanitation in Nala.

Water Supply

Jaljale Community Water Supply Scheme is the major source of water for Nala. This community water supply scheme was installed in 1990 in the support of Newah/Water Aid. Nala Water Users' Committee was formed to look after the system which at present is a registered users' committee for the system. The intake of the system is at Hile Jaljale which is 6 km from the settlement. There are 35 public taps distributed under this system with at least 10 households per tap. The system delivers a regular supply of water twice a day (5:30 to 8:00 am in the morning and 5:00 to 7:30pm in the evening. Each member family pays NRs. 200 water charge every year. The collected fund is utilised for the operation and maintenance of the system. The water operator is paid NRs. 2500 monthly. The annual fee is paid by most of the members of the society.

Water quality tests from various sources using a portable water testing kit developed by ENPHO were conducted in 2009 (CIUD, 2010). The test results clearly show that all the sources have microbial contamination. The nitrate contamination in local sources may be attributed to current waste management practices. Only 18% households reported that they do some sort of point-of-use treatment before drinking. For the treatment of water their most preferred choice is porcelain filter. 20% reported boiling before drinking and 1.8% uses SODIS (solar water disinfection).

Sanitation

In general, sanitary conditions in Nala are poor. Traditionally, Newari settlements did not have toilets inside their houses. To avoid pollution of ground water they used to go for defecation in a designated area called Khikahmugah or Malah in the outer fringe of their settlements. With the change in lifestyle and expansion of built-up areas, such places are vanishing. Nala used to have two such places which are now out of use. In the past two decades, individual toilets have become popular in Nala. A 2009 survey of Nala showed that toilet coverage is above average for Nepali standards. Out of 352 houses, only 60 houses do not have toilet facilities (17%). The majority of households use pour flush toilets with single pits. Only 4% of Nala households still practice open defecation regularly (CIUD, 2010). Open defecation is

one of the major reasons for the spread of water washed and water borne diseases, especially in urban and peri-urban areas. Haphazard defecation in open spaces near water sources and in the areas where it can route into the food chain is the main cause of these diseases.

Nala lacks sewer lines for waste water discharge. There are stormwater drains which are also used for greywater disposal. In the survey, six families reported that they dispose their waste into stormwater drains. The great majority construct cesspits. These pits are simple lined pits which cannot be considered as "septic tanks", even though some use this terminology. In reality it is a larger single pit, lined with a brick wall and covered with a concrete slab. 88% of the toilets surveyed utilize such pits (CIUD, 2010).

Greywater

Greywater includes wastewater from kitchen, bathrooms and laundries. As Nala has limited private taps at household level, the quantity of greywater generation is very limited. Most water consuming activities like washing clothes, taking baths, cleaning large utensils are carried out outside of the house. Greywater is disposed in the simple pits or if nearby into the open drains.

Solid waste management

In earlier times, most of the solid waste was organic matter. The traditional practices of Saa Gah (the manure pit) and Nau Gah (the ash pit) are the places where people used to throw their organic waste for composting. This traditional 'closed-loop' Newari system of waste management is still maintained in households which remain connected to agricultural activities. There are 61% households which still have some sort of Saa Gah and even 7% still have a Nau Gah (CIUD, 2010). Today, non-degradable plastics, polyethylene bags, etc. collect as solid waste on the streets. Current solid waste disposal practices include burning, open dumping or dumping it in the nearby Punyamata stream.

Drainage

Nala has a network of traditional drains for stormwater discharge in the low land fields and in Punyamata stream. All drains are constructed in brick masonry with mud mortar. In the inner town some of them are covered by stone. The conditions of drains

are poor due to poor management of the drains. The traditional drainage system has since collapsed as the life style has changed. Moreover, street sweepings and solid waste land in the drains.

6.2.2 Partner institutions

Both primary and secondary stakeholders played a key role in the Nala HCES project. Stakeholder identification and assessment in Nala was conducted in a participatory process involving all relevant stakeholders. Stakeholders were based on the following classification: (i) process stakeholders, (ii) primary stakeholders and (iii) secondary stakeholders (see page 95 for definitions of the stakeholder categories).

A participatory assessment based on the above classification was conducted in August 2009. First, a long list of all stakeholders was drafted, and then the stakeholders were assessed on the basis of their level of interest/importance and influence on the HCES process. During the assessment, a total of 45 stakeholders were identified from government, community and private sectors. However, only a limited number of institutions/organizations were found to be crucial for the project. Figure 6.6 below presents the primary and secondary stakeholders as well as the process stakeholders (Sherpa *et al*, 2012).

Figure 6.6: Stakeholder map of main HCES stakeholders in Nala, Nepal

Source: adapted from: Sherpa *et al*, 2012

Process Stakeholders

Eawag-Sandec

The Department of Water and Sanitation in Developing Countries (Sandec) based at the Swiss Federal Institute of Aquatic Science and Technology (Eawag) was responsible for the coordination and validation of the Household-centered Environmental Sanitation (HCES) programme internationally. Eawag-Sandec was instrumental in implementing the HCES process in Nala. The planning process in Nala benefited from the involvement of a Nepalese PhD student (Mingma Sherpa) associated with Eawag-Sandec (N.B: the author of this PhD is one of his external supervisors).

UN-Habitat, Water for Asian Cities

The Water for Asian Cities Programme (WAC), launched in 2003, is a joint UN-Habitat-Asian Development Bank sectoral programme that aims to support cities in Asia to meet the water and sanitation related Millennium Development Goals (MDGs) by enhancing capacity at city, country and regional levels, and creating an enabling environment for new investments to be channelled into the urban water and sanitation sector. The programme"s Regional Office for South Asia (India, Pakistan and Nepal) is based at the UN-Habitat office in Kathmandu. The WAC programme has supported the HCES process in Nala with US$ 36"000 in grant funding and provided technical assistance during the planning process.

Centre for Integrated Urban Development (CIUD)

CIUD is a Kathmandu-based Nepali NGO that specializes in participatory urban development. With over 10 years of experience in settlement upgrading and the water and sanitation sector, CIUD was chosen among several NGOs to take the project lead in Nala. The choice was based on their track record in implementing similar work elsewhere in Nepal for UN-Habitat and Water Aid Nepal.

Primary Stakeholders

Nala Integrated Development Committee (NIDC)

The Nala Integrated Development Committee (NIDC) was founded on 24 March 2009 during an official community assembly. NIDC consists of a central committee with 2 members from each ward level committee and representatives of all major political parties. 33% of the members are female. In addition, 4 sub-committees were formed, covering the 4 wards of Nala village. NIDC played a pivotal role in 2009/2010 in appraisal, negotiation and problem solving during the HCES planning process. The NIDC is a project-based, community-based organisation that represents the interests of the Nala community and will continue its work after the project is completed in 2012 (Sherpa *et al*, 2012).

Nala Ugrachandi Village Development Committee (VDC)

A Village Development Committee is the lower administrative unit of the Government of Nepal. Each VDC is divided into smaller units known as Wards. The settlement of Nala is located within the Nala Urgachandi VDC. The VDC has successfully mobilized some of its annual local development budget to implement the HCES plan during 2009. It is committed to provide additional funds in 2010 and in the successive years to upgrade the environmental sanitation conditions of Nala.

District Development Committee (DDC), Kavre

The DDC is the district level administrative unit of the Government. All VDC offices are under the jurisdiction of the DDC office. Nala Ugrachandi VDC lies in Kavre District. The DDC was identified as a primary stakeholder as Nala could potentially benefit from the annual development budget which the DDC allocates in its area of jurisdiction. The local users of Nala are actively lobbying to garner support from the DDC for project implementation in Nala.

Secondary Stakeholders

Nala Water Users Committee

As mentioned earlier, the Nala Water Users Committee was established along with the water supply system in 1990. The committee is represented by local leaders and

more than half of the households of Nala are members of the committee. Although considered less influential, they were considered important from a community mobilization perspective for HCES planning and implementation.

Community leaders and politicians

Following the decade long conflict in Nepal, the level of political awareness among the general population has increased. To avoid conflicts and unnecessary hurdles in the post conflict scenario, local level political leaders representing different parties were asked to join the NIDC. In addition, individual leaders such as the local parliamentarian from the area was identified as a further key stakeholder. He was invited for all major ceremonies (e.g. ground-breaking & inauguration ceremony.

Pragatisil Krisak Samuha

This is a youth group from Nala that has started its own agricultural enterprise in the community. The group develops improved varieties of potato seeds through tissue culture and has also initiated organic farming. The strength of the group is the involvement of local youths aiming to make a difference for their community. The positive attitude of the youth group was seen as a potential strength that could be utilized to gather support to sensitize the villagers on health and hygiene issues.

Mahila Bikas Bahuudesya Sahakari Sanstha

This is the largest women's cooperative group in Nala. Most women in Nala are members of a small savings and credit group (SCG) which exists in the locality. Several of these SCG make up the larger umbrella Cooperative. This cooperative provides loans to establish small scale enterprises. During the planning process, the key members of this group were instrumental in mobilizing women's groups in Nala. The strength of this group to mobilize women from each household was seen as an asset for the HCES project, especially for raising community awareness on sanitation and gathering support from each household.

6.2.3 The Enabling Environment

This section examines the main features of the enabling environment that are found in Nepal. It looks at national policies, institutional frameworks, available skills and the financial arrangements of the water and sanitation sector.

Laws, policies and strategies

National policies and sector strategies for urban environmental sanitation are weak or exist only in draft form. Two documents are worth mentioning: the Rural Water Supply and Sanitation National Policy, published in 2004 (MPPW, 2004) and the National Urban Water Supply and Sanitation Sector Policy, published as a policy draft in February 2009 (MPPW, 2009). Both documents are policy documents that aim for safe, accessible and adequate water supply and sanitation services. Both policy documents aim for 100% coverage by 2017 which is hardly achievable given current investment levels. Both documents however, do emphasise the importance of decentralised service delivery and specifically mention the roles of District and Village Development Committees in planning and implementing sanitation services. Under paragraph 9.7.1 special mention is made to the formation of "Water Users and Sanitation Committees (WUSCs)" at neighbourhood level in providing appropriate basic urban services (MPPW, 2004).

Institutional framework

Periodic Development Plans at district levels form the basis for regional and local level planning in Nepal and the allocation of sectoral budgets is done according to the approved District Development Plans. All government agencies and NGOs implementing projects and programmes at the district level are accountable to the relevant district development committee (WaterAid, 2008). The Nepali Civil War that lasted from 1996 to 2006 has considerably weakened the government's outreach to areas outside of Kathmandu Valley as the Maoists had dominated the rural areas, whilst the presence of the Nepali government was limited to town and zonal centres. Due to the protracted Civil War, local governments in Nepal are still considerably weakened and all local government functions have been carried out by government appointed local development officers (UN-Habitat, 2008b).

Given the general weakness of government leadership, the international donor community today plays a key role in forming sector policy and implementing programmes (e.g. UN-Habitat's *Water for Asian Cities Programme*, the Collaborative Council's *Global Sanitation Fund* or the Asian Development Bank's *Small Towns Water Supply and Sanitation Sector Project*).

Financial arrangements

Budget allocations for the drinking water and sanitation reached around 9.3 billion Rupees (US$ 130 million[1]) in the past annual budgets, and following the International Year of Sanitation in 2008, in the fiscal year 2008/09, for the first time a separate sanitation budget line of Rupees 50 million (US$ 625'000) was allocated (WaterAid, 2008). Unfortunately, less than 15% of the sector budget is allocated to local bodies (District and Village Development Councils), whilst the greatest part (75%) is budgeted and spent by the Ministry of Physical Planning and Works at central government level (DFID, 2011).

6.2.4 The planning process in Nala

The HCES planning process in Nala was based on the 2005 HCES guidelines developed by WSSCC/EAWAG (Eawag, 2005). The planning approach recommended by the guideline was locally adapted to the local skills and expertise and was carried out in 12 months. The planning process began in March 2009 and by December 2009 the consultation process was completed. Decisions related to user's contribution of land for the wastewater treatment site or household's financial contribution took longer to resolve, so the final HCES plan was completed only in April 2010. In the case of Nala, the HCES process was simplified and adapted to only six planning steps plus a seventh step for project implementation. This was because Nala was one of the last case studies to be implemented and could already benefit from experience gathered in other HCES cases, avoiding duplication and lengthy procedures.

The key three phases within the planning process were:
  i. the socio-technical assessment,

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[1] Exchange rate in 2010 US$ to Nepalese Rupees Us$ 1 = NRS 72.

ii.   the selection of the sanitation services or provisions and,

iii.   the development of the final HCES plan.

Among these phases, the first and the second phases have been divided into several sub-activities. A brief summary of the entire planning process is provided in table 6.6. As the 7 steps show, the planning process in Nala worked well mainly due to the good working relations between the main process leader (NGO CIUD) and the community representatives (user's committee) (CIUD, 2010). The inclusive and communicative planning approach managed to build community ownership and produce a costed and timed implementation plan within 12 months time (ibid, 2010).

	Planning activities	Tools used	Outputs	Timelines
STEP 1	• Community briefing on HCES plan & process • Formation of users committee • Formation of sub-committees • Preparation of volunteers for baseline assessment	• Community gathering, verbal presentation • Facilitated by local leaders • Community facilitator	• Community is made aware • Main users committee and ward sub-committees are established • Volunteers selected for carrying out baseline study	March to May 2009
STEP 2	• Socio-economic assessment: Household mapping and survey Socio-economic analysis • Technical survey Level survey, survey of existing roads, drains and walkways. • Identification of users needs & priorities • Stakeholder analysis	• Basemap on Googlemap house numbering • Surveyors, topo maps • Ward-level FGDs, local facilitator • Ranking of stakeholders	• Baseline report on Nala, including socio-economic data • Level profile and topo map • Identification of users needs • Primary & second. stakeholders	May to July 2009
STEP 3	• Expert workshop - experts help identify & narrow down options • Assist user in informed decision making: exposure visits, sanitation bazaar, etc • assessing potntial options among the users	• Facilitator, consultations group work • Facilitator, students for exhibitions • Facilitator ward level, participatory scoring	• Recommended potential sanitation options • Identified potential options by users	August to Sept. 2009
STEP 4	• Discussion with NIDC and sub-committee members on service options • Analysis of options based on local criteria, willingness to pay • Selection of feasible services	• Facilitator, experts and community consultations • Expert analysis, calculations • Consultations	• Narrow down possible service combinations • Analysis of options based on criteria and indicators	October to Nov. 2009
STEP 5	• Draft report with details on type of sanitation systems to be developed, cost details, cost sharing, etc.	• Consultations and write up	• Consolidated UESS plan	Jan 10 to
STEP 6	• Final plan prepared	• Consultations and write up	• Final UESS plan	March 2010
STEP 7	• Detailed implementation plan	Community contracting Bidding processes	• Finalised infrastructure inputs	on-going

Table 6.6: Summary of the 7-step planning process in Nala, Nepal
Source: adapted from Sherpa, 2011

The importance of providing information to the community about the technical aspects and cost implications of different sanitation options early in the process allowed them to make better informed decisions. For example, this entailed unbundling urban sanitation horizontally by using different systems in different areas of the neighbourhood as shown in Figure 6.8.

The proposed plan

The adopted HCES plan proposes to improve the existing management of different household waste streams, namely blackwater, greywater, solid waste and stormwater. In addition, the plan proposes to build-up local capacity to sustainably manage and operate the new services and to conduct health and hygiene improvement programmes. Figure 6.7 provides an overview of the proposed sanitation system for Nala.

Blackwater: A combination of sanitation solutions was proposed taking into account the different settlement patterns. For the scattered low-density housing surrounding Nala, it is not practical to connect them to a sewer network from a technical as well as financial perspective. For this area, covering 42% of the houses, on-site sanitation options were recommended. In these areas, double ventilated improved pits (VIPs) or UDDTs are to be promoted. In the northern and western part of Nala there are 33 households that currently don"t have access to toilets. These households will be given the choice between double VIPs or UDDTs. For the denser settlement areas in the central and eastern part of Nala with a shallow water table, double VIPs are not encouraged. These built-up areas will be served by a separate small-bore sewer

Figure 6.7: Proposed waste stream management in Nala : small-bore sewers combined with decentralised treatment   Source: adapted from Sherpa, 2011

network connected to a decentralized treatment system. The topography is very much in favour of a small-bore sewer system as there is adequate slope for the flow. The small-bore sewers will collect wastewater from approximately 58% of the houses in Nala. The NGO CIUD also proposed to construct either waste stabilization ponds or an anaerobic reactor that will treat the collected wastewater (CIUD, 2010).

Greywater management: Greywater will be combined with blackwater. Adding greywater to the system helps the wastewater flow as there is low water use in the existing system. However, depending on the type of treatment system finalised, it could also be separated. For the greywater generated at public taps or wells, the existing stormwater drains may be utilised for discharge (CIUD, 2010).

Stormwater management: currently, there are almost 2 kilometres of existing stormwater drains in Nala, of which 310m are covered. A major part of the existing drains need maintenance and regular cleaning. The HCES plan proposes to maintain and rehabilitate some of the existing drains and to construct new ones in areas where there is an urgent need.

Solid waste management: In the absence of a proper solid waste management system, Nala is suffering from haphazard disposal of organic waste. More than half of the households reported that they are burning their solid waste. For organic waste, most households still practice *Saa Ga,* a traditional practice of composting organic waste. Therefore for inorganic waste, a management system involving proper collection, transportation, and disposal and recycling of plastic waste will be established. Training and capacity building will be provided to improve the organic composting practices and to increase the compost quality for reuse in agriculture (CIUD, 2010).

Health and hygiene issues: Nala lacks awareness in health and hygiene issues. Community trainings, exposure visits and thematic group initiatives were conducted as accompanying „software" measures to improve behaviour practices in the area. To do this, school level eco-clubs, women"s group mobilization and interventions by female community health volunteers were carried out during the one year planning process (CIUD, 2010).

6.2.5 Project outcomes

The project in Nala benefits the 2275 inhabitants by providing improved liquid and solid waste management. The HCES improvement plan for Nala provides the basis

for the detailed planning that was conducted from October to December 2010. The project foresees 3 project components for implementation:

   i   On-site toilets for the poorest households that will not be connected to the sewer network. This will be organised through a revolving loan scheme with a 40% upfront household subsidy;

  ii   Simplified sewers covering roughly 60% of the built-up area of Nala.

 iii   Decentralised treatment system including an anaerobic baffled reactor (ABR) and a constructed wetland located about 500 metres from town.

Overall hardware costs for infrastructure improvements (including project design) amount to US$ 132',000 financed from a variety of funding sources (see Table 7.2 for details). For all three components household contributions were expected either in cash or in form of in-kind unskilled labour. It is worth mentioning that this is the first simplified sewer that is being installed in Nepal and is thus of great interest for the future of low-cost urban sanitation solutions in the country. Figure 6.8 below shows a map with the different planned interventions (simplified sewers and decentralised treatment plant).

In addition to the hardware interventions, a number of awareness raising and capacity building activities were carried out:

- Health and hygiene campaigns including door to door awareness campaigns, children"s eco-club activities, hand washing campaigns, etc.

- Community organisational support which encompasses capacity building, training and exposure visits to other community-led initiatives in Kathmandu Valley.

- Promotional campaigns and messages which seek to inform and educate the community at large on urban environmental issues.

Fig. 6.8: Map of proposed sanitation interventions in Nala

Source: author

By the time of finalizing this thesis, the infrastructure implementation in Nala has been completed under the leadership of the 13 member Nala users committee (UC) and initial operation and maintenance training was conducted in mid-2012. To finance the community owned sanitation system, users on average will contribute around 33% of the total capital expenditures, the remaining 67% will be funded through external support. User contributions include cash and in-kind sweat equity (e.g. labour inputs for digging trenches and preparing the terrain for the off-site treatment plant). The poorer segments of the Nala community (especially the minority Dalit community) identified through the poverty mapping process will be subsidized. For the construction of household on-site facilities, households will benefit from a revolving fund scheme which provides loans at a nominal interest rate. Upon timely repayment, households are exempted from paying any interest. Loan arrangements have also been established for households willing to construct lateral sewer lines. Examples of the infrastructure that has been implemented late 2011 is depicted in Figure 6.9.

Fig. 6.9: Implementation of sanitation infrastructure in Nala:), treatment plant (l) sewer manhole (m , on-site toilet facilities (r). Source: author

6.2.6 HCES planning and implementation costs

Eawag-Sandec signed two contracts with the Kathmandu-based NGO CIUD. One in 2009 for the planning phase worth US$ 8,000 and a second contract signed in 2010 worth US$ 35,000 for the implementation phase. Additional funds were provided by the Swiss NCCR research fund (US$ 22,000), WaterAid Nepal (US$ 30,000) and Eawag-Sandec (US$ 10,000) for the different components. Overall planning costs are valued at US$ 13,500 which equals per capita planning costs of around US$ 6.

Operation and maintenance costs

The onsite latrines and UDD toilets are virtually maintenance free (can be emptied by residents without any health risks involved). The simplified sewer and decentralized treatment system (anaerobic baffled reactor with constructed wetlands) is a bit more complex and demands regular maintenance to guarantee faultless operation. All connected households will be expected to pay a monthly sanitation fee (estimated at around US$ 5.- per person and year, which is equivalent to 1% of a family's earnings). During the last phase of the planning, the different stakeholders in Nala discussed and agreed on the management and governance model that will guarantee long-term sustainability of the system. Once the hardware is finalised, the existing Water Users Committee will merge with the project's UC to form the new Nala Water and Sanitation Users Committee which will be responsible for both water and sanitation services in the locality.

This new users committee will be responsible for long term operations and maintenance (O&M) of the community-owned water and wastewater treatment

systems. The users committee will receive O&M training with technical support from the treatment plant designers, enabling the community to take over the monitoring of the plant. Basic parameters will be tested periodically to assess the efficiency of the plant (Sherpa *et al,* 2012).

6.2.7 Challenges, constraints and strengths

The following sections summarise the main challenges faced during the planning and implementation of the HCES project in Nepal and then highlights the strengths of the planning process.

Extent of people's participation in planning

The HCES planning in Nala involved a great amount of interaction between community and external process stakeholders. Several focus group discussions, community meetings, exhibitions and consultation were carried out during the one-year planning phase in Nala. All steps focused on facilitating the participatory process but, as there were no clear benchmarks on the level of participation, the facilitation was based on partner organization's experience and knowledge.

Empowering local communities to take informed decisions through participatory planning processes takes time. Similar experiences have been shown in other HCES validation sites (Lüthi et al 2009a). Experience from Nala shows that planning, coordinating, imparting knowledge and collecting peoples' views cannot be achieved readily. This depends mainly on the planner's capacity to facilitate the process on the one hand. But it also depends on the community's responsiveness and capacity to absorb new knowledge. The challenge for planners and experts was how to keep the participatory process short and simple so that it is not too cumbersome while still accommodating people's views and decisions. It was realized in Nala that after 10 months of planning workshops and meetings at the end of the option selection step, locals were eager to move from planning to action (Sherpa *et al*, 2012).

An additional challenge with respect to people-centered planning is that not all interests can be accommodated. In a total population of almost 2300 inhabitants in Nala, an estimated 500 people participated in one of the knowledge sharing events while only around 200, or 9% of the total population, participated directly in the

options selection process. As in any communicative planning exercise, this raises the question if the numbers of actively involved persons represents the real interests of the entire community. During the participatory workshops and meetings, only few participants voiced their opinions, while most remained passive. The participants with good oratory skills were mainly the community leaders or the „elites" who dominated most discussions. The challenge was how to guarantee inclusive participation so that all participants openly express their views and opinions. Some Dalit members, a minority and a socially disadvantaged community in Nala, also participated in the discussions, but they were reluctant to present their views. This can be attributed to the effect of the traditional caste system practiced in Nepal, where higher castes dominate the lower caste, particularly the Dalits (Sherpa *et al*, 2012).

Scope of assessment

Most participants identified sanitation improvement as their primary need and prioritized it as their first priority among other water and sanitation needs. From the beginning of the assessment, the scope of the assessment was limited to environmental sanitation issues. However, other identified needs included social infrastructure (health and educational facilities), need for vocational education and adult literacy classes or better protection of Nala's cultural heritage. Therefore, the challenge for the facilitators was how to address the varied developmental needs within an environmental sanitation planning framework. It was realized that a comprehensive action planning process was required to adjust these needs in the plan so that a comprehensive settlement upgrading development plan could be prepared. Therefore, incorporating and addressing different development needs and sectors remains a major challenge for development planning.

Integrating all waste streams in the HCES plan

Preparing an integrated, participatory plan which addresses different waste streams was challenging for experts and planners. This was mainly because emphasis was given to planning for liquid waste management i.e. black water, greywater and storm-water drainage as this reflected the community's top priority. Less attention was given to solid waste management aspects.

Secondly, developing an integrated, cross-sectoral participatory plan for management of all urban waste streams was a new concept for the Nepali planners involved. In addition, a single one-day workshop was conducted to discuss the potential sanitation systems with experts using the Compendium of Sanitation Systems and Technology (Tilley *et al*, 2008) as a guiding framework. This workshop was adequate to identify and recommend potential sanitation systems for grey, black and stormwater management. A second expert workshop was found necessary to deal separately with solid waste management issues.

Selecting potential sanitation options and feasible service combinations

Selection of the potential sanitation options and service combinations through participatory process is the result of consensus-based decision-making. This brings further challenges for experts and planners. While assessing user preferences for the sanitation systems recommended by experts, a series of ward level meetings were conducted. Despite the main disadvantages associated with networked sewerage : i) high investment and operational costs, ii) relatively complex O&M requirements compared to the onsite solutions, and iii) the uncertainty to find external financial support for future implementation; the community opted for simplified sewers. This shows a strong sense of community ownership and commitment which the planners and experts were forced to accept. The challenges for planners and managers are how to strike a balance between the users' consensuses-based decisions and the implementation and operational aspects of HCES. Following the intensive one-year planning process, the community expectations are now very high towards their new infrastructure improvements.

Making the plan operational

The following issues and challenges are associated with the operational aspects. Firstly, a common phenomenon of many low-income country settings – the weak institutional capacity at local authority levels. In Nala, although the local community and existing government authorities took ownership to support the plan, the challenge for the community is securing long term sustainability of operations. Existing village or district human and technical resources are not equipped to support this kind of planning as they lack the technical capacity and know-how. Secondly, the absence of sector coordination between multiple stakeholders responsible for implementing and scaling-up sectoral approaches like HCES in Nepal remains a major challenge. Currently, there is a real lack of coordination between local level authorities such as the village and district development committees, NGOs, and the Departments of Water Supply and Sanitation and Urban Development at national level when it comes to urban development.

Strengths

The HCES experience in Nala is today considered one of the most successful attempts at participatory environmental sanitation planning for urban and peri-urban settlements in Nepal and has been presented at several international conferences and sector meetings (e.g. Stockholm World Water Week, 2011; Global Forum on Sanitation & Hygiene, Mumbai 2011). The competent development partners, the strong commitment of the Nala community to participate and support the planning process and supportive local authorities were the backbone for creating a conducive environment to carry out a novel planning process. In addition, the planning process itself offered adequate flexibility to incorporate people's needs and choices, discuss about different options with experts and the people.

Empowering people's knowledge through the sanitation bazaar, exposure visits and community interactions were unique elements of the HCES planning process that helped to empower the community and foster informed choice. The final HCES plan that was implemented, was prepared based on user's needs and choices. Compared to previous conventional sanitation intervention projects, where the budget is often rigid and pre-determined without assessing actual needs, HCES followed a bottom-up approach to determine the intervention budget. Furthermore, the horizontal integration

of the local government and sector agencies from the inception period of the planning and the horizontal unbundling of sanitation systems are added outcomes of the HCES planning process in Nala. The local know-how and low dependence on external expertise proved that this participatory approach can be easily replicated in Nepal.

Conclusions

In view of the prevalence of top-down sector policy and strategy and in absence of participatory planning frameworks for urban sanitation in Nepal, the chosen planning approach presents an innovative approach to demand-led infrastructure planning for poor urban and peri-urban communities. To locally adapt and promote HCES in the Nepalese context, a strategic partnership between sector institutions working in urban sanitation, namely UN-HABITAT, WaterAid, the Department of Water Supply and Sewerage (DWSS) and the WASH coalition network (national NGO network) is an essential next step. It is also worthy to note that the main planning document used during the HCES process, the Compendium of Sanitation Systems and Technologies (Tilley *et al*, 2008) has in the meantime been translated into Nepali.

6.3 Chang'ombe Settlement, Dodoma, Tanzania

Dodoma has been Tanzania's capital city since the 1970s and is the seat of the Union Parliament. Being the third largest city in Tanzania, Dodoma has about 400,000 inhabitants with a strong yearly population growth rate of approximately 4%. Dodoma has an area of 70 km^2 and is divided into 17 urban and 13 rural wards. Chang'ombe is an unplanned peri-urban settlement within Dodoma, situated 6km north of the town and located within the Chamwino ward. This ward is the fastest growing ward of Dodoma Municipality with a population growth rate of 5.45% between 1988 – 2002 (Table 6.7).

6.3.1 Project site

Population:	35,000 inhabitants
Area, density:	165 hectares, approximately 212 people per hectare
Income:	¾ of inhabitants earn less than Tsh 50,000 per month (<$45 USD per month)
Average household size:	5.5 persons

Table 6.7: Demographic summary for Chang'ombe, Dodoma

Source: 2002 Tanzania National Census

Since Dodoma became the designated capital city, the biggest urban centre in central Tanzania, the town has experienced increased urban growth in the city fringe. Many poor, rural immigrants moved to settlements like Chang'ombe, as they were unable to buy or secure land in the urban centre. The constant influx of settlers over the years has deteriorated the living conditions in the peri-urban fringe and therefore, Chang'ombe has a set of conditions which make it an ideal case study site:

- Chang'ombe is the largest and poorest unplanned area in Dodoma Municipality with about three-quarters of the population living on less than US$ 2 a day;
- The lack of proper water and sanitation systems greatly jeopardize the health of Chang'ombe residents;
- Improper garbage collection and drainage contributes to the high incidence of water-related and infectious disease, including typhoid, intestinal worms,

and malaria, diarrhoea as well as skin infections. Cholera remains endemic in Chang'ombe and outbreaks are frequent during the rainy season.

Despite the lack of services and economic resources, the neighbourhood has a well organised community that is willing to improve their situation, as witnessed by the number of citizens organised in self-help groups and community-based organisations (CBOs). This is an essential element and precondition in order to undertake the HCES process.

Geography, topography, climate

Dodoma Region is located in the centre of Tanzania. Dodoma is a semi-arid region at an altitude of 1000m. The average rainfall is around 570mm per year. There is one rainy season that lasts from December to April. Dodoma's main water source is an underground aquifer, 30km north of town in Mzakwe. Most of Dodoma has acidic clay soils with low permeability. Large parts of town (including Chang'ombe) also feature a high water table which is about 1 meter below ground level, especially during the rainy season.

Environmental health & urban environmental health

No reliable data on environmental health exists for Chang'ombe, although the prevalence of water-borne diseases is considered very high by municipal health officials. According to the Dodoma Health Department, Chang'ombe has the highest number of cholera cases in Dodoma. According to a socio-economic survey carried out in 2005 in several wards in Dodoma, diarrhoea was mentioned as the most common disease by 47% of the respondents.

Water Supply

Since many residents cannot afford to buy water, they must rely on unsafe shallow wells which have poor water quality. It is estimated that only 30-40% of the community boils their water and a considerable part of the community uses untreated water for drinking which means that there is a constant threat of waterborne disease outbreaks.

Sanitation

A survey from 2007 (Kessy and Obrist, 2008) estimated that almost 90% of Chang'ombe households use simple pit latrines, while around 10% use septic tanks. A

pit latrine is often shared by 4-5 households. About 50% of the pit latrines have a permanent structure and the rest are temporary, and prone to collapse.

Solid Waste

Solid waste management in Chang'ombe is almost non-existent. Households are expected to dispose of their wastes on-site in pits. This practice is unsustainable as available land is in short supply. In light of this, burning is the most common form of ‚waste disposal‟ practiced. The municipal authority has located one community dump site near Chang‟ombe Primary School for the whole of Chang'ombe. Unfortunately, this site is approximately 2 km away from the centre of town, which makes it inconvenient and sometimes difficult for people to carry their garbage there. Without transport, either for the residents or for the garbage itself, this site is unlikely to be used as a permanent, solid waste solution.

Drainage

The absence of drainage is a serious health risk as uncontrolled storm water spreads the contents of the poorly constructed latrines over lower lying areas during the rains. Most of the households wash kitchen utensil outside the house, allowing the greywater to flow on to the streets, which creates pools of stagnant water that act as breading grounds for mosquitoes and other vectors.

6.3.2 Partner Institutions

As with the other cases, a distinction is made between (i) process stakeholders, (ii) primary stakeholders, and (iii) secondary stakeholders. Process stakeholders are understood as the key stakeholders who are responsible for driving the HCES process and essential to achieving the main outcomes of the HCES validation process. Primary stakeholders are those institutions which have a "stake" in the planning process or have the potential to affect or be affected by planning decisions. Secondary stakeholders are other stakeholders who may take part in workshops or meetings but are not essential to the planning process. Figure 6.10 gives an overview of all stakeholders involved in the HCES process in Dodoma.

Process Stakeholders

Maji na Maendeleo Dodoma (Mamado)

Mamado is a registered NGO that has been operational in the Dodoma region since 2000. It operates in all six districts of Dodoma Region in the fields of water, sanitation and health promotion. The organisation has local experience with sensitisation and awareness campaigns, implementation of donor-funded projects and in supporting local communities with organisational and administrative skill development. Mamado currently employs a staff of six. In 2007, Mamado was chosen as the HCES process stakeholder after an evaluation of several NGOs in Dodoma.

Figure 6.10: Stakeholder map of main HCES stakeholders in Dodoma

Source: Sandec

Chang'ombe Community Project Committee

The role of the Project Committee and its members is to ensure community ownership of the HCES project, communicate project issues to the community and follow-up on the project activities. The Project Committee is the direct representative of the community at large. The Committee was formed in April 2008 during Step 4 of the planning process. The Committee consists of a total of 12 members: 2 members from each sub-ward plus 4 ward leaders who were chosen by virtue of their elected position for a three year period.

Eawag-Sandec

The Department of Water and Sanitation in Developing Countries (Sandec) based at the Swiss Federal Institute of Aquatic Science and Technology (Eawag) coordinated the validation of the Household-Centred Environmental Sanitation (HCES) programme internationally. SANDEC assisted the local NGO Mamado in implementing the 10-step process in Chang'ombe.

Primary Stakeholders

Dodoma Urban Water Supply and Sewerage Authority (DUWASA)

DUWASA is a semi-autonomous entity in charge of water supply and sewerage services for the municipality of Dodoma on a financially self-sustaining basis. DUWASA is directly accountable to the Ministry of Water. It supplies water to approximately 141,000 people in Dodoma and has a sewerage system serving around 12% of the population.

Department of Municipal Health

The Municipal Health Department has the mandate to ensure a clean and healthy urban environment in Dodoma. The Health Department participated in several HCES workshops and contributed to awareness and sensitization campaigns.

Ifakara Health Research and Development Centre (IHRDC)

The Ifakara Health Research Centre provided assistance to Mamado by carrying out selected socio-economic surveys in 2008. Data provided by the research team was used in the Assessment Report published in February 2008.

Secondary Stakeholders

Swiss State Secretariat for Economic Affairs (Seco)

Seco signed a contract with Eawag-Sandec in June 2006 to fund the field-testing of the HCES approach in Dodoma. In 2010-2011 it also funded a pilot project to test microfinance for sanitation in Chang'ombe settlement. Seco is investing over CHF

11 million (US$ 10 million) for water and sewerage extension in the Tanzanian towns of Dodoma and Tabora.

Centre for Community Initiatives (CCI)

CCI is a local NGO which is only active in one part of Chang'ombe. During 2008 CCI built more than 20 urine diverting „Ecosan" toilets using a credit payment scheme.

WaterAid Tanzania

A Memorandum of Understanding was signed mid 2007 between Sandec and WaterAid to provide assistance to the HCES process. WaterAid has since closed down its Dodoma offices in 2010.

Privately operated exhauster truck entrepreneurs

There are currently 2 privately and one utility operated exhauster trucks that service the on-site sanitation facilities in town.

6.3.3 The enabling environment

This section examines the main features of the enabling environment that are found in the Municipality of Dodoma and at the national level in Tanzania. It looks at national policies (legislative and institutional frameworks), land tenure issues, available skills and the level of awareness for environmental sanitation.

Laws, policies and strategies

Currently, Tanzania does not have a national sanitation and hygiene policy; however, the Ministry of Health and Social Welfare began developing such a policy in 2008. At the 2nd AfricaSan Conference in Durban, the Tanzanian government committed to increase funding to the sanitation sector from $ 1 million USD to $ 10 million USD annually. In the 2005 "National Strategy for Growth and Reduction of Poverty" (NSGRP), the Government of Tanzania set out five operational targets for sanitation:

  i. Increase access to improved sewerage facilities from 17% in 2003 to 30% in 2010 in urban areas.

  ii. Reduce the number of households in slums without adequate access to essential utilities.

iii.   Ensure that 100% of schools have adequate sanitary facilities by 2010.

iv.   Ensure that 95% of people have access to basic sanitation by 2010.

v.   Halve the number of cholera outbreaks by 2010.

Institutional Framework

DUWASA has the mandate to provide water supply and sewerage services within the urban area of Dodoma, however on-site sanitation is not included in the mandate. Therefore, DUWASA's core business is networked sewerage service and drinking water delivery. The current institutional framework for the provision of water supply and sanitation services is based on a separation between urban water & sewerage services and rural water supply services (Table 6.8). Multi-donor funding is supporting two distinct programs to implement the National Rural Water Supply and Sanitation Program (RWSS) and the National Strategy for the Improvement of Urban Water Supply and Sewerage.

Institution	Responsibility
Ministry of Water	Prepares and implements national sector policies & strategies; Co-ordinates planning for projects of national importance; Secures financing for projects of national importance; Monitors performance; Provides technical guidance to Councils;
Local Governments	Responsible for public service provision; Manage environmental sanitation including solid waste;
Energy and Water Utilities Regulatory Authority	Regulation of urban utilities in the major cities (functional since 2007)
Urban Water Supply and Sewerage Authorities (UWASAs)	Own, manage and develop water supply and sewerage assets; Develop business plans to provide water supply and sanitation services; Secure finance for capital investment and relevant subsidies; Contract and manage service providers; Formulate by-laws for service provision;
Independent Service Providers	adhere to UWASA regulation

Table 6.8: Functional responsibilities for water supply and sanitation in urban areas
Source: Lüthi *et al,* 2009.

The central government and donors are still funding the majority of capital investments for UWASAs. Since 2007, the Swiss State Secretariat for Economic Affairs (seco) has been supporting DUWASA in a three year project to improve overall management, billing, tariff collection and routine maintenance of DUWASA's portfolio of responsibilities. A network extension for water supply is planned for

seven areas of town and Chang'ombe is among them. A sewer network extension with an additional 31km of new lateral pipes is proposed for Chadula, Hazina and Area „A". For the 80% - 90% of Dodoma's citizens who rely on on-site sanitation, there is no formalised service provision to improve their sanitation infrastructure.

Land tenure and property rights

Although Chang'ombe has all of the characteristics of an informal, unplanned settlement, technically it is a regularized settlement with formal land tenure. In the past few years, the Capital Development Authority (CDA) has carried out a topographic survey and identified structure owners. The majority of Chang'ombe's residents are now landlords with some tenants - there are no squatters. CDA is now following up with an infrastructure upgrading program which aims to provide basic urban infrastructure (e.g. roads, drainage) for Chang'ombe in the next 2 years.

Skills and Awareness

Skills are sorely lacking in all public sector departments due to a lack of human resources in regional and municipal offices throughout the country. The health sector likely has the best coverage, ranging from Regional and Municipal Health Departments to Ward Health Officers who are responsible for raising health awareness in the municipal wards of Dodoma. There is however, no single entity which is conversant in, or has the appropriate skills for dealing with on-site sanitation in urban areas. This responsibility is divided between national and international donor organisations (e.g. WaterAid) or the nascent private sector (e.g. local masons or privately operated exhauster trucks). Experience has also shown that the masons who construct the on-site sanitation infrastructure in Dodoma (i.e. septic tanks and pit latrines) often produce sub-standard work at inflated prices to the individual household.

Financial arrangements

The Central Government and donors are still financing the majority of capital investments for service extension (e.g. seco in Tabora and Dodoma). Since 2007, the Swiss State Secretariat for Economic Affairs (seco) has been supporting DUWASA in a three year project to improve overall management, billing, tariff collection and routine maintenance of DUWASA's portfolio of responsibilities. DUWASA is a category „A" authority, meaning that its revenue must cover the operation and

maintenance costs. Category A authorities are run on performance-based structures including the right to hire and fire and define the salary structure. In Dodoma, infrastructure assets have been transferred from the Central Government to DUWASA.

6.3.4 The Planning Process

In Chang'ombe, the process started with the identification of the enabling environment, i.e., analysing the commitment of local government, the existing legal framework associated with water and sanitation, the support available from financial institutions, donors, etc. This was done by holding a series of workshops where participants such as Ministry staff, local municipal representatives, local NGOs and the community expressed their interest in, and their commitment to the project. This collaboration created the framework of the enabling environment.

Request for assistance (Step 1)

Ideally, the 10-step process starts with Step 1 'Request for assistance' where a formal request of assistance by the community is made to the process stakeholder. In the case of Chang'ombe, seco actually expressed its interest to supplement their country programme "Improving Water Supply and Sanitation Services in Dodoma and Tabora" (2007-2009) with an HCES component. In a further step, seco consultants and Sandec carried out a joint 1-week mission in June 2007 to identify a site for validation (Chang'ombe) and a viable process stakeholder (Mamado).

Launch of the planning and consultative process (Step 2)

The launching events took place at the end of October 2007. Prior to the official launching workshop, a community workshop was organised to mobilize and inform the residents and to identify the main concerns of the community at large.

Community Workshop: A one-day workshop took place in Chang'ombe and was attended by cell leaders (local community leaders), primary and secondary school teachers, clinical officers from local dispensaries (health clinics), representatives from social committees, health officers and members of local NGOs and CBOs, as well as representatives from Sandec. After a briefing about HCES, the participants were split into four working groups to discuss key issues concerning the community: Working Group 1: Socio economic issues, Group 2: Health, hygiene and sanitation, Group 3:

Water, drainage and solid waste, Group 4: Mapping of the Chang'ombe neighbourhood and definition of project boundaries. Group 4 took a transect walk and was able to identify the exact boundaries of the Chang'ombe settlement for future planning purposes.

Official Launching Workshop: The official launch of the process was held two days after the Community Workshop at the CCT Conference Centre in downtown Dodoma in the form of an interdisciplinary expert's workshop. The objective of the workshop was to formalise the process and to identify all necessary stakeholders. The workshop was attended by participants from various back grounds including Municipal Health Officers, Municipal Community Development Officers, the CDA, NGOs (WaterAid, Mamado), University lecturers (Institute of Rural Development Planning (IRDP) - Research and Environmental Dept.), University students, and representatives from the community.

Assessment of current environmental sanitation services (Step 3)

Mamado and IHRDC collected up-to-date information by conducting household surveys, focus group discussions and key informant interviews to determine the socio-economic conditions in Chang'ombe. A random sample survey covering 217 households was used to illustrate socio-economic data; health and hygiene conditions; land tenure; state of housing and shelter; and physical and social infrastructure in Chang'ombe.

Fourteen different focus group discussions were conducted with adult males, adult females, and mixed youths. These focus groups elicited perceptions about access to safe water and sanitation services, health risks and community wide involvement in waste management with respect to interactions and networks. In brief, the assessment found that the economic status of Chang'ombe's residents was very low, with poor social services, poor roads and no proper waste management practices. The assessment also concluded that the community was willing and eager to improve the prevailing poor conditions. The report was distributed to the main stakeholders, including DUWASA, the municipality, and Seco (Mamado, 2008).

Assessment of user priorities and identification of options (Steps 4/5)

Steps 4 & 5 consisted of three different workshops; the aim of Step 4 was to learn about the community's priorities concerning environmental sanitation, while the aim of Step 5 was to identify the various options for UES services that are affordable and technically viable for Chang'ombe. After an initial expert"s workshop (Step 5) narrowed down the system options to four distinct choices, the different technology options were explained at a community options workshop. A user-priorities workshop (Step 4) was held on the same day to minimize travel and the time investment of the participants. The steps were done in a reverse order to optimize limited time with experts (some of whom had travelled from Dar es Salaam) and to expedite the process. This modification was made intentionally to determine how an alteration in the 10-Step order would work in practice.

Experts options workshop

This workshop was attended by 17 invited participants including representatives of DUWASA, the municipal health department, WaterAid, CCI and the ward health leaders. The aim of the workshop was to develop a list of feasible sanitation systems which could then be presented to the community as potential options for them to assess. This was done in a moderated discussion using interchangeable technology cards to build up complete, logical systems. Simplified templates from the Compendium (Tilley et al, 2008) were used to guide the planning session.

Community user priorities and options workshop

This workshop took place within the community and was moderated by Mamado with 64 participants. The workshop was attended by the various community representatives, cell leaders, women and youth groups and by others who wished to attend. There were two parts to the workshop: the first part addressed the overall priorities of the community (i.e. the relative importance of improving solid waste, sanitation, etc.) and the second part addressed sanitation options as identified by the experts group earlier. The user priority exercise was conducted utilizing a prepared questionnaire with 9 questions in Swahili, which asked participants to rank their priority problems from 1 - 5 (1 being the top priority). Two issues were ranked as priority by the participants: the road conditions and improving sanitation conditions in Chang'ombe.

The community was then given the chance to discuss, question, and give their opinion about the different options that were deemed to be appropriate for the environmental and economic environment of Chang'ombe. They were:

- Double or Single Ventilated Improved Pit (VIP) latrines - lined pits with a ventilation pipe for improved hygiene and user comfort;
- Fossa Alterna - a waterless double-pit technology which is the cheapest option;
- Urine Diverting Dry Toilet and Dehydration vaults („Ecosan") - a dry toilet which separates urine from the faeces and allows the two waste products to be treated and used beneficially ;
- Public Toilets- pour-flush toilets connected to a bio-digester for sludge treatment and energy generation.

Both the Fossa Alterna and the Ecosan toilet can be maintained by the families themselves without the need to pay for an evacuator truck, and provide opportunities for peri-urban agricultural activities (urine, compost, etc.). The idea of a public toilet was also popular, but it was not immediately clear how it would be operated or managed.

Formation of community project committee

A new HCES project committee was created to ensure ownership and consistent follow-through of the project. The main objective of the committee was to

communicate project issues to the community and follow-up on project activities. An eight member team, consisting of 4 males and 4 females, was created. These members represented the four Chang'ombe wards and were responsible for the activities in their respective wards for three years. The criteria for selection of these members were as follows:

- respected individuals within their ward,
- committed to improve the conditions in their wards,
- willing to work with and for the wards,
- must be a Chang'ombe resident.

Shortly after the July workshop, pilot facilities were constructed in Chang'ombe to test user acceptability. The demonstration facilities were financed by separate Swiss funding. Three different technologies at different locations were chosen based on the community priorities: Chang'ombe Primary School (communal VIP), Ward Office Mazengo (Fossa Alterna) and Ward Office Hamvu, („Ecosan" toilet). These pilot facilities allowed the process stakeholders to assess the real costs and quality of construction. Upon completion, further improvements and adaptations to bring down the costs could be suggested before up-scaling to the neighbourhood level. The pilot facilities built at public venues allow community members to test and better understand novel, previously unseen sanitation facilities that were maybe not quite clearly explained during the workshops. All three facilities were finalised early January 2009.

Development of UESS Plan (Steps 6/7/8)
The final planning step involved the production of the UESS Plan for Chang'ombe, which took eight weeks to complete. The UESS Plan summarises the HCES planning process, mentions the focus areas of the plan and details improvement options and responsibilities for implementation. Action areas include: (i) a social marketing programme, (ii) sanitation technology options for Chang'ombe, (iii) liquid waste disposal options, and (iv) drainage options for low-lying areas in Chang'ombe.

During this step, the process stakeholders began discussing the possibility of introducing a microfinance funding instrument to enable the inhabitants of Chang'ombe to pay for the toilet facilities they want. The microfinance scheme involves an executing agency (e.g. Mamado), construction brigades, i.e. trained

masons, and sanitation groups, i.e. a maximum of five households who formally request micro-loans. Loan recovery begins one month after construction and is paid back over a period of 18 months, during which time the sanitation group can pay in monthly or quarterly instalments. A monthly interest rate of 1% will be charged. The UESS Plan for Chang'ombe includes an action plan and an itemized budget for future implementation. The HCES planning process was finalised in January 2009 at a stakeholders' workshop where the draft UESS Plan was presented and implementation issues, especially concerning the microfinance tool, were discussed. The UESS Plan featuring sensitisation campaigns and a microfinance for sanitation pilot scheme was implemented in 2011 and finalised in October of that year.

6.3.5 Project outcomes

The HCES project in Dodoma, Tanzania has provided the following outputs to Chang'ombe's residents (Table 6.9):

Infrastructure improvements	
Sanitation pilots	3 pilot sanitation technologies built in Chang'ombe: (i) Fossa Alterna, (ii) Urine diverting double-vault dehydration toilet (Ecosan Toilet), (iii) VIP latrines (primary school).
Microfinance for sanitation programme	Microloans for toilet facilities provided since December 2010 (initial seed funding from Switzerland: $50 000 USD). About 100 house-holds have since applied for these microloans.
Improvement of management of UESS	
Institutional	Operational HCES Project Committee representing the community at large
Funding vehicle	"Microfinance for sanitation" framework discussed and agreed with main stakeholders. Formation of a Technical Committee to provide guidance.
Awareness raising and capacity building	
Training courses	Half-day training course on on-site sanitation options (held in preparation for Step 5)
Awareness raising activities:	Two community workshops and several focus group discussions (organised by Ifakara Health Research and Development Centre)
	Microfinance workshop to sensitize stakeholders about novel financial tools
	Opening day for newly constructed VIP school toilets at the Chang'ombe Primary School
	Social marketing events on World Toilet Day in April of 2009 and 2010

Table 6.9: Main outputs of the HCES process in Chang'ombe

Source: Lüthi *et al*, 2009.

Process stakeholder costs

Eawag-Sandec signed a contract worth US$18,000 for Mamado's inputs towards the HCES validation in Dodoma. Because of currency devaluation (20% in one year) and

cost savings, only US$ 12,500) were effectively spent. This covered salaries, overheads, and transport.

Additional Workshop costs

Community Workshop (October 2007):	75 participants
Launching event (October 2007):	55 participants
Cost of Community Workshop:	US$ 1,000
Cost of Launching Workshop:	US$ 1,100
Cost of Options & Experts Workshop (April 2008)	US$ 1,000
Total workshop costs (2007-2008)	US$ 3,100

All other workshops were smaller with lower participation and were funded within the process budget allocated to Mamado.

Hardware costs

Within the PAMS project, Mamado was given an implementation budget of US$ 29,000 (2008) for building the pilot sanitation facilities in Chang'ombe. PAMS are a vehicle for testing the applicability of development research results. Each project is designed to implement strategies developed jointly by researchers and local stakeholders. Based on a transdisciplinary approach to development research, PAMS are meant to promote mutual learning and knowledge-sharing between academic and non-academic partners in sustainable development.

Total costs for HCES planning phase (including pilot facilities):

Contractual costs (Mamado)	US$ 12,500
Construction costs	US$ 29,000
Workshop costs	US$ 3,100
TOTAL	US$ 44,600

Approximately US$ 1.30 was spent per capita for the planning phase.

Contribution by the beneficiaries

Certainly there have been dozens of hours spent by ward representatives and project committee members in making the HCES process a reality, but putting a price tag on voluntary work is not easy. Some expenses have been paid, for example all workshop participants were given a small per diem ("incentive") for their attendance. Further

interviews must be carried out to try to estimate the number of days/hours spent in dealing with the entire planning process.

Operation and maintenance costs

Maintenance costs will depend on the chosen on-site technologies. Single pit VIP latrines will have the highest maintenance costs due to the high pit emptying costs of TShs 15,000 - 30,000 per latrine (approximately US$ 15-30). Both the Ecosan toilet and Fossa Alterna cost far less to maintain, as most of the maintenance can be done as unpaid labour by the individual households.

6.3.6 Challenges, constraints and strengths

This chapter examines some of the challenges faced during the 14 month planning process in Dodoma.

Institutional Challenges

The main institutional challenges were in dealing with the two most powerful in institutions in Dodoma: the Dodoma Urban Water Supply and Sewerage Authority (DUWASA), and the Capital Development Authority (CDA). Both institutions found it difficult to diverge from the status quo and foster experimentation outside of the norms within which they were deeply embedded. DUWASA's institutional inertia made it difficult to transform mainstream processes and to try a new approach that diverged from „business as usual" (Lüthi *et al*, 2009). DUWASA carries the term "sewerage" in its name and is above all, interested in expanding its sewerage network to all planned areas of town, even if almost 90% of Dodoma's citizens will continue to rely on on-site systems like septic tanks and simple latrines. DUWASA currently does not operate any exhauster trucks (although it is planning to purchase one in early 2009), does allow faecal sludge to be disposed of in the waste stabilisation ponds, and believes that centralised sewerage is still the most efficient and safest way for excreta removal.

Inflexibility on the part of DUWASA has at times caused uneasy relations between the HCES project unit and DUWASA representatives; DUWASA did not attend the workshops and showed general disinterest in the process. However, following the options workshop (July 2008), the DUWASA Sanitary Engineer did start to show interest and contributed to the experts meetings. The willingness to invest in the

purchase of a new exhauster truck shows that DUWASA began to see a potential money-earning market in emptying the thousands of on-site facilities in Dodoma. Overcoming ‚institutional inertia" takes time and comes in gradual steps, but it appears as if DUWASA is making steps in the right direction.

The Capital Development Authority (CDA) is a powerful institution that holds all public land in Dodoma and wields overall planning authority. This means that unlike other local authorities in Tanzania, Dodoma Municipality has no major assets and no real planning authority. CDA managed to regularize the entire unplanned settlement of Chang'ombe in 2007 and ensured that the inhabitants secured tenure. The promised upgrading of roads and drainage systems has been delayed due to lack of funds. It also created some project delays by initially refusing to grant construction permits to the three planned pilot facilities in Chang'ombe.

A third institutional challenge was the limited professional capacity at all levels; capacity that is needed to carry out this kind of comprehensive planning approach in a secondary city in Africa. There are too few professionals who understand sanitation options at household and community levels, a lack of expertise to carry out statistically sound sample surveys, and a lack of skilled moderators/communicators who combine communication skills with knowledge about community dynamics. Professional capacity development requires considerable attention in the near future.

Process related challenges
Given the low capacity in terms of time and human resources, the HCES approach in its current format is still too demanding for the reality of small and medium-sized African towns. During the project period, a number of additional tasks were added to the original planning steps (e.g. socio-economic surveys, micro-finance workshop, construction of pilot toilets, etc) which exposed weaknesses in project programming and implementation. By streamlining and combining certain planning steps, the timeframe and complexity can hopefully be reduced.

The second challenge was regarding the mode of participation. Workshop participation was not entirely voluntary in that participants were paid with so-called ‚incentives" in the form of travel expenses or lunch, or both. Compensation for

workshop participation seems to be standard procedure in Tanzania but it does raise some questions about genuine participation and the real motives for community participants attending a planning workshop.

Finally, there is the question of replicability. It is not certain if the process stakeholder Mamado is sufficiently empowered and capable enough to carry out a similar multi-stakeholder approach on its own without external backstopping. In terms of executing the process, i.e. organising workshops, mobilizing the community, etc., there would be no foreseeable problems. However, the NGO does not possess sufficient technical knowledge or institutional leverage to perform high quality design and assessment work in collaboration with the institutions who should be involved.

Strengths

The 14-month planning process in Dodoma brought together a great many stakeholders from public, private and civil society (local and international NGOs). During the process, officials and community representatives shared their views and discussed viable options for improving environmental conditions. A good degree of agreement was achieved during the workshops and group work sessions. Initial resistance from the water and sewerage utility could be partially overcome.

Due to the many workshops, focus group discussions and social events (e.g. official opening of the school toilets at Chang'ombe Primary, annual celebrations of World Toilet Day) there is now a greater willingness to improve urban environmental conditions in the neighbourhood. However, unlike in Nala, Nepal, where institutionalised community organisation (e.g. users committee) has taken root, the Dodoma case does not offer longer-term formation of social capital because of the household-centred process.

A small revolving loan funding tool was initiated as one of the project's outcomes. The agreed loan modalities offer a subsidised interest rate of 12% annually for a one year loan (below Tanzanian market rates). Loan amounts varied between US$ 80.- to US$ 380.-, depending on the type of sanitation facility requested. By the end of 2011, 25 individual household loans have been distributed and repayment was on track with

a 0% default rate. Figure 6.11 shows two examples of the newly constructed on-site facilities in Chang'ombe.

Figure 6.11: New upgraded single pit latrine (left) and urine-diverting dry toilet in Chang'ombe (right)

Source: author

6.4 Comparative analysis

This section provides a comparative analysis of the three case studies presented in Chapter 6. This research conducted deductive research and provided an in-depth analysis of the opportunities and challenges of the HCES planning process in selected urban and peri-urban contexts. The three cases in Lao PDR, Nepal and Tanzania present differing settings in terms of spatial context (inner-city vs. peri-urban settlement) and size of settlement (between 275 to 35"000 inhabitants), but also in terms of urban governance. Lao PDR presents the case of a rigid one-party state characterised by a clear hierarchical decision-making framework, whilst Nepal is at the other end with weak governance structures, and an absence of elected local authorities, in short - governance without government. Dodoma, the designated capital city of Tanzania falls somewhere in between these two cases. The common feature for all three cases analysed is the socio-economic status of the communities: unserved households living on or below the respective national poverty lines. All three selected case study communities stated their interest in improving their basic urban infrastructure and were thus included in the HCES validation process.

All three cases needed around one full year to achieve the final output: an adopted action plan for implementation (Table 6.10). However, the lengthy planning procedures was a point criticised by many interviewees during the ex-post evaluation (see next chapter for detailed discussion of the critical points raised).

Total expenditure per capita for the planning phase varied greatly (excluding implementation costs) between US$1.3 (Tanzania) to US$ 60 (Lao PDR) and underlines the potentials of economies of scale in planning for larger communities. Based on this experience, the ideal balance between costs per capita and „depth" of community participation achieved lies somewhere between 5'000 to 20'000 inhabitants. Clearly, the bigger the population of a given community, the lower the degree of direct interaction and power sharing arrangements that are feasible and economically manageable.

The chosen technological solutions in each case study shows that in terms of operations and maintenance (O&M), affordable and realistic choices were selected with monthly O&M fees ranging between US$ 0.6 (Lao PDR) to US$ 3.- (Nepal) per household.

	Hatsady Tai, Lao PDR	Nala, Nepal	Chang'ombe Tanzania
Planning timeframe	12 months	12 months	14 months
Year planning was carried out	2008	2009/2010	2009/2010
Number of beneficiaries	275	2275	35000
Total expenditure for planning per capita in US$	60	6	1.3
Operation and maintenance costs per household/month (US$)	0,6	3	monthly micro-loan repayments
In-kind community funding (% of total costs)	5.5%	33%	~30% (mostly in form of micro-loan repayments)
Process stakeholder	Govt. institute (PTI)	NGO	NGO
Acceptance of HCES planning approach	high	high	medium
Institutionalised structures (e.g. registered CBO)	yes	yes	no
Technology choice (sanitation)	off-site (conventional sewers)	off-site (simplified sewers)	on-site (household-managed)

Table 6.10: Comparative analysis of the three case studies

Source: author

This represents about 1% of disposable household income for the urban poor in both countries and lies below recommended levels proposed by multilateral institutions (e.g. ADB, 2009). These monthly payments should guarantee the long-term operational durability of the newly implemented infrastructure and services.

Due to the intensive community mobilisation efforts at the outset of the planning process, in-kind community contributions were highest in Nepal and Tanzania at around one third of the overall planning and implementation costs. They were lowest in Lao PDR, perhaps reflecting the small size of the community involved (55 households) and given the fact that there was a private donor (local bank) which contributed additional funds early during the process. In-kind community contributions were key to the low overall planning and implementation costs in Nepal (US$ 64 per inhabitant), less than half of costs per person cited in sector literature (GTZ, 2005, p. 85).

In terms of process management, the Nepalese and Tanzanian cases were NGO-led whilst the one in Vientiane was managed by a governmental research institute. The skills and capability of the process facilitator varied greatly, from a capable and knowledgeable NGO specialised in urban upgrading in the case of Nepal to a rather weak local NGO in Tanzania, especially regarding know-how in sanitary engineering.

Overall acceptance of the multi-step HCES approach was high as indicated in the ex-post evaluation carried out in 2010 (see Chapter 7 for details). However, the acceptance was lower in Dodoma, Tanzania due to the longer timeframe and low overall investment budget for the entire settlement area. Both Asian cases where acceptance was high, witnessed the formation of institutionalised management structures, e.g. the *Hatsady Tai Village Environmental Unit* in Vientiane and the *Nala Integrated Development Committee* in Nepal, both responsible for the long-term operation of the new infrastructure and services.

Each site chose different sanitation systems and technologies (including both on-site and off-site treatment), proving the open-ended, versatile and contextualised nature of the household-centred planning approach (Eawag, 2005). Validation of the HCES process has proven that the framework does indeed widen the technology options beyond the „gold standard", utility-managed sewered systems by providing more affordable small-scale and decentralised solutions. A further advantage is the recognition that HCES can contribute to incremental improvements in service provision, phased over time and adjusted to community funding opportunities. The inclusion of the existing household cesspits in Nala, Nepal, which were converted to settling tanks for the solids-free sewer installed in 2011/2012 is a good case in point.

The following chapter provides insights into user perceptions in Lao PDR and Nepal about the multi-stakeholder planning approach, based on a survey of experts and participating residents in two of the case study areas (Vientiane and Nala) .

7. *User perceptions of participatory planning in environmental sanitation planning* (paper 2)

Christoph Lüthi* (corresponding author) and Silvie Kraemer*

*Department for Water and Sanitation in Developing Countries (SANDEC), Swiss Federal Institute of Aquatic Science and Technology, Eawag, P.O. Box 611, Tel. +41-44-8235614 8600 Dübendorf, Switzerland

christoph.luthi@eawag.ch

Abstract

This paper aims to contribute to the growing body of literature on evaluation of community participation in the water and sanitation sector. The first part discusses the conceptual underpinnings of participatory approaches. The paper then analyses stakeholder perceptions about the Household-centred Environmental Sanitation (HCES) approach, a participatory planning approach recently validated in two countries: Lao People's Democratic Republic (PDR) and Nepal. Post intervention surveys were conducted with experts and key informants in both countries to assess satisfaction regarding degree of participation, effectiveness of planning outcomes and process efficiency of the participatory planning process. It specifically looks at the variability in people's perceptions about the costs and benefits of community participation. Empirical findings show that experts and participants show high satisfaction rates regarding involvement in decision making. The earlier and stronger residents were involved in the process, the higher the satisfaction rate. In a second part, the main findings of expert interviews are contrasted with the perceptions of the community at large which participated in the participatory planning process. A better understanding of community participation in urban settings is needed regarding skills, motivation, time, and defining the right levels of participation.

Keywords: community participation, environmental sanitation, social capital, user preferences

7.1 Introduction: participation in development

Participation is seen today as a key ingredient for achieving sustainability of development interventions and most international agencies and development institutions subscribe to involving beneficiaries and communities in the planning, supply and management of resources, services or facilities (UN-Habitat 1996; UNICEF 1997; IWA 2006; ADB 2009; WSSCC 2010). Community participation is widely believed to contribute to enhanced efficiency and effectiveness of investment and to promote the formation of social capital and empowerment (Cooke & Kothari 2001). In the water and sanitation sector, the practical and technical interests such as more efficient service delivery or reduced recurrent and maintenance costs are also cited (Feacham 1980). It is claimed that communities that lack water and sanitation services have a greater incentive to participate and that the outcomes of such participation will directly benefit them (Cleaver 1999).

Community participation in the water and sanitation sector is justified by four main arguments:

i.   *ownership* – by giving affected communities a real say in decision-making through active consultation or delegated power, communities gain owner-ship of the development process (Wood *et al* 1998).

ii. *greater efficiency and effectiveness* – both national governments and development agencies see participation as a means to reach project activities and outcomes through community contributions (e.g. mobilizing funds or sweat equity) (Cleaver 1999).

iii. *better design* – participation during the planning stage will lead to a more appropriate design and technology choice (especially at the user interface) (Eawag 2005; Tilley *et al* 2008).

iv. *social change and empowerment* – involving beneficiary communities in mobilization, planning and project design creates a sense of ownership over the outcomes and thus social capital is gained which can lead to new forms of social partnership and „empowered communities". (IILS/UNDP 1997).

While these arguments are often combined, stressing the benefits of formalized community participation and people-centred action for effective water and sanitation interventions, very little evidence-based research exists to prove the point. Previous studies on participation have focused on collective management of water resources Cleaver (1998a, 1998b) or urban upgrading (Moser and Sollis, 1991; Hamdi and Goethert, 1997) but rarely on sanitation planning and management (McConville 2010). It has also been claimed that it may be difficult to follow demand responsive approaches to sanitation at a community level, as choices regarding sanitation often take place at a household level and are thus difficult to manage at community level (Jones, 2004; Mulenga and Fawcett, 2003). Following the systems approach (Tilley *et al*, 2008), user behaviour at household level is the key first stage that must be complemented by downstream „processing" stages. This includes conveyance, safe disposal, etc. and clearly necessitates community engagement in order to ensure the maintenance and upkeep of new infrastructure and services.

But are people-centred approaches intrinsically a „good thing" – especially for the individuals and communities involved? This paper attempts to throw some light on the costs and benefits of participation in environmental sanitation by asking whether meaningful decision-making and collective action leads to better decisions and the effective and efficient allocation of scarce resources. Do the benefits of participation outweigh the time and costs needed and how satisfied are stakeholders with collaborative planning processes and outcomes?

The paper does this by carrying out a process evaluation, examining the motivations of residents and formal institutions in two case studies where a participatory planning effort for improved environmental sanitation was carried out between 2008 and 2010. The study aims to provide a detailed analysis of the individual perceptions about the process and effects of participation and a discussion of the cost effectiveness of participatory approaches. The case studies offer some specific insights to those interested in the potential of community-based interventions to deliver affordable, appropriate and sustainable environmental sanitation services to unserved poor communities.

7.2 Methods

The household-centred approach to environmental sanitation (HCES) belongs to the family of collaborative planning approaches that aim to improve planning and programming for the delivery of basic urban services (Healey 1997). Main features of the participatory approach are (i) its multi-stakeholder and interdisciplinary nature, (ii) the continuous stakeholder participation during the planning and implementation process, and (iii) the consensus-based decision-making process. HCES features an open-ended, flexible planning process that empowers communities to plan for improved basic services including sanitation, greywater management, storm water drainage and solid waste management (Lüthi *et al* 2009b). Unlike similar tool boxes and approaches geared towards rural areas (e.g. Participatory Rural Appraisal, Community-led Total Sanitation), the household-centred approach deals with urban contexts.

The participatory approach adopted by HCES works towards the empowerment of urban and peri-urban communities to organise themselves and participate in development interventions. The workshops, focus group discussions and stakeholder meetings are accompanied by exposure activities such as construction of pilot facilities or the organisation of sanitation bazaars and capacity development interventions to enable community organisations or privately organized service providers to absorb and utilize future infrastructure improvements. The generic planning steps involve problem identification, defining objectives, identifying feasible service options and finally agreeing on action for implementation. All planning processes end with the adoption of an Action Plan which outlines service delivery improvements, specific projects for implementation, capital and operating costs and defines responsibilities for operations and maintenance. The HCES planning process integrates software (community engagement and behaviour change) with hardware (infrastructure and services) and allows for more effective engagement with communities than conventional top-down approaches.

Between 2007 and 2010, Eawag's Department of Water and Sanitation in Developing Countries (Sandec) has carried out a validation process of the household-centred planning approach in selected urban and peri-urban neighbourhoods in several low-income countries in Africa, Asia and Latin America. A detailed report on the results

of the process validation which includes project successes, failures and an in-depth look at costs, timelines and critical factors was published in 2009 (Lüthi *et al* 2009a).

Of the four sites analysed, two were selected for a detailed assessment of perceptions towards participation during the planning process in Nepal and Lao PDR[2]. The two sites chosen were: Nala, Nepal, a peri-urban settlement not far from Kathmandu (population 2'300) and Hatsady Tai, a small inner-city low-income area of Vientiane, the capital city of Lao PDR (population 275). Both settlements were characterized by poor environmental sanitation services and unsanitary urban environments (Lüthi *et al* 2009a). In both study sites, the process was either steered by a local NGO (Nepal) or a research centre (Lao PDR) and the community was represented by a steering committee or elected task force.

The following communicative planning tools were adopted for the validation of the HCES process:

- *Community surveys*: In both settlements, a baseline survey was conducted for all households in the project areas. Household information, income levels, willingness to contribute and pay for sanitation services and water, sanitation and hygiene practices were assessed in the survey.

- *Focus group discussions (FGD)*: Several FGDs were carried out to assess users' needs and priorities. Potential sanitation options were also assessed through separate FGDs conducted on a ward level basis. Views of disenfranchised minorities like the Dallit community in Nala, Nepal were thus incorporated in the process.

- *Community meetings*: Several open community meetings were held with the user's committee to discuss the planning issues. These meetings were open to all community members regardless of age, sex or position (Figure 1).

- *Participatory mapping exercises:* visualisation of each community where information is collectively produced and represented in a form that remains open to collective reference.

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[2] Additionally, several primary stakeholders were interviewed in a third site in Tanzania in Chang'-ombe, Dodoma, an unplanned peri-urban settlement on the town periphery. These expert interviews were not included in this assessment.

- *Direct observation and documentation*: Local researchers took part in most workshops and community events and documented the participatory process step-by-step. A written protocol of each event was recorded.

Figure 7.1: Communicative tools and methods that informed about the planning of interventions: community meeting in Nala, Nepal (left) and focus group discussion in Vientiane, Lao PDR (right). Source: author (l), A. Morel (r)

Participation levels were high in both communities: community workshops were attended by an average 80-90 participant and complemented by focus group discussions in both locations. The following section provides background information on the locations and the interventions that were implemented.

Nala, Kavre District (Nepal)

The average household size of Nala is 5.86. In terms of caste and ethnicity, 86% are *Newars* (the locally dominant ethnic group), followed by 9% Dallits (the socially disadvantaged group in Nepal) and 5% from other ethnic groups. About 67% of Nala households fall below the national poverty line and only 10% of the households are non-poor in this settlement. Nala was selected as a project site because the township lacked proper sanitation coverage and safe disposal of human waste. Open defecation and unmanaged wastewater were a threat to the community and water borne diseases are common in the area. In general, sanitary conditions in Nala are poor. The 2009 household survey of Nala showed that toilet coverage is above average for Nepali standards. Out of 352 houses, only 60 houses did not have improved toilet facilities (17%). The majority of households use pour-flush toilets with single pits and about 4% of the households still practice open defecation regularly (Eawag/UN-HABITAT 2010). Infiltration of wastewater into the shallow groundwater table is a major

problem in the area as the water quality measurements have proven. Due to high pit emptying costs, illegal or unhygienic disposal practices are prevalent in Nala.

In Nala, process facilitation was provided by a Kathmandu-based NGO named "Centre for Integrated Urban Development (CIUD)", which specialises in urban and community development. The most influential local stakeholder is the Nala Integrated Development Committee (NIDC), a community-based organisation (CBO) that coordinates all development efforts in Nala. This committee is a representative body of the Nala community, consisting of representatives of all political parties, members of ward level sub-committees and female members. The local authority is the Nala Ugrachandi Village Development Committee (VDC) - the lower administrative unit of the Government of Nepal. The VDC was influential in mobilizing local development funds during the planning process and has committed to provide funds for implementation of the Environmental Sanitation Improvement Plan, which is the main planning document and output of the 12 month planning process (Eawag/UN-Habitat 2010). It outlines the following implementation scheme for which funding has been secured: (i) solids-free sewers connecting to an anaerobic baffled reactor (ABR) with a constructed wetland as a further treatment step; (ii) for all non-connected households, urine-diverting dry toilets will be built utilizing a revolving fund including a 25% subsidy for the poorest households. This revolving fund will be managed by the Nala Integrated Development Committee (NIDC).

Hatsady Tai, Vientiane (Lao PDR)

In Hatsady Tai, Vientiane, about half of the households earned less than US$ 55 per month, the average household size was 5 persons. It was estimated that almost all (94%) households had access to private sanitation facilities. Most households use pour-flush toilets with soak pits (90%) or septic tanks (10%) as onsite wastewater disposal or pre-treatment facilities (Lüthi *et al.* 2009a). However, sanitation facilities are often poorly designed, constructed and maintained. Flat terrain, a high groundwater table and low soil permeability further contribute to regular system failure. There is no sewer system in the project area. Septic tank effluent and other wastewaters such as grey water are discharged into the mostly uncovered, natural drainage system. Women are usually responsible for the in-house maintenance of the toilet facilities. Septic tank and soak pit emptying is a problem for almost half of the

community (mainly in the low-income core), since vacuum trucks cannot access the pits. In these cases households empty their pits manually by making a hole in the pit and allowing the sludge to run into the storm water drains. This leads to blockages of the drainage network, frequent flooding and odour nuisance.

In Lao PDR a project implementation "Village Environmental Unit" (VEU) was formed with a mandate to ensure community ownership of the environmental services during and after project planning and implementation. The VEU is led by a president, and consists of three sub-groups (financial team, technical team and advisory team). Members of the VEU include community representatives of the different neighbourhoods and representatives of the above-mentioned mass organizations. Process facilitation was provided by a Laotian government agency and research centre: the Public Works and Transportation Institute (PTI), based in Vientiane.

The project benefited the entire community by providing the following improved urban environment sanitation services: (i) rehabilitation/ construction of 15 private toilets and connections to the sewer system; (ii) construction of a wastewater collection and treatment system servicing 32 households, comprising a small-bore sewer (265m), and 3 community septic tanks treating the effluent of the toilets; (iii) construction of 4 storm water drainage lines (303m). The drainage lines are partly covered and partly open. For the purpose of drainage improvement and increased accessibility, 13 houses were back fitted or reconstructed. The total planning and implementation costs equalled US$ 263 per inhabitant (Lüthi *et al*. 2009a).

7.3 Survey methodology

Field research was carried out in Hatsady Tai, Lao PDR and Nala, Nepal (Table 7.1).

Procedure

The data collection in both areas was carried out through structured interviews in the households of the interviewee. People participated voluntarily and did not receive anything in return for the interview. Target subjects were self-selected, i.e. anyone who participated in one or more steps of the HCES process. This also included people who participated only once or were only present at important community meetings. This was done in order to determine a subject"s perceptions regarding the planning process itself – thus the survey questions would have been irrelevant for people who

had never participated in the structured planning process. The questionnaire was first drafted in English, and then finalized after revision by local experts.

	Hatsadithai, Vientiane (Laos)	Nala (Nepal)
Population	275	2500
Area (hectares)	1.4	54
Population density (persons per hectare)	196	51
Per capita planning & implementation costs (US$)	263	64
No. of persons interviewed	41	290
Lead institution for planning process	Research Centre	Local NGO

Table 7.1: Main characteristics of both intervention areas   Source: author

The questionnaires were then translated and re-translated to ensure the quality of the translation. The interviewers were local students, who were not participants of the process, and were chosen on behalf of their experience in conducting surveys. Pretests further ensured the quality of the questionnaire before interviews were carried out in April 2010 in Lao and in May 2010 in Nepal[3].

Sample

In Lao, 41 participants were interviewed, of which 20 were women. The mean age was 49 years, with on average of 1.6 children below five years of age per household. The average household consists of 5 members.

In Nepal, 290 participants were interviewed; slightly more women (53%) than men. The mean age was 36. The majority (62%) of the interviewed did not have children below five years living in their household. The average household size in Nala is 6 persons. Additionally, 14 experts were interviewed in Nepal and in Lao PDR. The experts were employees from the different involved organizations and were responsible for a part of the planning process.

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[3] The research in Nepal and Lao PDR was conducted by two students of social psychology at the University of Zürich. Scientific research objectivity was observed throughout the research study. The field research was carried out in 2009 and was funded by Eawag-Sandec (Eawag's Department of Water and Sanitation in Developing Countries).

For each factor, standardized questions were asked. All of the answers to the questions were standardized to range from 0 to 1 or from -1 to +1 (in the case of bipolar variables). The answer that is most in favour of the behaviour is 1, and the answer that is most against the behaviour is -1. The bipolar variables have nine-point-scale answer categories (e.g. from very negatively to neither negatively nor positively to very positively), and the unipolar variables five-point-scales (e.g. from very much to not at all).

7.4 Results and discussion

Overall satisfaction with the process and outcomes

In order to know more about how satisfied participants are with the planning approach, it is important to not just look at their general satisfaction with participation. This is one aspect of success, but to fully understand the overall success, three additional aspects were examined: (i) satisfaction with the decided outcome or the process and its implementation, (ii) willingness to pay for this outcome and (iii) intention to participate again in a similar participatory process.

In Lao PDR, participants' satisfaction with the outcome and with the implementation, intention to participate again and willingness to pay are high with an average of m =.75, which means that people are satisfied and would participate again. A value of .75 is only one step lower than the *highest possible* value and reflects a very positive attitude. A little bit lower than that but still positive with a mean of m = .68 is the overall satisfaction about participating. The duration of the planning process is rated as not very fast, but still quite good. The usefulness of the process, the trustworthiness of the received information, the choice between different possible solutions, the amount of new people met through the process, the social opinion about participation, the necessity to change the situation and the importance of paying the service fee are rated very positively (between m = .75 and 1).

The experts that were interviewed included staff from national and international sector agencies, local government officials and process stakeholders/NGOs. These experts are even more satisfied with their participation in the process than the participants (m = .89), and just as satisfied with the solution found (m = .75) and its

implementation (m = .73). They would participate again (m =.72) and 13 out of the 14 experts interviewed in Lao PDR would use such a participatory process again to solve sanitation issues. Experts were pleased about the following outcomes of the process:

- wastewater problems and overall cleanness of the neighbourhood were improved;

- the fact that everyone was involved and "owned the project";

- community solidarity was strengthened; a common understanding and aware-ness of the problems and the solutions was found.

Generally, the experts found that the project was more sustainable and successful through the use of participation. Problematic issues that were mentioned were that people have limited knowledge, education and awareness to fully engage (some meetings and discussions might have been too technical), and that the process itself is too time-consuming.

In Nepal, where the planned interventions were just about to begin at the time of the survey, satisfaction with outcome and implementation is a bit lower than in Lao PDR with m = .64 and .62 (from 1). Willingness to pay is a bit higher with .71, general satisfaction with .72 and the intention to participate again with .75 even higher. The overall duration of the planning process is rated as quite slow. The usefulness of the process, the necessity to change the situation and the importance of paying the service fee are all rated very positively. The proposed new system is perceived as a lot better than the existing situation. The trustworthiness of the received information is rated very positively, as well as the foreseen costs for implementing the new sanitation system. Thus, people in Nepal are generally positive about the participation, but hesitant to be too enthusiastic about the solution and its implementation.

Expert's satisfaction about the participatory approach are a little less pronounced in Nepal (m = .64), the solution (m = .68) and its implementation (m = .65), this may be due to the fact that implementation on the ground had not yet started. On the other hand, the experts would participate again (m = .82) and all of the experts surveyed would choose an HCES process again to improve services and infrastructure in a given community. Experts in Nepal mentioned the following advantages of the HCES approach: (i) involvement of and ownership by the community; (ii) an increase in awareness and environmental concern, cooperation and solidarity between

participants and residents of Nala, and (iii) the heightened environmental sustainability of the project and that problems like sanitation, flooding and education are solved in an integrated way.

However, quite a number of disadvantages were mentioned as well: many of the experts are sceptical about the participant's willingness to contribute money and perceive budgeting problems for the implementation phase. Further problems mentioned were the time-consuming process and the limited understanding and awareness of the community at large.

Does more participation lead to an increase in social capital?

It is often claimed that real participation has the potential to raise social capital. Recent literature (McConville 2010; World Bank 2010) typically describes social capital to consist of the factors trust, network, information and communication, social inclusion and collective action. These factors and their relation to empowerment and the amount of participation are explored below.

Overall, participants were of the opinion that there had been important changes in the community since the participation started, in Lao as well as in Nepal. However, respondents in Nepal rated lower with m = .31 in comparison with m = .57 in Lao PDR. The most important changes that people in Lao PDR perceived were the increased solidarity in the community and the cleaner and sanitised environment. Additionally, increased health, raised awareness and a better connection between people of the community were mentioned.

People who participated more times (in meetings, focus group discussions, etc.) perceived the collective efficacy as much higher than those who were less involved in the process. In Lao PDR there was no great difference in the amount and intensity of participation: empowerment is perceived in the same way for people who participated more or less in the process, perhaps due to the small community. This is starkly contrasted in Nepal: all the variables (trust, network, information, social support, collective efficacy, and empowerment) are perceived significantly more positive by those people who participated more intensively. The power of collective community action was witnessed in form of voluntary labour by Nala's residents during the implementation phase, where infrastructure costs for the solids-free sewers were

drastically reduced by using voluntary community labour to dig all trenches for the new sewer lines and prepare the ground for the treatment plant (figure 7.2).

Figure 7.2: In-kind community contributions in Nala, Nepal. Men installing simplified sewers (left) and women preparing the ground for the treatment plant in May 2011 (right). Source: M. Sherpa.

In Lao PDR, people who started participating earlier on in the process are more satisfied with participating (r = -.40, p < .05)[4]. This effect is even stronger for the experts who were involved in Lao (r = .75, p < .01). In Nepal, people who started participating earlier have a less strong intention to participate again, but feel more empowered (both r = .15, p < .05). We can conclude that the amount of participation (how often, how long and at which stage of the process) does have an influence on certain social capital factors.

Experts' and communities' perceptions - key differences

In the following, the views of experts and participants have been compared using t-tests. Only differences that are of statistical significance are discussed.

Lao PDR: Interestingly, the experts are more satisfied with their own participation than the participants are. As this was the first time the experts were involved in a participatory planning process, they found the approach to be more time-consuming than the participants/beneficiaries involved. None of the participants indicated that there was someone who had more influence in the process, while the experts mentioned the process leader as sometimes dominating the process. The participants found that it was easier to come to an agreement or compromise than the experts believed they would. Importantly, the participants think that they received enough

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[4] The correlation coefficient r indicates the strength of relation between two variables. r can range between -1 and +1 and p < .05 indicates that this relation is significant. A positive r means that variable x is higher, the higher variable y and a negative r that variable x is lower, the higher variable y.

information as a basis for their decision making. These facts underline that the experts (with more of an insider's view) have a more critical perception than the participants do, even though they indicate to be more satisfied about participating than the participants do.

Nepal: Experts and participants seem to be equally satisfied with the planning approach and its outcomes in general. The experts show a slightly higher satisfaction rate with the process than normal participants. Experts involved in Nala find that none of the participants and stakeholders was disproportionately influential. They also have more trust in the maintenance and sustainability of the outcomes and see more positive changes in the community since the process began than the participants themselves. Additionally, they estimate that the decision making was easier for the participants than the participants perceive it for themselves.

Suggested improvements to the HCES process – participant's and expert's viewpoints

In Lao PDR, the majority of residents were quite satisfied with the process and did not think that further improvement was necessary. One point that was mentioned by a minority was the feeling that their technical knowledge was too limited to make informed decisions and that their overall knowledge was not important for the overall planning process.

Overall, the experts from Lao PDR didn't think that the chosen solution needs further improvement and contrary to the residents' perceptions, they did think that enough technical knowledge had been supplied. Some of the experts stated that the district and governmental authorities should have been involved earlier on in the process. A majority of the experts (78%) believed there still is room for further improvement of the participatory process itself. Suggested improvements included shortening the planning approach (merging some steps of the process), and strengthening the awareness creation and information giving. According to the experts, additional knowledge and skills that should have been imparted during the process were: gender issues, managing resettlement or in-depth sanitation education and professional community facilitation. In general, the experts suggested improving the HCES process by shortening it and by putting more focus on education of people and including more self-help cleaning activities.

In Nepal, only 5% of participants thought that important stakeholders were missing in the process (e.g. local social clubs). 59% of the residents stated that the HCES approach merits further improvement: not all priority problems had been discussed, e.g. health, drinking water quality or the poor condition of Nala's roads. They suggested more awareness raising programs, integration of gender issues, better support for local culture, and a greater emphasis on long-term maintenance.

Also, power inequalities (often referred to as „elite dominance") between different community segments were not seen as a significant barrier to meaningful participation, contrary to recent criticism of social control in participatory processes (Kothari 2001; Jones 2003; Mansuri & Rao 2004). The process evaluation conducted in Nala did show that during community meetings participants with good oratory skills were mainly the community leaders who dominated most discussions, while the Dallits as the socially disadvantaged community in Nala were generally reluctant to voice their opinions (Sherpa *et al,* 2012). Overcoming such barriers, where stratification along ethnic or socio-economic lines becomes apparent therefore calls for inclusive planning tools. Separate events were organised with the Dallit community (9% of Nala's population) in form of focus group discussions, making sure that they were able to speak freely and voice their concerns. The resulting action plan adopted at the end of the planning phase provided for a choice between individual connections to the solids-free sewers, double vault VIP latrines or urine diverting dry toilets (UDDTs). As of early 2012 almost all the households have opted for individual connections to the solids-free sewers. The only exception is one area with about 20 household households that cannot be connected due to topographic reasons: these households, where most use cess-pits for storage will upgrade their systems into double vault VIP latrines.

Interesting to note is that about a third (36%) of the experts believed that some groups had a disproportionate influence, namely the women"s group, the NGOs, political parties, social leaders and the user's committee. 14% thought that specific skills were missing during the process; they suggested motivational training, social psychology and economic training. Asked, what they would do differently in such a process, several experts suggested pre-testing the approach to ascertain awareness levels, social and economic status, and, like in Lao PDR, considerably shortening the process.

Most of the experts would choose an HCES process again for problem solving but included the above mentioned improvements

Both projects were able to generate external funding from international development institutions or the local private sector (Table 7.2). In the case of Nepal, UN-Habitat and Water Aid Nepal contributed substantial grant funding and in the case of Lao PDR a North-South research fund (NCCR North-South) and a local bank contributed funds for the implementation phase. Regarding the ability to generate in-kind community contributions, the ratio of community contributions vs. external funding as a percentage of total project costs varied from 33%:67% in Nepal to 5.5%:94.5% in Lao PDR. In the case of Nepal, additional implementation funds were contributed by the public sector (the Village Development Committee, VDC). Community inputs included monthly individual household cash payments, repayment of microloans for on-site sanitation or in-kind sweat equity. In the case of Nala, most of the community funds were utilised to buy the plot needed for the new treatment plant as well as for the individual household connections to the solids-free sewer system (Sherpa, 2011).

	Nala, Nepal	Cost per capita	Hatsady tai, Lao PDR	Cost per capita
Planning costs	13,500	6	16,500	60
Implementation costs	132,270	58	55,900	203
Percentage external funding	67%		94,5%	
Percentage in-kind community funding	33%		5,5%	
Total costs	**145,770**	**64**	**72,400**	**263**

Table 7.2: Planning and implementation costs involved (in US$)

Source: Lüthi *et al* 2009a and Sherpa *et al,* 2012

The cost breakdown shows that the planning costs per capita, which include workshop and facilitation costs, are a factor 10 times higher for the smaller settlement Hatsady Tai (275 beneficiaries), whereas Nala benefits from economies of scale (2500 beneficiaries). The average time spent by the residents during the planning phase was between 1.5 to 2 days. The differing community contributions (between 5.5% and

33%) also show what can be achieved by soliciting in-kind community labour contributions (as was the case in Nala). In Hatsady Tai all infrastructure works were contracted to a private construction company. A further finding is that the overall satisfaction with outcome and implementation is not necessarily correlated with the amount of community co-funding. However, it is clear that community funding and in-kind sweat equity contribution for improved services and infrastructure has an important role to play in meeting the growing financial gap in urban infrastructure delivery in the global South. There are very few studies available comparing the planning costs in the sector and this aspect would certainly merit future research, especially regarding the trade-off between the quality of participation and reaching economies of scale.

7.5 Conclusions and lessons learned

It is still too early to say whether the project goals have been successfully achieved in the case studies presented – especially regarding the long-term operation and maintenance (O&M) of the new facilities. The reported outcomes are therefore provisional until an ex-post survey at a later stage in time confirms long term sustainability of the new infrastructure facilities and assesses if participation does indeed increase stakeholders‟ capacities for operation and maintenance of sanitation systems. However, several important lessons have emerged from the experience.

Firstly, that community-based planning and programming comes at a cost and must involve a well-structured participatory process which takes time. This includes a thorough assessment of the enabling environment and the institutional arrangements, but also the ability to combine expert knowledge and advice with the community‟s wishes and priorities.

Secondly, participants must be given the capacity and knowledge to effectively shape environmental decisions and ensure long-term operation and maintenance of the system and services. When decisions are highly complex – involving technical, economic and institutional responsibilities - it is essential to develop the knowledge and confidence to meaningfully engage community residents in the process. Most

experts agreed that additional capacity building elements would have further strengthened the participatory process and involvement of the community.

Thirdly, implementation and project delivery at neighbourhood level should be done incrementally and phased in batches that are within the scope and ability of local communities and NGOs. This should start with easily implementable „quick-start" (often on-site) solutions before tackling more complex off-site solutions. This is in line with recent findings on phased implementation of community-based development projects in water and sanitation by the Asian Development Bank and the World Bank (ADB, 2009; Mansuri and Rao, 2004).

Fourthly, the study has revealed that well-designed participatory planning depends very much on the skills and capability of the process facilitator but also on the tools, methods and the communication channels utilised. Coordinating effective community participation requires a special set of skills such as participatory project management, negotiation and problem solving. While the facilitator skills varied greatly across the different pilot sites and may have played an important role in achieving project outcomes, they were not at the centre of this study. This aspect would certainly merit future investigation.

8. Conclusions

This chapter provides conclusions and recommendations for community-based planning processes. The synthesis discusses issues such as time frame, agency and barriers to participatory planning. The chapter first provides a summary of the main answers to the five research questions presented at the beginning of the thesis. It then analyses the conditions under which participatory arrangements can be governance - enhancing. Special attention is given to fostering more enabling environments and the issue of domain interface in sector governance – the linking of governnment-led decision-making with grass-roots processes. The thesis closes with recommend-ations for further research on communicative planning issues in cities of the global South.

This first part of the conclusions provides a succinct overview of the main research findings by answering the main research questions presented in section 1.2 "Research rationale". The **first** research question asked what the main limitations of communicative planning approaches regarding environmental sanitation planning were. As discussed in Chapters 5 and 6, the lack of planning capacity and skills of the local authorities and non-governmental organisations (NGOs) involved is considered as the greatest obstacle to multi-stakeholder planning processes. Especially in Lao PDR and in Tanzania, the differing expectations between communities, implementing agencies and local authorities is also seen as a limiting factor. In hierarchical top-down governance frameworks (e.g. as witnessed in Vientiane and Dodoma), the resistance to more responsive governance arrangements, where state institutions feel threatened by the "hallowing out" of state authority is also a key limitation. Municipal agencies and utilities such as the „Dodoma Urban Water Supply and Sewerage Authority" (DUWASA) found it difficult to buy in to a new participatory planning paradigm outside the norms of doing "business as usual". The NGO in Dodoma responsible for facilitating the process lacked the clout and institutional leverage to convince the utility to allow more people-centred processes. In contrast, the Nala case study in Nepal proved that a match of the skills and capacity of process facilitator with well- developed facilitation skills and experts respected by the communities/beneficiaries was the key to the project's success.

Lastly, the size of a given settlement can also be a limiting factor which can weaken meaningful participation and inclusive decision-making processes if the settlement's population is too large; e.g. Dodoma, where less than 1% of the neighbourhood population actively participated.

The **second** research question asked in which contexts participatory planning practice works best. HCES proved to be most convincing where communities showed a willingness and commitment to improve access to affordable and durable basic urban services and where unity and cohesion within the community were maintained throughout the process. One of the interesting findings is that the overall governance framework is not decisive, i.e. HCES worked well both in a top-down, hierarchical one-party state (Laos) or in weak government environments (Nepal). Finally, the question of scale: small, incremental community-based infrastructure improvement projects are easier to achieve and manage than huge, transformational city-wide investment programmes which have a high dependency on stable political environments and external funding sources. As explained in Chapter 5, community-based interventions are better in identifying and targeting the urban poor.

The **third** research query dealt with the key influences that shape the final outcomes. As presented in the ex-post evaluation in the previous chapter, the intensity and timing of community involvement is a crucial factor. Real partnerships that go beyond the consultative mode and enable participants to engage in defining objectives, designing options and selecting the final techno-institutional solutions showed highest rates of satisfaction among participants (see page 171). Ensuring the planning – implementation continuum without long gaps between planning and implementation, has also been shown to be a key success factor. All three planning efforts showed that sound action plans proved to be "bankable". Unlike often cited conventional wisdom, securing funding for implementation from development partners (Dodoma/Tanzania, Nala/Nepal) or the private sector (Vientiane/Lao PDR) did not represent a major obstacle in all three cases.

The **fourth** question deals with the satisfaction of stakeholders with the planning processes and outcomes. The ex-post surveys carried out in 2009 in Lao PDR and Nepal showed a high rate of satisfaction by process participants and experts alike (see

Chapter 7). In Lao PDR both experts and participants in the HCES process showed high rates of satisfaction relating to their own participation in the process and the potential for re-applying such an approach in a different context. In Nepal, survey results showed a high intention to participate again and a high willingness to pay for new infrastructure and services (however, no project outcomes were finalized at the time of survey). Experts in both sites were less satisfied with the many time-consuming community meetings and the fact that many participants lacked the necessary knowledge and educational background to make fully informed decisions.

The **fifth** and last question centred on the link between participation and the formation of social capital. This question is perhaps the most difficult to answer as it is difficult to quantify 'soft' factors such as trust, network or collective action. Responses to questions centred on the changes witnessed in the community since the start of the participatory process (see questionnaire in annex 2), show a causal link between people's level of participation and formation of social capital. Firstly, respondents mentioned as positive an increase in solidarity and social cohesion in the respective communities. Better awareness and knowledge of the importance of clean and healthy urban environments were also frequently mentioned. Secondly, especially in Nala, all the variables connected to social capital (trust, network, information, collective efficacy and empowerment) were perceived as more positive by those people who participated more intensely and early-on in planning meetings or focus group discussions. A further case in point was the high voluntary in-kind labour contribution by men and women during the implementation phase in Nala.

Further evidence for the formation of social capital is the setting up and formalisation of institutionalised civil society representation at community level (e.g. the Village Environmental Unit in Vientiane or the Integrated Development Committee in Nala). These community-based organisations (CBOs) will hopefully guarantee the long-term durability and operations of new services and infrastructure. These new grass-roots stakeholders have the potential to demand equitable access to further services and improved living conditions in both neighbourhoods studied. In Changombe, Tanzania, where the population was much larger (neighbourhood population: 35'000) and the participation was less intense, the 10-step process didn't lead to the formation community representation in form of CBOs or NGOs.

There is growing recognition that the most significant sanitation-related problems in poor countries are those experienced by low-income city dwellers. This thesis highlights the current trends in demand-led environmental sanitation planning and the scope for innovation in planning and programming for low- and middle-income countries' urban areas. It deals with what is among the most complex and expensive urban problems – how to plan for sustainable and quality sanitation and drainage for low-income areas. Therefore, this research lies at the centre of contemporary international debate on how to achieve cost-effective coverage and the best possible allocation of scarce government resources. Through validation and process learnings this research analyses how to overcome the limitations and the weak track record of past infrastructure planning and programming.

Sector planning and programming experiences in the past decades have failed to deliver scalable and promising results because, firstly, subsidy-based approaches have tried to achieve mass coverage without addressing the entire sanitation chain. Today, market-based approaches such as sanitation marketing are seen as more promising but they too are insufficient, because unlike rural contexts, sanitation in dense urban areas faces complex issues of sanitation being a private *and* a public good. The poor state of shared or public toilets or the lack of faecal sludge management in poor urban settlements underline the "public goods dilemma" of urban sanitation where individual free-riders can lead not only to a deterioration of services but also pose environmental health hazards (Sheizaf and Larose, 1993, Tumwebaze, 2012). Secondly, supply-led, centralised solutions have wasted enormous upfront investments that have benefited few but failed to produce lasting sustainable sanitation systems that address the key issues of affordability and user acceptance.

This thesis therefore argues for a more „communicative" and demand-led approach to planning because it acknowledges planning as an interactive process that involves multiple actors and stakeholders. It recognises that planning, in its essence is a governance activity occurring in complex and multi-layered institutional environments (Healey, 1997).

Demand-led, participatory planning and programming approaches for housing, informal settlement upgrading and social community infrastructure have successfully

been introduced since the 1980s. Most of these approaches were tested and adopted by overseas development assistance programmes (e.g. World Bank, GIZ, DifD or UN-Habitat) or by development-oriented national governments (e.g. Sri Lanka, Brazil or South Africa). Stakeholder participation and community involvement in conception and design, resource mobilization, implementation, management and monitoring/evaluation are now common currency and have increased influence and the voice of poor urban communities the world over (Satterthwaite, 2001).

Unfortunately, the same does not hold true for the urban sanitation sub-sector, which remains the domain of specialized agencies and utilities which are limited to expert circles in top-down modes of delivery and focused on meeting treatment requirements through centralised sewered systems. To this day, responding to users' criteria is seen as obstruction and slowing down of the design, tendering and implementation process. A great challenge in this respect is overcoming the deficits of a blueprint approach where solutions are predefined with little choice left to the beneficiaries. As has been shown, this mode of infrastructure delivery has gone out of favour because of its technocratic and prescriptive character which neglects the role played by specific institutional environments and governance.

Moving from *one-size-fits-all* designs, towards process-oriented approaches that acknowledge the complex inter-linkages between society, environment and technology is of course easier in theory than in practice. One of the frequently voiced critiques of communicative planning approaches is that there is precious little experience that proves *how* it actually works in practice. This criticism has been echoed by sector professionals regarding earlier planning frameworks such as the Strategic Sanitation Planning framework detailed on page 41. One of the key weaknesses here is the lack of practical guidance on how to initiate, design and implement sanitation interventions using the basic concepts.

The HCES planning framework, which is at the centre of this study, aims to address this gap, testing and validating the theory that communicative approaches like HCES can streamline planning procedures while widening the scope of stakeholder involvement (Lüthi *et al,* 2011). The main focus of this research was to explore the boundaries of communicative planning methods in the environmental sanitation sub-

sector. This study offers detailed accounts of sanitation planning and urban partnership practices and thus contributes to a better understanding of the dimensions of these interactions. This research complements similar urban-based studies that have analysed the impacts of interventions on people and places (see for example: Moser and Solis, 1991; Lopes and Rakodi, 2002, IIED, 2011).

8.1 Enhancing processes of participatory governance

The three cases analysed allowed an evaluation of governance processes at the local level, especially those that led to win-win situations: improving local conditions and services whilst also building the community's social capital (Lüthi and Kramer, 2012). In Chapters 6 and 7 the opportunities and boundary conditions under which participatory processes have the potential to be transformative are explored, i.e. changing practices and the way of *doing things* at local and municipal levels. Each of the three cases represents a different trajectory and course of process events, from a situation where society and government systems are strictly hierarchical and state-led (Laos) to the virtual absence of state and local government authority (Nepal). As Healey (2003: 110) rightly states: *"... governance processes are not recipes. They are unique constructions in specific situations"*. Through deductive research it has been shown that the household-centred approach proposes an adaptive and generic planning framework that has been proven to work in various contexts and governance frameworks.

In conclusion, the following advantages of demand-led, people-centred processes have been distilled in this research:
Firstly, mirroring recent interest in the formation of social capital in urban contexts, this thesis has studied and proven that community-based approaches offer the potential to help foster social capital formation in communities. Research findings show that non-tangible community assets such as trust, networks and behavior change (especially regarding sanitation & hygiene) are an important asset for poor urban communities. The ex-post evaluation presented in Chapter 7 highlights that the *lived experience* of participation is closely correlated with the transformative and empowering qualities of such community processes (Lawrence, 2006).

Secondly, the multi-country validation has proven that in the absence of state and public service provision and weak local governments, inclusive approaches that foster new forms of cooperation/collaboration and consensus-building, form a vital part of contemporary participatory governance systems for challenging urban contexts. The case studies presented have shown that offering space for dialogue among various actors with a clearly sequenced approach can work, even in highly hierarchical and top-down decision-making contexts such as in Vientiane, the capital city of a one-party state. This is critical in proving the efficient management of multi-stakeholder processes in a variety of challenging urban contexts.

Thirdly, in terms of local governance, such processes help to strengthen government accountability through social accountability mechanisms. How? By giving voice to citizens and their associations and providing opportunities for community-based organisations to influence the work of government and utilities for better urban services. It also can help influence government institutions on how they do things, so that they better respond to the needs and priorities of the urban poor. The HCES experiences in Dodoma, Tanzania and Vientiane, Laos are cases in point. This includes accepting the communities' ability and power to influence local authority agendas and priorities. Furthermore, it can lead to a change in local government collaboration e.g. better interdepartmental calibration than was previously the case.

Fourthly, communicative planning formats such as HCES allow for transformative urban governance processes, i.e. defining new roles and relationships between government agencies and urban groups or community-based organisations and how to foster local authority interaction with poor communities and their representatives (e.g. councilors or chairpersons). What has become clear during the field studies is that changes are needed to business-as-usual in the way that municipalities and local governments relate to communities and community-based organisations (CBOs).

Fifthly, the field studies have demonstrated the importance of combining behaviour change interventions with technical design interventions. This supports experience from the past decades which shows that it is not sufficient to provide facilities and infrastructure without addressing the behavioral issues that are closely linked to the degree of compliance and correct and sustained use of new services and facilities (Mosler, 2012). A successful planning framework dealing with urban environmental sanitation must therefore successfully combine „hardware‟ and „software‟ interventions from the outset.

Despite the advantages of people-centred processes, there remain several challenges that need to be mentioned, such as the problem of reconciling the different timeframes of stakeholders involved in multi-stakeholder processes, as the hierarchical structure of government and agencies is not designed to accommodate the different rhythm of participatory practice. Furthermore, how can poor urban communities embedded in informal contexts be supported effectively without destroying their grass-roots focus when providing external funding mechanisms? The following section therefore provides some recommendations on how to improve such planning frameworks.

8.2 Recommendations for people-centred environmental sanitation planning frameworks

This section provides specific recommendations for holistic environmental sanitation planning, based on the key learnings of validating the household-centred planning approach in a variety of contexts. The original HCES guidelines published in 2005 were reworked and refined in 2010/2011, based on the process evaluation presented in Chapter 6. This section highlights three critical issues that have since been addressed and seen as crucial for ensuring that people-centred approaches deliver results:

- i) greater attention to the enabling environment;
- ii) capacity building and the importance of existing local capacity;
- iii) improved „joined-up" planning interfaces.

The process learnings of the case studies validation have led to the refinement and streamlining of a new urban planning framework that organizes and guides urban environmental sanitation planning. The planning process analysed and presented in Chapter 6 has led to new state of the art planning guidelines that deal with issues of time, level of community engagement and a more realistic assessment of the policy and governance framework, the so-called "enabling environment".

The new planning framework is entitled "Community-Led Urban Environmental Sanitation Planning" (CLUES) (Lüthi *et al*, 2011). CLUES is a further development

of the Household-centred Environmental Sanitation (HCES) planning approach and is based on four years of extensive field-level validation in Africa, Asia and Latin America and the work of this thesis. The community-led approach helps ensure that the types and levels of investment are really in demand by the community (planning *with* and not *for* the community) – and builds community commitment for long-term maintenance of the new services and systems. The change in terminology from *household* to *community*, reflects the importance of sanitation as a public good where communities need to be involved in selecting area-wide environmental sanitation solutions. Like HCES, the updated "CLUES" approach is based on the premises that more intensive stakeholder processes are more likely to yield higher quality decisions.

Unlike HCES, the new CLUES planning approach now features a streamlined seven-step participatory planning process – responding to the criticism that HCES with its ten steps was to lengthy and time-consuming. The new approach is geared towards the community level and is meant to complement city-wide infrastructure planning approaches. In addition to the seven generic planning steps there are three cross-cutting issues that are seen as crucial for successful interventions: (i) exposure and communication to enable a transparent and communicative process, (ii) capacity development to build the skills needed both at municipal and community level, and (iii) monitoring and evaluation of the planning and implementation phases (Fig. 8.1 below).

Perhaps the biggest difference to the existing household-centred approach is the importance given to an effective planning and management interface and a supportive governance framework between communities and local government.

8.2.1 The importance of enabling environments

As outlined in section 3.6 (Local governance in urban service delivery), a supportive policy environment or the so-called "enabling environment" is considered an issue of fundamental importance. An enabling environment is important for the success of any development intervention or investment – from large scale sector programmes to small-scale decentralised one-off projects. Without it, the resources committed to bring about change will be ineffective. Following are some key aspects of what

constitutes an enabling environment and what needs to be addressed to get there (Lüthi *et al,* 2011)

Government support – lack of explicit political support is often the main cause for project failure. Enabling government support includes relevant national policy frameworks and sector strategies but also receptive local authorities and decision-makers that support the socio-economic development of their constituencies.

Legal framework - The technical norms and standards that influence the types and levels of service which are put in place are clearly important. Problems that need to be overcome here are regulatory inconsistencies such as overlapping mandates between different institutions and ministries, lack of regulations or unrealistic standards. A further issue in many countries is the poor enforcement of existing regulations.

Figure 8.1: The 7-step approach proposed by the CLUES framework

Source: Lüthi *et al,* 2011

Institutional arrangements – Public institutions and private actors are integral to an enabling environment and getting the institutional environment right is a key ingredient for the sustainable delivery of sanitation services. This encompasses the

correct understanding of roles/ responsibilities and capacities of each actor, but also their influence and interest in improving service provision.

Skills and capacity – Developing the required skills and capacity at all levels is also a key requirement and an issue that takes quite some time to develop. Identifying capacity gaps, particularly at district and municipal level, and then filling the gaps with tailored training courses, on-the-job training, etc. is a prerequisite here.

Financial arrangements – Implementing and maintaining environmental sanitation services is costly and requires an enabling financial environment. Financial contributions and investments are required from users, from government agencies and from the private sector. A key ingredient here is augmenting the capacity & willingness of beneficiaries to generate funds.

Socio-cultural acceptance – Achieving socio-cultural acceptance depends on matching each aspect of the proposed sanitation system as closely as possible to the users‟ preferences. Failure to ensure that the implemented solution is socio-culturally embedded is one of the most common reason for past project failure. A key challenge of demand-responsive approaches is to adapt and implement context appropriate mechanisms and incentives, which call for specialized implementation modalities (Lüthi et al, 2011).

The six elements highlighted above provide a situational analysis required to assess strengths and weaknesses and to highlight key areas for attention. A careful assessment also provides the basis for „mainstreaming‟ community participation aspects and for integrating community-driven aspects into local government systems (Mitlin, 2001).

8.2.2   Capacity building and the importance of existing local capacity

A second key issue is building local capacity to enable multi-stakeholder processes to run smoothly. In many of the HCES case studies this was a crucial issue that often led to sub-optimal results. While this finding is nothing new, it continues to be a recurring theme for all international development agencies working at sub-national levels, especially in Sub-Saharan Africa[5]. Strengthening local capacity is therefore a crucial

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[5] E. Jaycox, the former Vice President (Africa Region) at the World Bank addressed this issue as early as 1993, deploring the Bank's continued „*working around the lack of local capacity'* by substituting domestic management with expatriate management (Jaycox, 1993).

issue for future development of urban areas: there must be adequate capacities in terms of project administration, mediation, community-involvement, health and hygiene promotion, as well as civil and environmental engineering to implement and maintain complex urban infrastructure improvements (Lüthi *et al*, 2011).

One caveat common for all country cases where HCES was validated was the lack of an effective governance interface between communities and local government, be it municipal departments, para-statals or commercialized utilities/service providers.

8.2.3   The need for 'joined-up' planning interfaces

A third recommendation is therefore that city-level urban development planning needs to become more responsive so that city authorities and the utilities responsible for service provision can capitalise on the resources (human and financial) available at the community level. The types of resources that can be mobilized through NGO or CBO activity can result in the following benefits:

- Interventions and resultant sanitation services are sustainable and meet the expectations of local communities;

- Finances are used as efficiently as possible and services are financially sustainable;

- Links between community-based organizations, the local authorities and service providers are established to ensure that roles and responsibilities and lines of accountability are recognised.

Financial and human resources put forward and nurtured during the planning process in Laos (Hatsady Tai Environmental Unit) or Nepal (Nala Integrated Development Committee) are cases in point and demonstrate that community assets and resources can complement local authority efforts and lead to sustainable cost savings.

There is often a need to link activities at the community level with higher level strategic city-wide planning initiatives that make the connections with the official service providers and seek to resolve problems of service provision that cannot be solved at the community level. There are commendable examples which demonstrate

that challenges can be overcome. Some examples where this has been successfully achieved include the community managed public toilets in Nairobi which are connected to the city sewerage network, the de-sludging services in Dhaka managed by a local NGO which are permitted to discharge septage into the Water and Sewerage Authority's sewers, and the condominial sewerage model which has resulted in wide scale sanitation improvements in unplanned settlements in Brazil (Lüthi and Parkinson, 2011).

Thus, community level activities to improve household or communal latrines need to be incorporated into plans for city-wide infrastructure and there is a need to engage with city authorities and utilities in a way that enables them to see the benefit of working with NGOs and other organisations working at the grass-roots. In this respect, it is the definition of the „management interface" between community-led solutions and the city-level service provider that is one of the most challenging dimensions of sanitation planning in the urban context. However, according to Evans (2011), the domain interface between city-wide strategic programming and participatory community planning and interventions must be addressed so that community initiatives can become less dependent on city-wide actions, and finance for small and independent elements of the system becomes easier to mobilise. This approach may also be beneficial for the municipal or para-statal service provider as the proposed solutions can be less capital-intensive and more cost-effective in the long term. However, the relative balance of responsibility requires a carefully managed planning process involving activity and interaction at the community and municipal level.

8.3 Contribution of this work & recommendations for future research

This research has explored the advantages and limitations of community participation in planning for urban environmental services. It has questioned what constitutes "acceptable" forms of participation that allow for the mainstreaming of community-based involvement in the sanitation sub-sector and how these processes allow control of access to community and external resources. This has been achieved through a detailed process evaluation in three selected case studies (Chapter 6) and an ex-post survey carried out after finalising the planning steps (Chapter 7). This is the first study

of its kind to explicitly address the relationship between environmental sanitation planning and community-based efforts and it complements two recent PhD studies that have analysed planning theory (McConville, 2010) and the relationship between tenure security and sanitation services (Scott, 2011).

This research has highlighted specific area-based forms of engagement between communities and municipalities and local agencies. It has made a small but valuable contribution to the on-going international debate on how to shift the dominant ways of how infrastructure planning is done in cities of the global South and to help bend the „master-plan mindset" which is still all too dominant in this sector.

There is certainly scope for future research in additional comparative field studies. One example is the comparison of outcomes and impacts of classical supply-led planning approaches with that of demand-led participatory frameworks. This study has shown that further empirical evidence is also needed on the causality between participatory planning approaches that aim to empower poor urban communities and the overall „system sustainability", i.e. the overall ability of new services and infrastructure systems to be maintained and sustained over their lifetime. Do communicative planning processes increase community ownership and empowerment and thus potentially improve long-term sustainability of basic urban infrastructure? This query would be an ideal extension of this research work.

Another useful contribution to knowledge would be to attempt to quantify and measure community empowerment in poor urban areas. This would include hard and soft indicators such as ability to access physical and human resources or the proven ability of communities to put plans into practice. This should be conducted as comparative research using a before-after process evaluation of successfully completed participatory projects. Additional studies should shed some light on the linkages between planning *process,* the resulting community *empowerment,* and the formation of *social capital*, thus providing a better understanding of the foundations of improved local governance in sanitation.

Lastly, further research should address the issue of moving to scale with communicative planning approaches. Most inclusive projects that have been

conducted so far are one-off pilots that fail to achieve scalability. On the other hand, most programmes working at scale fail to move beyond token participation of the population involved. Looking into the issue of how to achieve meaningful participation while delivering results at scale is therefore a much needed area of further investigation.

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This thesis has explored the potential of communicative planning for urban infrastructure development in unserved and under-served neighbourhoods of the global South. The study supports a growing body of literature that underlines the necessity for more equitable and participatory governance arrangements in urban planning, especially with regard to planning, implementation and long-term maintenance of affordable basic environmental sanitation services. By analysing the strengths and limitations of open-ended, adaptable planning approaches such as the here studied household-centred approach, this thesis has made a contribution for better understanding the role and potentialities of community participation for the delivery of basic urban services for all.

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Annexes 1-3

Annex 1   Maps of the 3 study sites
Annex 2   List of experts interviewed in Lao PDR, Nepal and Tanzania
Annex 3   Expert Questionnaire

Annex 1: Maps of the 3 study sites

Hatsadithai, Vientiane Topo map

Nala, Nepal Drainage map

Chang'ombe, Dodoma Google Earth map

Annex 2: List of experts interviewed in Laos, Nepal and Tanzania

2.1 Surveyed experts in Nepal

Participants from Nala	Position	Responsibility
Shyam Sundar Shrestha	Chairperson of Nala Integrated Development Committee (NIDC)	Key player, one of the community champion - facilitating the HCES process in Nala
Indra Bdr. Shrestha	Vice Chairperson, NIDC	Community networking
Sidhi Bdr. Karmarcharya	Secretary NIDC	Community mobilization
Yadav Krishna Shrestha	Treasurer NIDC	Organizing mass and interactions
Shyam Krishna Prajapati	Member NIDC	Community networking
Ram Gopal Karmarcharya	Member NIDC	Community networking
Sandhya Ranjitkar	Youth volunteer	Household survey volunteer, youth networking
Experts from CIUD (NGO)		
Padma Sundar Joshi	Executive Director of CIUD (till 09/2010)/ Engineer/Urban Planner	Overall coordination and management
Prabhat Kiran Ranjit	Officer	Coordinator from CIUD for HCES, facilitator for stakeholder interactions
Dibesh Sayami	Officer	Coordinated the household mapping and survey
Laxmeshwor Lal Amatya	Engineer	Technical survey
Herina Joshi	Officer	Data acquisition and analysis
Urmila Maharjan	Community Mobilzer	Facilitation of community meetings
External experts		
Mingma G. Sherpa	PhD student (Environmental Engineering and Management, AIT, Bangkok)	Technical backstopping

2.2 Surveyed experts in Vientiane, Laos

Participants from Nala	Position	Responsibility
Experts from PTI		
Saykham Thammanosouth	Chief of Cooperation and Planning Division	Project Coordinator of the HCES project in Ban Hadsady tai
Manyseng Duangnoulack	Deputy Chief of Urban Engineering Division	Project assistant of the HCES project, in Ban Hadsady tai

Putthala	Deputy Chief of Cooperation and Planning Division	Project head of pretest and comparison area
Thongdom Chantala	Head of Social Unit, Environmental and Social Division	Project Head of the HCES project in Ban Hadsady tai
Experts from Ban Hadsady tai		
Daosavang Vongphakdy	Deputy Chief of village	Project assistant
Khamchalern Sayyasitsana	Head of Village Elderly union	Head of Village Environmental Unit (VEU)
Khamvanh Manyvong	Chief of Village	Key contact person in Hadsady tai
Experts from Ban Nongduang Thong		
Chanhsouk Vorachith	Head of Village's Women Union	Project assistant
Chantouphone Singkounlavong	Chief of Village	Key contact person in Hadsady tai
Salaphine Phonsomphou	Head of Nongdouang community	Head of Village Environmental Unit (VEU)
Experts from Ban Phonkhang		
Phetsamone Louangpasert	Chief of Village	Key contact person in Hadsady tai
Sengmany Nou In	Head of Village Unit	Head of Village Environmental Unit (VEU)
Khamsyda Phathadavong	Head of Village's Women Union	Project assistant
External experts		
Antoine Morel	Project backstopping, Asian Institute of Technology	Bangkok, Thailand

2.3 Surveyed experts in Dodoma, Tanzania

Interviewee	*Position*	*Responsibility*
Mr. A. Rukeha	Project coordinator, employed by NGO Mamado in Dodoma	Process stakeholder responsible for planning and implementation phase.
Mr. E. Halla	Director of NGO Mamado, Dodoma	Signed all contracts with Eawag-Sandec and took part in high-level meetings.
Mr. J. Alois	Sanitary Engineer, DUWASA Dodoma	Utility expert who was involved in main planning steps and helped in setting up the microfinance project.
Mr. E. Mukeha	Ward representative from Chang'ombe settlement, Dodoma	Link between NGO and community inhabitants – mobilizer.

Annex 3: Questionnnaire conducted in Laos, Nepal and Tanzania (March – May 2010)

INTRODUCTION

Thank you very much for wanting to take part in this interview!

We are not interested in any particular answers, just in the answers that really represent your opinion. We do not want you to engage in any behaviour in particular, we would like to know why people are doing what they are doing so that we can improve the sanitary situation depending on this information.

So it helps us most if you answer as honest and properly as possible. Please help us in finding out how things really are.

We would like to get as much information as possible and therefore some questions of the same topic might seem very similar - we are sorry if they seem to be repetitive.

DEMOGRAFIC INFORMATION

0.1 Name of person interviewed: ....

0.2 Date of the interview: ....

0.3 Number and Name of Interviewer: ....

0.4 Age of the interviewee ....

0.5 Sex of the interviewee   ❑ Female (1)   ❑ Male (2)

0.6 Highest absolved education? ....

> ### PART 1: INVOLVEMENT AND DEMAND FOR SANITATION

INVOLVEMENT IN PARTICIPATION PROCESS

IMPORTANT NOTICE:
If you have been involved in more than one Participation Process in the villages: Hatsadithai, Nong Duang Thon or (name of pretest area) please fill out the questionnaire only for one community at a time, Hatsadithai to begin with! Please fill out an extra questionnaire for each community.

1.1 Please check which community you are answering the questions for (only one possible answer):

     1 ❑ Hatsadithai   ❑   Nong Duang Thon   ❑   (Name of Pretest area)

     2

     3

1.2 Were you also involved in another PP?

❏ Yes (1)   ❏ No (0)

1.2.1 If yes, which one?
(More than one possible answer, accordingly extra questionnaires!)

   1 ❏ Hatsadithai
   2 ❏ Nong Duang Thon
   3 ❏ (Name of Pretest area)
   4 ❏ Other (no need to specify)

1.3 Can you briefly describe your role in the participation process?

....

....

1.4 How many times did you participate in a meeting / workshop of the community-sanitation-project?

....

1.5 How many hours did you invest in activities of the community-sanitation-project? ....

....

1.6 Which function / task did you represent in the project? (eg. leader / organising team)

....

1.7 Were you involved in the pp from the beginning, the middle or more towards the end?

   5 ❏   From the very beginning
   4 ❏   Between beginning and middle
   3 ❏   Participated from the middle
   2 ❏   Between middle and end
   1 ❏   Started participating at the end

PROBLEM AWARENESS

1.8 What are the most important problems in this community? Please name three and list them in the order of importance!

    1. … ……………

    2 ………………

    3. …..……………

1.9 Do you see a problem with the current sanitation situation in this community?

1 ❑ Very much.
2 ❑ Much.
3 ❑ Quite much.
4 ❑ A little bit.
5 ❑ Not at all.

1.9.1 Which? .. ..

....

1.10 Have there been any important changes in the community since the pp started or not?

5 ❑ A lot of changes
4 ❑ Some changes
3 ❑ Things changed
2 ❑ Things changed a little bit
1 ❑ Nothing changed.

1.10.1 Which where those changes? ……………………………………………………

.

| PART 2: ABOUT THE PARTICIPATORY PROCESS |

DURING THE PARTICIPATION PROCESS

2.1 Would you say that the overall duration of the pp was fast or slow?

9 ❑ Very fast.
8 ❑ Fast.
7 ❑ Quite fast.
6 ❑ A little bit fast.
5 ❑ Neither fast nor slow.
4 ❑ A little bit slow.
3 ❑ Quite slow.
2 ❑ Slow.
1 ❑ Very slow.

2.2 Would you say that the overall duration of the pp was good or bad?

- 9 ❑ Very good.
- 8 ❑ Good.
- 7 ❑ Quite good.
- 6 ❑ A little bit good.
- 5 ❑ Neither good nor bad.
- 4 ❑ A little bit bad.
- 3 ❑ Quite bad.
- 2 ❑ Bad.
- 1 ❑ Very bad.

2.3 How did the cooperation between the participants work in general?

- 9 ❑ Very good.
- 8 ❑ Good.
- 7 ❑ Quite good.
- 6 ❑ A little bit good.
- 5 ❑ Neither good nor bad.
- 4 ❑ A little bit bad.
- 3 ❑ Quite bad.
- 2 ❑ Bad.
- 1 ❑ Very bad.

2.4 How good or bad do you think the project was supported by all involved authorities / stakeholders?

- 9 ❑ Very good.
- 8 ❑ Good.
- 7 ❑ Quite good.
- 6 ❑ A little bit good.
- 5 ❑ Neither good nor bad.
- 4 ❑ A little bit bad.
- 3 ❑ Quite bad.
- 2 ❑ Bad.
- 1 ❑ Very bad.

2.5 Was there an important person or organisation missing in the pp?

❑ Yes (1)   ❑ No (0)

2.5.1 If yes, who? … …………………………………………………..

2.6 Was there somebody or a group of people who influenced the pp disproportionally more than the others?

❑ Yes (1)   ❑ No (0)

2.6.1 If yes, who? … …………………………………………………..

ABOUT THE PLANNING PROCESS

2.7 What kind of specific knowledge or skill could you provide for the planning process?

… …………………………………………………..………………………………………

2.8 Were you able to contribute your specific knowledge or skill to the planning process?

- 5 ❏ Very much.
- 4 ❏ Much.
- 3 ❏ Quite much.
- 2 ❏ A little bit.
- 1 ❏ Not at all.

2.9 Were there other important experts involved in the process?

❏ Yes (1)   ❏ No (0)

2.9.1 Which ones?.. ....

2.10 What kind of knowledge did they contribute to the planning

process? ....

2.11 How sufficiently or insufficiently do you think the process was supplied with specific

knowledge?

- 9 ❏ Very sufficient.
- 8 ❏ Sufficient.
- 7 ❏ Quite sufficient.
- 6 ❏ A little bit sufficient.
- 5 ❏ Neither sufficient nor insufficient.
- 4 ❏ A little bit insufficient.
- 3 ❏ Quite insufficient.
- 2 ❏ Insufficient.
- 1 ❏ Very insufficient.

2.12 What kind of with specific knowledge or skills were missing?

....

ABOUT THE PARTICIPATION PROCESS IN GENERAL

2.13 How good or bad do you think **the participants** found the participation process?

- 9 ❑ Very good.
- 8 ❑ Good.
- 7 ❑ Quite good.
- 6 ❑ A little bit good.
- 5 ❑ Neither good nor bad.
- 4 ❑ A little bit bad.
- 3 ❑ Quite bad.
- 2 ❑ Bad.
- 1 ❑ Very bad.

2.14 How easy or difficult do you think it was for **community members** to participate in the decision making?

- 9 ❑ Very easy.
- 8 ❑ Easy.
- 7 ❑ Quite easy.
- 6 ❑ A little bit easy.
- 5 ❑ Neither easy nor difficult.
- 4 ❑ A little bit difficult.
- 3 ❑ Quite difficult.
- 2 ❑ Difficult.
- 1 ❑ Very difficult.

2.15 What do you think how satisfied or dissatisfied are **community members** with **their participation** in the participatory process?

- 9 ❑ Very satisfied.
- 8 ❑ Satisfied.
- 7 ❑ Quite satisfied
- 6 ❑ A little bit satisfied.
- 5 ❑ Neither satisfied nor dissatisfied.
- 4 ❑ A little bit dissatisfied.
- 3 ❑ Quite dissatisfied.
- 2 ❑ Dissatisfied.
- 1 ❑ Very dissatisfied.

2.16 How good or bad did **you** find the participation process?

- 9 ❏ Very good.
- 8 ❏ Good.
- 7 ❏ Quite good.
- 6 ❏ A little bit good.
- 5 ❏ Neither good nor bad.
- 4 ❏ A little bit bad.
- 3 ❏ Quite bad.
- 2 ❏ Bad.
- 1 ❏ Very bad.

2.17 How easy or difficult was it for **you** to participate in the planning process?

- 9 ❏ Very easy.
- 8 ❏ Easy.
- 7 ❏ Quite easy.
- 6 ❏ A little bit easy.
- 5 ❏ Neither easy nor difficult.
- 4 ❏ A little bit difficult.
- 3 ❏ Quite difficult.
- 2 ❏ Difficult.
- 1 ❏ Very difficult.

2.17.1 Why? .. ..

2.18 How content or discontent are **you** with being a part of the pp?

- 9 ❏ Very content.
- 8 ❏ Content.
- 7 ❏ Quite content.
- 6 ❏ A little bit content.
- 5 ❏ Neither content nor discontent.
- 4 ❏ A little bit discontent.
- 3 ❏ Quite discontent.
- 2 ❏ Discontent.
- 1 ❏ Very discontent.

2.19 What did you find good/positive about the participation process?

....

....

2.20 In your opinion, what exactly was problematic with the participatory process?

....

....

2.21 What would you do differently in a participation process?

....

....

2.22 Do you think the benefits of the pp were worth the effort?

9	❑	The benefits are worth a lot more than the effort.
8	❑	The benefits are worth more than the effort.
7	❑	The benefits are worth quite more than the effort.
6	❑	The benefits are worth a little bit more than the effort.
5	❑	The benefits are worth the same than the effort.
4	❑	The effort is a little bit more than the benefits are worth.
3	❑	The effort is quite more than the benefits are worth.
2	❑	The effort is more than the benefits are worth.
1	❑	The effort is much more than the benefits are worth.

PART 3: OUTCOME OF THE PARTICIPATORY PROCESS

THE SOLUTION FOUND IN THE PARTICIPATION PROCESS

3.1 Do you think **the participants** had enough or too few different technical options to choose from?

9	❑	Absolutely enough.
8	❑	Enough.
7	❑	Quite enough.
6	❑	A little bit enough.
5	❑	Neither enough nor too few.
4	❑	A little too few.
3	❑	Quite few.
2	❑	Too few.
1	❑	Absolutely too few.

3.2 How content do you think **the participants** are with the solutions found in the pp?

9 ❑ Very satisfied.
8 ❑ Satisfied.
7 ❑ Quite satisfied
6 ❑ A little bit satisfied.
5 ❑ Neither satisfied nor dissatisfied.
4 ❑ A little bit dissatisfied.
3 ❑ Quite dissatisfied.
2 ❑ Dissatisfied.
1

3.3 How satisfied or dissatisfied are **you** with **the solutions** found in the pp?

9 ❑ Very satisfied.
8 ❑ Satisfied.
7 ❑ Quite satisfied
6 ❑ A little bit satisfied.
5 ❑ Neither satisfied nor dissatisfied.
4 ❑ A little bit dissatisfied.
3 ❑ Quite dissatisfied.
2 ❑ Dissatisfied.
1 ❑ Very dissatisfied.

3.4 What do you find positive about the solutions found in the

pp? ....
....

3.5 What do you find problematic about the solutions found in the pp?

... .
....

3.6 Do you think that there would be other, better suited options to solve the problem?

❑ Yes (1)   ❑ No (0)

3.6.1 Which ones?
....
....
3.7 Do **you** think the solution you found in the pp needs further improvement?

❑ Yes (1)   ❑ No (0)

3.7.1 Which improvement? ....

IMPLEMENTATION AND MAINTENANCE

3.8 How satisfied or dissatisfied are **you** with **the implementation of the solutions** found in the pp?

9   ❑ Very satisfied.
8   ❑ Satisfied.
7   ❑ Quite satisfied
6   ❑ A little bit satisfied.
5   ❑ Neither satisfied nor dissatisfied.
4   ❑ A little bit dissatisfied.
3   ❑ Quite dissatisfied.
2   ❑ Dissatisfied.
1   ❑ Very dissatisfied.

3.9 What do you find positive about the implementation of the solutions?

....

....

3.10 What is problematic with the implementation of the solutions?

....

....

3.11 What would you do differently about the implementation of the solutions?

....

....

3.12 Do you think that the outcomes of the participatory process will be maintained?

9   ❑ Very probable.
8   ❑ probable.
7   ❑ Quite probable
6   ❑ A little bit probable.
5   ❑ Neither probable nor improbable.
4   ❑ A little bit improbable.
3   ❑ Quite improbable.
2   ❑ improbable.
1   ❑ Very improbable.

3.13 Do you think community members will pay their service fee in the next month?

9   ❑   Very probable.
8   ❑   probable.
7   ❑   Quite probable
6   ❑   A little bit probable.
5   ❑   Neither probable nor improbable.
4   ❑   A little bit improbable.
3   ❑   Quite improbable.
2   ❑   improbable.
1   ❑   Very improbable.

3.13.1 If not probable, why not?...

3.14 How much do you agree with the following statements about the preferences of other people?

	I agree very much	I agree	I quite agree	I agree a little	I neither agree nor disagreed	I disagree a little	I quite disagree	I disagree	I do not agree at all
	9 8	7	6		5	4 3	2	1	2
3.14 People in the community like to participate in the pp.	❑	❑	❑	❑	❑	❑	❑	❑	❑
3.15 People in the community do not like to pay their service fee.	❑	❑	❑	❑	❑	❑	❑	❑	❑

3.16 How easy or difficult do you think people find it to pay the service fee?

9   ❑   Very easy.
8   ❑   Easy.
7   ❑   Quite easy.
6   ❑   A little bit easy.
5   ❑   Neither easy nor difficult.
4   ❑   A little bit difficult.
3   ❑   Quite difficult.
2   ❑   Difficult.
1   ❑   Very difficult.

3.16. Why? ....

PARTICIPATING AGAIN

3.17 Would you participate in a similar project in the future?
- 9 ❑ Very probable.
- 8 ❑ probable.
- 7 ❑ Quite probable
- 6 ❑ A little bit probable.
- 5 ❑ Neither probable nor improbable.
- 4 ❑ A little bit improbable.
- 3 ❑ Quite improbable.
- 2 ❑ improbable.
- 1 ❑ Very improbable.

3.17.1 Why/Why not? …………………………………………………………………

3.18 If you had the option to start a project to improve living circumstances in a community would you choose an HCES participatory process again?

❑ Yes (1)   ❑ No (0)

3.18.1 Why/Why not? ....

3.19 Which kind of process would you use

instead? ....

....

3.20 What would you improve about the HCES participatory

process? ....

....

4. Overall comments: ....