

Taking Responsibility for Water and Sanitation Delivery

Community Based Water and Sanitation in Periurban Areas.



Master Thesis

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Abbreviations

ADB	Asian Development Bank
CIUD	Centre for Integrated Urban Development
CLTS	Community-led Total Sanitation
DFID	UK Department for International Development
DWSS	Department for Water Supply and Sewerage
ENPHO	Environment and Public Health Organization
FGD	Focus Group Discussion
IDS	International Development Studies
INGO	International Non-Governmental Organisation
IRC	International Water and Sanitation Centre
M&E	Monitoring & Evaluation
MDG	Millennium Development Goal
MPPW	Ministry of Physical Planning and Works
MWSP	Melamchi Water Supply Project
NEWAH	Nepal Water for Health
NGO	Non-Governmental Organization
NPA	NEWAH Participatory assessment
NRs	Nepalese Rupee
NWSC	Nepal Water Supply Corporation
O&M	Operation and Maintenance
PUI	Periurban Interface
PMC	Project Management Committee (Lubhu)
SHE	Sanitation and Hygiene Education
UC	Users Committee
UN	United Nations
USD	United States Dollar
UU	Utrecht University
VDC	Village Development Committee
WAC	Water for Asian Cities
WAN	WaterAid Nepal
WATSAN	Water and sanitation

WB

World Bank

WSUC

Water and Sanitation Users Committee (Siddhipur)

1. Introduction

Nepal is a magnificent country, with beautiful people, but is also a very poor country, where many people lack access to clean water and proper sanitation. Lying against the slopes of the Himalaya, Nepal is famous for its mountains and mountain people. Mountain climbing and trekking, but also the wild parks in the south, where elephants, rhinos, and with lots of luck even a Bengal tiger can be spotted attract many tourists every year who get a glimpse of all the beauty it has got to offer. In the shade of all this beauty and behind the smile however lies another Nepal. A Nepal that has witnessed a civil war in recent history and political unrest up to this day. A Nepal with around half of its population living below the poverty line. A Nepal with one third of its population without access to clean drinking water or proper sanitation facilities. This negative image has nevertheless changed in recent times and the country is looking forward again. Politically the country is quite stable lately in comparison to the ten years of civil war it has experienced. The tourist sector is getting out of a depth and investments are being made, by its own people and from outside, to relief the population. This thesis will, unfortunately maybe for those who thought it would be about mountains, tigers and rhinos, be about WATSAN improvement programmes. But, in any case, this thesis might also be interesting for those other readers because it sheds a light on parts of Nepal's society which many tourists do not see during their visit.

Following its mandate, the United Nations Human Settlements Programme (UN-HABITAT) Nepal and its partners (e.g. WaterAid Nepal) have been reaching out to communities with serious WATSAN problems, by supporting community based WATSAN projects in the fringe areas of Kathmandu (periurban). Their aim is to make sustainable WATSAN services in these periurban areas through a community based approach. A community based approach means the community is an active partner in the planning, establishment and operation and management (O&M) of the services. Service delivery, an area which until recently was seen as a state monopoly is now regarded unable to meet the international targets to reduce the number of people without clean water and environmental sanitation (Allen, Davila, & Hofmann, 2006). Service delivery has become a shared responsibility between the public sector, the private sector and the community (Isham & Kähkönen, 2002).

This brings a great challenge however. The funds allocated to improve the WATSAN situation intent to target the poor and by working through the communities themselves the threat exist that the pro-poor approach of the projects will be lost. Another great challenge is the specific periurban context of the areas UN-HABITAT and its partners are working in. While the urban and rural areas have been targeted by government agencies and large donors, the periurban areas have been left to themselves and face pollution of their resources. Often these periurban areas are complex zones (Mcgregor, Simon, & Thompson, 2006) and have been neglected in the development process. While successes have been achieved using UN-HABITAT's methodology, it is very important to look closely at these WATSAN projects, as

they are projects piloting a new method in a specific area of which only little information is available. The objective of this research will be to supplement the information that is needed by UN-HABITAT and its partners to better plan these community based projects in periurban areas with the goal to reach better outcomes. Therefore, here will be looked into the factors under which community based projects are more likely to succeed according to the following main *objective*:

To supplement the knowledge about community based approach of WATSAN projects in periurban areas so that UN-HABITAT Nepal and their partners can better plan these projects.

In regard of this research objective this study is guided by the following main question:

What are the factors which lead to a more effective community based approach of WATSAN projects in Periurban villages of the Kathmandu valley?

And sub questions:

- *Which community characteristics and main trends can be observed in the periurban communities of Siddhipur and Lubhu regarding factors which could limit an effective community based WATSAN project?*
- *To what extent does the project represent a joint effort between government staff and the community, poor and non-poor, in service design, implementation, and operation and management (O&M)?*
- *To what extent have the community based projects been effective, and what are the factors which lead to the effective community based approach (i.e. system performance and impact) of the project?*

This thesis is about the community based approach of two WATSAN projects that have been conducted in the Kathmandu valley. These villages, Siddhipur and Lubhu respectively are located some 5 kilometres outside of the capital of Nepal, Kathmandu. The research is the final part of the Master International Development Studies (IDS) at Utrecht University (UU). A complementary part of the IDS Master is to do field research in a 'developing country'. The field research part of this study has been conducted in cooperation with JW van Rooij. His focus was particularly on the pro-poor focus of the project in Siddhipur and his findings are presented in his thesis: *WATSAN for Siddhipur Poorest: Impact Evaluation of UN-HABITAT's Water & Sanitation Project.*

The argument in this thesis will be brought according to the following setup. The literature review in the first chapter will review relevant literature on the topic of the study, find gaps and formulates how the field can be brought forward. Next, the regional thematic context will go deeper into the WATSAN problems in periurban areas in the context of the Kathmandu Valley and Nepal. Hereafter the projects that have been conducted will be explained in more detail in order to understand what the aims and activities have been carried out. These first three chapters form the background of this study. With this background knowledge, the scope and line of reasoning of the thesis and the use of methods will be highlighted in the research design chapter. After the research design the analysis of the empirical data starts. In chapter 6, the observed profile and trends in the communities will be brought forward. Chapter 7 will analyse to what extent the community participated in the project and chapter 8 will discuss the effectiveness of the project by looking at system performance and impact. The thesis will end with a conclusion and gives recommendations.

2. Theoretical framework

2.1 Introduction

The term 'Community based' means the participation of a community in service delivery (Mansuri & Rao, 2004; Manikutty, 1998). Service delivery, an area which until recently was seen as a state monopoly is now regarded unable to meet the international targets to reduce the number of people without clean water and environmental sanitation (Allen, Davila, & Hofmann, 2006). Service delivery has become a shared responsibility between the public sector, the private sector and the community (Isham & Kähkönen, 2002). In the last decades, the latter has been hailed by some as a way forwards in solving the WATSAN situation in the global south (Allen, Davila, & Hofmann, 2006). Many authors believe and defend the concept of a community-based approach to service delivery and project outcome (Prokopy, 2005; Isham & Kähkönen, 2002). However, the concept is also criticised, for instance, projects aimed at the poorest could be taken over by local elites (Stone, 1989). For service delivery to be successful many factors have to be taken into account, such as, social capital (Isham & Kähkönen, 2002), and geographical setting. With regard to this study, the geographical setting involved is the "periurban interface" (Mcgregor, Simon, & Thompson, 2006).

This literature review evaluates earlier research and tries to use these insights to build a framework for the backbone of this study and, in more general terms, to look at what still needs to be done with regard to the community-based approach to WATSAN projects. The broad scope of paradigmatic thinking on service-delivery policy and a community-based approach is examined. A definition of the concept is given, its significance highlighted and differing visions explored. An important section concerns the levels of participation in the community-based approach found in the literature as well as the determining factors of the concept. Also of considerable importance, is the insight gained from literature on the 'geographical' periurban influence on the community-based approach. However, the relationship between the periurban context and the community-based approach is not well-covered in the literature.

2.2 Governance of WATSAN

There are two notions of water according to Allen, Davila, & Hofmann (2006). Water as a human right and water as a economic good. Service delivery used to be based on the management of centralized government agencies, but, *'even the best run agencies in developing countries cannot successfully implement, operate and maintain a water system without the involvement and commitment of the users'* (Lammerink, 1998). Kyessi (2003) also refers to the inadequate capacity of various institutions to provide WATSAN in

developing countries. They argue that states have failed to meet the international targets to reduce the number of people without access to clean water and improved sanitation. More recent attempts to involve private investors have also not yielded the desired results. Service delivery by the state and the private sector parallels the two notions of water (i.e. water as a basic human right and water as an economic good). In the first approach - water as a human right - services are seen as an integral part of the fight against poverty. That is, a long-term lack of access to sufficient clean water and basic sanitation will have serious health consequences for all. In this context, water is regarded as a public good and a basic human right best administered by the public sector in direct dialogue and cooperation with civil society. The opposing view is that water is an economic good. In this view there is a recognition of the cost of WATSAN implicit in the production of water for human consumption. This cost, unless met through fiscal means, ought to be recovered by putting an economic price on it (Allen, Davila, & Hofmann, 2006).

It is further argued that as far as periurban dwellers are concerned, their access to WATSAN services is often 'needs-driven' and not 'policy-driven' and is informal rather than formal (Allen, Davila, & Hofmann, 2006). The water needs of the periurban poor are not met by policy-driven conventional approaches, such as, the expansion of public utilities, i.e. expanding a city's pipe network to the periurban areas, nor through formal, large-scale, private sector companies. The periurban poor tend to use non-conventional and unofficial means of accessing water, i.e. privately operated wells, informal operators, gifts from neighbours and clandestine connections (Allen, Davila, & Hofmann, 2006). The key to structural improvements lies in the recognition of the methods they use to access WATSAN, and to incorporate them into a formal system under a new government regime.

Allen, Davila, & Hofmann (2006) conclude that periurban dwellers are both citizens with basic human rights, and consumers of economic goods. There is clear evidence to show that their access to basic services cannot be met by either the public or the private sector alone. Instead, an approach to WATSAN projects, which strengthens collective action can have multiple benefits as it is seen by them as a new way of organization. The notion of water as a basic human right does not only mean that the periurban dweller has a right to subsidized services, but also that WATSAN projects fulfill a social and environmental collective function, and moreover, that the most disadvantaged groups in society are effectively empowered to have a say in the decision-making process (Allen, Davila, & Hofmann, 2006). They see the solution to the water poverty of the periurban poor as creating a new political and organizational structure. Such a new culture can be developed if people's priorities and energy are channelled into active collaboration with the water authority. Their idea is that WATSAN supply should be one of mutual cooperation between the actively-involved water users, including the poor, and the water authorities. Desai (2008) also argues that people have a right to participate in decision-making which directly affects their living conditions.

2.3 Conceptual exploration

“The idea of participation is a little like eating spinach: no one is against it in principle because it is good for you” (Arnstein, 1969).

2.3.1 Community based development?

Several perspectives have emerged in literature on the concept of community-based development. Academics have tried to define the concept; a number of definitions of community-based or participatory development are listed below:

1. Participation by beneficiaries (or the community) in development projects (Manikutty, 1998).
2. The cornerstone of community-based development initiatives is the active involvement of members of a defined community in at least some aspects of project design and implementation (Mansuri & Rao, 2004).
3. This demand-responsive approach calls for a joint effort by community members and government staff in service design, construction, and operation and maintenance (O&M) (Isham & Kähkönen, 2002).
4. When both men and women, rich and poor, participate actively in establishing, managing and maintaining the services (Dayal, Wijk, & Mukherjee, 2000).
5. It is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future (Arnstein, 1969).

These perspectives share some of the crucial features which help to define community-based development. First of all, commonly referred to, the involvement or participation of people in a community. Other terms for community, often mentioned in the literature are beneficiaries or users. This notion of participation includes the idea of a community, which is not just a receiver of services brought by the state or an (I) NGO or the private sector, etc, but one which is also actively involved.

Secondly, the way in which beneficiaries participate is often referred to. Participation is a concept which can be interpreted in many ways, ranging from non-participation to citizen power. To cover this, most definitions mention community participation in certain phases of a project. In general, a WATSAN project starts, after initiation, with the design or planning phase. The project continues with the establishment or construction of services, and once these services are established, the O&M phase begins. The latter phase includes, especially for WATSAN services, maintenance and repairs. From the above definitions, there is no agreement as to in which particular phase the community participates. The majority of the above definitions do agree about participation in at least the design and establishment of

the services. Taking these two features into account, a simple definition of community-based development is the active participation of a community in at least the planning and establishment phase of a project.

In the scope of this study, it is relevant to elaborate definitions three, four and five as well, as they incorporate more detailed features of community-based development. They also focus on who participates with whom. As recognized by Allen, Davila, & Hofmann (2006), and also Isham & Kähkönen (2002), a call is made to establish a joint effort between the users and the state (in the form of the water authority). In this light, effective community-based approaches should involve collaboration between the users and the public water authority. Taking a closer look at the community involved in a project, it should not be seen as just a community. Dayal, Wijk, & Mukherjee (2000) mention explicitly, men and women, and rich and poor, as participants in a project. Taking the different aspects of community based into account the following definition will be used: Community based development is a joint effort between government staff, NGOs and the community, poor and non-poor, in service design, implementation, and operation and management (O&M). These ideas about community-based development are not new, but have developed into mainstream thinking in the last decades. The next section examines the history and development of the concept.

2.3.2 Origins of the concept in service delivery

Practices in the field of development have, in general, been formed by development theory, which has itself gradually evolved. For instance, Nederveen Pieterse (2004) has identified the following post-WWII major development theories or paradigms (it should be mentioned that the new theories did not replace the old ones but rather built on them): modernisation (1950-1960s); dependencia (1960-1970s); neo-liberalism (1980-1990s); alternative development (1970-1980s); human development (1980s onwards) and anti-development (1990s onwards). Taking these paradigms into account and the light they shed on paradigmatic changes, the following section examines the early years of development, the rise of the community-based approach in service delivery and the participation era. In conclusion, paradigmatic changes specifically linked to WATSAN practices are highlighted.

Early years of development (1950-1970): structuralism

In those early years of 'development', the importance of WATSAN was recognized as a means to improving health (Seppälä, 2002). Most developing countries were still under colonial rule, only gradually achieving independence. The post-colonial years saw efforts being made to establish their self-reliance. Development philosophy was dominated by state-regulated policies (modernisation). The state was seen by many as the most important actor in the path to modernisation. In this era, the first bilateral donors were established, however, multilateral development institutions were not encouraged to invest in local collective development opportunities for the provision of the public good. The 1960s saw

the emergence of the Regional Development Banks (ADB, AfDB, IADB) (Seppälä, 2002) with the emphasis on water production, health and technical aspects. Characteristic of this period is the transfer of technology to developing countries (Seppälä, 2002). Development philosophy and practice in the post-war decades can be characterised as being formed by 'top-down' planning, mainly focusing on economic development objectives with the state as prime mover. In general, it can be concluded that in the atmosphere of the post-war decades practices with a development objective were not focussed on community-based development.

On the other hand, community-based development was not a new concept in the 1970s when it became part of an alternative ideology to mainstream development. Later on it even became a dominant development discourse. Ideas on community-based development were around in the time of Mahatma Gandhi (Mansuri & Rao, 2004). Gandhi praised the Indian village and believed that the true power of the Indian nation (independent since 1947) lay in village self-reliance and small-scale development. Participatory development had spread to more than sixty countries in Africa, Asia and Latin America as early as the 1950s and 1960s (Mansuri & Rao, 2004). This first wave of participatory development was largely affected by the efforts of the U.S. Agency for International Development (USAID). However, funding for these programmes dried up in the early 1960s, and within a decade most were shut down (Mansuri & Rao, 2004).

Rise of the concept (1970-1990)

This 'modernisation' approach to development was severely criticized in the 1970s and 1980s. Dissatisfaction with large, state-regulated programmes in service delivery, as well as in other sectors, reawakened the interest in the local management of resources and decisions. Mainstream development, until then formed by modernisation and other 'structuralist' positions, such as, dependencia, was criticized as it gave no space to the poor to become informed participants in development. The top-down approach of 'structuralist' perspectives was also criticized, especially the disempowerment and ineffectiveness of these state-regulated development practices. The first two development decades after WWII had failed to reach their objectives in solving the world's development problems (Mansuri & Rao, 2004). However, projects that were informed and practicing community-based development became highly successful. These projects provided important lessons for large donors (Mansuri & Rao 2004).

The beginning of this period still followed the classical, public health paradigm of engineering solutions in tackling the challenge by large-scale, heavily subsidised service delivery. Water was still seen as a social good, which should be delivered by the state (Seppälä, 2002). The ongoing problem of water supply made the UN initiate and prepare for the 'Water Decade' (1980s). The water decade was a major international effort pursuing a supply-driven approach and introducing low-cost affordable technologies and capacity

building. Moreover, it was realized that community participation was the key to sustainable projects (Seppälä, 2002). Thus, the 1990s saw the emergence of a changing view towards development in general and, in particular, changes in water policy by donors. For instance, water was seen less as a social good but rather as an economic good with an economic value.

Participation: a panacea for development? (1990-2000)

Community participation became an important aspect in poverty-reduction strategies in the context of decentralization policies adopted in the post-structural adjustment programmes of the 1990s. This change was largely due to good governance policies encouraged by multilateral aid agencies such as the World Bank (Desai, 2008). Disappointment about the first development decades, and the reality of heavily indebted countries in the global south, decided multilateral agencies, such as the World Bank and the IMF, to enforce structural adjustment programmes. These programmes, in the form of loans for economic restructuring, were made conditional on several aspects. Principle instruments of structural adjustment were: the reduction of public spending, trade liberalization and privatization of public enterprises (Potter, Binns, Elliott, & Smith, 2004). As these reforms were aimed at diminishing the role of the state, many developing countries were forced to decentralize. In this context of decentralization, or decision-making at a more local level, communities became more involved in development.

This was partly reflected in the water policy of the donors. The modest achievements of the 'Water Decade' were frustrating. Water was still an important issue as (coupled with sanitation) it was recognized as a basic human need. The approach towards the management and use of water was to look at it in terms of environmental protection and sustainable development and to regard water management, at the lowest possible level, as part of customer-orientation (Seppälä, 2002). This vision was articulated by the promotion of demand-driven and demand-responsive approaches. The role of the community in managing services became more important, as also stakeholder participation. Other focus areas emerging at this time were, gender issues, institutional strengthening and urban and periurban water supply and sanitation (Seppälä, 2002). A shift can be recognized from a rural water supply-driven emphasis towards an emphasis that takes into account the demand and situation of urban and periurban communities.

Amartya Sen's work on 'capabilities' and the 'empowerment' of the poor, known as the human development paradigm has had a great impact on the focus of development. While, as mentioned, the early decades of development (post WWII) were mainly formed by enhancing the material well-being of the poor, Sen's work has contributed to a more human and social focus. This approach has become famous under the heading, 'human development' (HD). One of the main factors in HD is the recognition of poor people as agents. That is, poor people faced with poverty can be active agents in rising above poverty.

Therefore, Sen argues that donors should place emphasis on empowering the poor through enhancing their capabilities. This agenda was taken up by the World Bank, the UN and other large donors in response to criticism on top-down development. Participation as a crucial means of allowing the poor to have control over decisions was included in this donor agenda (Mansuri & Rao, 2004).

Contemporary focus (2000+)

Currently, community participation has become an important ingredient in poverty-reduction strategies espoused by governments (Desai, 2008). This second wave of interest (Mansuri & Rao, 2004), has moved along a path that originated as an anti-modernization perspective (sometimes called *alternative development*) and has been absorbed into mainstream development. Regarding the water policy of international donors, Seppälä (2002) has noticed, in the post millenium era, an increasing responsibility to user-communities, in which governments act as facilitators, and also, the further integration of partnership and network approaches. This current paradigm in development thinking is marked by slogans as: public-private partnerships, people first, community ownership and ‘everybody lies downstream’ (Seppälä, 2002).

Changing paradigms

The changes described here have altered thinking about development policy. To recoup, the paradigmatic changes in thinking about water policy are shown in the following table, which is taken from Seppälä (2002). The changes explicitly mark the decentralised management and demand-responsive approach which is reflected in community-based development.

Table 2.1: Major paradigmatic changes in WATSAN policy thinking

Old thinking	New thinking
Water development	→ Water allocation
Emphasis on water quantity	→ Emphasis on water quality or quality-quantity
WATSAN as basic human needs	→ WATSAN as basic human rights
Water as a social good	→ Water as an economic good
Centralized management and administration	→ Decentralized management and administration
Government (state) provision	→ Government facilitation
Administrative domain	→ Service domain
Supply driven approach	→ Demand-driven approach
Water supply	→ Water services
Production (agency) orientation	→ Customer orientation
Hardware projects	→ Software projects

Source: Seppälä, 2002

2.3.3 Different words, same meaning

So far, it has become clear that the cornerstone of community-based development initiatives is the active involvement of members in at least some aspects of project design and

implementation. In other words, a joint effort or collaboration involving the water authority and the users and, importantly, the participation of the poorest in the community, instead of just community participation. It is important to make the terminology clear. The term participation is dominant in development literature when referring to beneficiaries' involvement, although several other terms in relation to the participation of local people are also used, for example, participatory development, community-based development and community-driven development. Briefly, the use of community-driven, community-based and participatory development is almost interchangeable. Mansuri & Rao (2004) state that community-based development is an umbrella term for a project that includes beneficiaries in at least some aspects of design and implementation. The same authors use community-driven development when referring to community-based development in which communities have direct control over key project decisions, including the management of investment funds.

2.3.4 Benefits and critique

Encouraged by national governments, the World Bank, UN agencies and non-governmental organizations (NGOs), community participation has become an indispensable part of many development programmes and projects (Desai, 2008). Why has participation become an indispensable part of mainstream development and why do all these organizations praise the use of participation in development projects? The main body of development literature favours the participatory approach. The most important potential benefits are shown in Table 2.2. However, there is also evidence of a more sceptical attitude towards the participation of beneficiaries in development. See Table 2.3 below.

Table 2.2: Potential benefits of community participation

Effectiveness: Community participation improves the effectiveness and sustainability of a development project. By involving the communities' knowledge – they know best what their needs are and what they can afford - projects can be made to better suit the needs of the community (Desai, 2008).

Sustainability: Supporting community development improves prospects for the long term sustainability of water supply systems (Lammerink, 1998; Desai, 2008).

Equity: Through community participation power relations can be reversed. Allowing poor people to have more control over development assistance, community participation can create 'voice' and 'agency' for poor people, thus empowerment. (Mansuri & Rao 2004).

Efficiency: Community participation could lead to efficiency in system performance and cost-effectiveness for both community and agencies (Lammerink, 1998, Prokopy, 2005).

In the light of post-structural adjustment programmes and the emphasis on good governance, community involvement complements market and public activities (Desai 2008, Mansuri & Rao, 2004).

Empowerment: The enhancement of local self-reliance. Ownership and control over a

development project can strengthen the capabilities of the community to undertake self-initiated development activities, or maintain mobilization. This notion is closely related to empowerment (Desai, 2008; Mansuri & Rao, 2004).

Coverage: The coverage objective in a WATSAN project is important, and community participation could lead to higher rate of coverage (Prokopy, 2005).

The body of critique on community participation in development programmes and projects has been growing over the last years (Prokopy, 2005). It includes concerns that participation might neutralize the potential benefits, the basic precepts of community participation and the practical implementation (Mansuri & Rao 2004).

Table 2.3: Critique on community participation

Unfair burdens: Participation places unfair burdens on the shoulders of local people. This concerns the ability of a community to be able to make decisions about and manage for instance a WATSAN system.

Forced to participate: People are forced against their will. Initiation of projects and its implementation process often lies in the hands of an agency or government (Prokopy, 2005).

Undemocratic: Local institutions could undermine democratically elected government (Mansuri & Rao, 2004).

False pretence: Participation can be a false pretence, where local people have no real ability to influence the direction of a project (Cooke and Kothari, 2001, as cited in Prokopy, 2004).

Take-over by elites: Competing interest groups or the potential take-over of project benefits by local elites (Stone, 1989).

Root of poverty: The emphasis on local 'self help' bypasses the broader international and political relations that are the real root of poverty and ill health in developing countries (Stone, 1989).

2.3.5 Levels of beneficiary participation

As mentioned before, community participation can be exposed in many forms or levels, ranging from non-participation or a very low level of participation towards full control or very high degrees of citizen control/power. Within the definition of participation, it is clear that no such thing as a predetermined level of participation of beneficiaries in projects exists. Lammerink (1998) argues, *"To what extent the WATSAN services are managed by the community can vary considerable and is depended upon the agreed division of responsibility between water agencies and the community"*. This means, it is possible to make a distinction between the levels of participation. Two authors have made a typology of the hierarchy of community participation (i.e. Arnstein, 1969 and Prokopy, 2004).

First, hierarchically, local people may have a very low form of participation or even no participation at all, or they may be in the middle of the hierarchy, or at the upper end (Prokopy, 2005). Practically, Prokopy's typology is very suitable to this study because of its former use in the WATSAN sector. She distinguishes three hierarchical levels of participation:

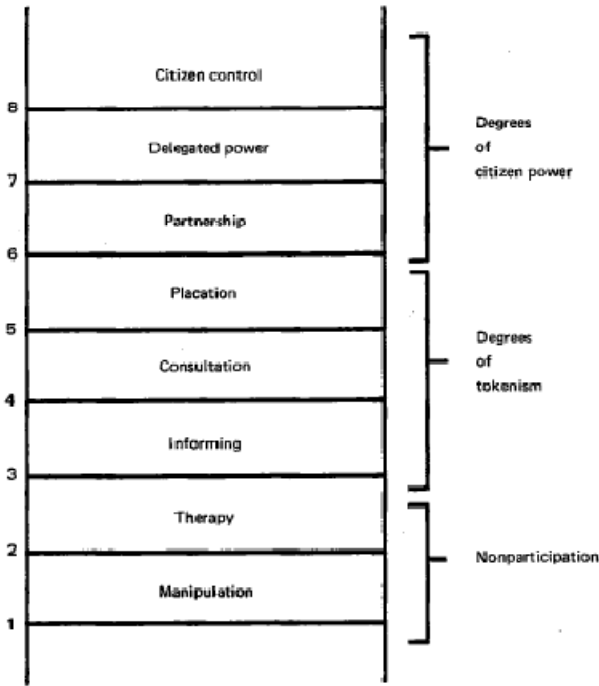
1. A low level of participation, involving participation in the form of contribution of labour, money or materials to a predetermined project. At this level beneficiaries are not involved in decision-making.
2. In the middle of the hierarchy, beneficiaries are involved in decision-making about largely predetermined questions. Prokopy specifies the middle of the hierarchy by mentioning some of the aspects of participation at this level. Participation in decision-making occurs through attending meetings, speaking out at meetings, seizing opportunities for making decisions concerning the location of key facilities, timing water supply and supervising construction.
3. At the upper end of the hierarchy people undertake their own initiatives and are in full control of their project. This level of participation is strongly related to community-driven development, in which the community has full control over the management of investment funds. Prokopy (2004) mentions that water-user groups can have more power to influence a project than the average citizen, although water-user groups are also restrained by deadlines, predetermined ideas and budget

Arnstein (1969) has introduced '*the ladder of citizen participation*' to encourage, in his words, '*a more enlightened dialogue*', in which he distinguishes eight levels of participation in three categories: non-participation, degrees of tokenism and degrees of citizen power. An enlightened dialogue is needed, according to Arnstein, because participation is often a false pretence, "*it allows the powerholders to claim that all sides were considered, but makes it possible for only some of those sides to benefit*". Therefore, participation for Arnstein is about power relations and the distribution of power. His ladder is supposed to help to solve this issue (Figure 2.1). The ladder should be seen in regard to power relations, but is in principle very similar to Prokopy's hierarchy. The ladder and Prokopy's hierarchy combined make a relevant instrument with which to analyse community-based projects.

The bottom two rungs of the ladder, *manipulation* and *therapy* - when compared to Prokopy's hierarchy - indicate even less participation than the contribution of labour, money and materials. They describe levels of 'non-participation' that are false pretences for real participation. The real objective is not to enable people to participate in planning projects but to enable power holders to 'educate' or 'cure' the participants (Arnstein, 1969). Rungs three and four, *informing* and *consultation*, progress to levels of 'tokenism' that allow the 'have-nots', as Arnstein calls them, to hear and to have a voice. However, they lack the will to present their case for consideration. The next rung, *placation*, is a higher level of tokenism because, although the have-nots are able to advise, they still bow to the notion that the power holders have the right to decide. The top of the ladder shows increasing degrees of

decision-making by the have-nots. *Partnerships* enable them to negotiate and make trade-offs with traditional power holders, while *delegated power* and *citizen control at the top* allow them to obtain the majority of decision-making seats or full managerial power.

Figure 2.1: Eight rungs on a ladder of citizen participation



Source: Arnstein 1969

Ideal participation?

Is a higher level of participation more desirable than a lower one? The relation between participation and project outcome has been examined and defined by several authors (Prokopy, 2005; Isham & Kähkönen, 2002; Narayan, 1995 & Dayal, Wijk, & Mukherjee, 2000). It has already been mentioned that community participation has become a much-used strategy in development projects because it is seen by many as beneficial. On the other hand, a growing body of critique suggests that there can be adverse outcomes from participation. Therefore, the question is, what form of participation is ideal?

From the above interpretations, it is clear that no such thing as ideal participation exists. The definitions for community-based development or participation are not clear about the most favourable level of participation. Most authors refer to some kind of involvement in the design and establishment phase. They describe the forms of participation that can occur during the several phases of a project and also mention the implication of the level of participation involved. However, it is not clear whether a step higher in the hierarchy also means it is more favourable. Of course, participation at the low end of the hierarchy is not favourable either. It has been suggested that if participation is to lead to the hoped for sustainable outcome, people need to be involved in higher levels of decision-making and not

just in manual work (Schouten en Moriarty, 2004; as cited in Prokopy 2005). Does that mean the top of the ladder? If so, what about the disadvantages of participation described above?

It is feasible to assume that the ideal level of participation depends on the benefits and critique rooted in the local context of the project. Taking this perspective, it is relevant to ask, which level incorporates the best of the benefits and takes into account the disadvantages, keeping them to a minimum. What is very important is to achieve good insight into the reality of the project. Participation is not a one-way process. In any case, it should not be suggested that a higher level of participation is by definition better. This would be naïve and would not realize the reality of the projects. Therefore, it is crucial to set the indicators right. For instance, what decisions can be made by the water-user committee? Is it good to leave all decisions to the committee? If so, do you put too much pressure on people who do not have the capacity? Answers to these questions could be rooted in the advantages and disadvantages of participation as described above (e.g. unfair burdens). This is an important question when analyzing the community-based approach later on.

Up until this point, the above sections about community-based development have shown the potential benefits that may arise from beneficiary involvement and the different levels at which participation can occur. However, in the literature examined, no set level of participation is regarded as ideal, rather, the required level of participation depends on the effectiveness of the approach.

2.3.6 Effective community based approach

Defining consumer-effectiveness is a complex task (Prokopy 2005). What does it include? Before answering the question it should be mentioned that the operation of project facilities in Siddhipur is, at the time of study, two years underway. The facilities in Lubhu have been operating for an even shorter period of time. Therefore, only current operation will be discussed as its long-term sustainability is unsure. It is very risky to make any judgment on the long-term sustainability of the system as the services in Siddhipur and Lubhu have been operating for only a short while. Various authors have discussed the success of a project. Prokopy (2005) examines the approach of five different WATSAN studies that have been carried out. Two authors (Narayan, 1995 & Sara & Katz, 1998) use several indicators to create an overall index figure to measure project success, while Isham and Kähkönen (2000), as well as Gross et al. (2001) only use two or three unique indicators. Prokopy has taken these approaches into account and has selected five unique indicators to measure project success: equal access, consumer satisfaction, tariff payment, belief in system and time savings. It is significant that Prokopy does not include health as defining a project's success, while this is one of the main targets in implementing WATSAN services. However, health is used by other authors, e.g. Isham and Kähkönen (2000). Table 2.4 gives a resume of how three other empirical studies measured the effectiveness of community-based projects/project-success.

Table 2.4: Measures of Project effectiveness

Study	Measure(s) of project effectiveness
Prokopy (2005)	(1) Consumer satisfaction, (2) Tariff payment, (3) Equal access, (4) Time savings, (5) Belief in the system
Isham and Kähkönen (2000)	(1) Quality of construction, (2) Satisfaction with service design, (3) Health impacts, (4) Time savings
Dayal, Wijk, & Mukherjee (2000)	Sustainability measured by: (1) effectively sustained services <ul style="list-style-type: none">• System quality• Effective functioning• Effective financing and• Effective management (2) effective use

2.4 Community factors of a effective community based approach

Taking this all into account, which factors determinate ideal participation of the community? In the literature analysis regarding the determining factors Isham and Kähkönen (2000) determine three sets of institutions. These are: Social capital (the rules between people of a group); service rules and practices (project rules); and government and NGO rules. Also non-institutional community characteristics, such as, household size, household assets and hygiene class are important as factors.

2.4.1 Social capital

The informal norms in society are nowadays often called '*social capital*'. In regard of this study, it is not the intension to give an exhaustive literature examination of social capital but here it is the idea to get a general grip on the concept which is believed to be important in shaping participation. Francis Fukuyama (Fukuyama, 2001) defines social capital as an instantiated informal norm that promotes co-operation between two or more individuals. He argues it constitutes the cultural component of modern societies. Thus, in this view, institutions matter because they are a source for public action, which can bring about change in a development process. Isham and Kähkönen (2002), prove this relation, between high levels of social capital and participation of the community in the design of a WATSAN system in an empirical study of three WATSAN project in India and Sri Lanka. They argue that in those communities (high social capital) households are accustomed to working together and social ties deter free-riding. In the case of Nepal, this could be relevant because, as Stone (1989) states:

“Nepalese society operates through principles of hierarchy, human interdependence, and action through personal relationship and social networks. It is through personal, hierarchical, interdependent linkages that goods and services are negotiated and exchanged”.

These informal norms are thus important in shaping people’s lives and their access to resources. So, if social capital is weak in a community, their institutions which determine access to and control of resources may also be weak. The social capital theme links up with the periurban setting of this research, as Iaquinta and Drescher (2000) identified the relation between the periurban setting and its institutional frameworks and relevant networks.

2.4.2 Periurban setting

This study of community-managed WATSAN systems focuses on three periurban areas in Kathmandu. In recent years, periurban areas have received much attention from scholars, and the idea that there is a strict divide between rural and urban areas is long gone (Iaquinta & Drescher, 2000). As a result, today there are different types of transition zones between city and countryside (i.e. periurban). Two different, not necessarily competing, approaches to the periurban concept in the literature will be discussed here: the periurban interface and periurban typology.

The Periurban interface (PUI)

The most *influential* and *traditional* theoretical perspectives regarding the periurban interface is believed to be the DFID-funded body of research literature on the *periurban interface* (McGregor et al., 2006, Adell, 1999 & Allen et al., 2006). The interest in funding studies on the periurban interface is explained by the enormous difficulties faced by several institutions, including residents but also NGOs and governments, etc, in, for instance, providing services, governance issues and security of tenure (McGregor, Simon, & Thompson, 2006). These periurban areas are complex zones. The creation of such complex zones is owing to the fact that many fast-growing large cities across the global south are surrounded by dense and generally impoverished shanty towns or other forms of informal housing characterized by all kind of problems, such as, inadequate infrastructure, service provision and security of shelter. They often spread into previously rural or periurban zones, commonly enveloping or merging with existing villages (McGregor, Simon, & Thompson, 2006). The DFID-funded research for their Natural Resources Programme (NRSP), 1995 – 2005, defined the periurban interface as follows : *“The periurban interface is characterised by strong urban influences and easy access to markets, services and other inputs, ready supplies of labour, but relative shortages of land and risks from pollution and urban growth”* (McGregor, Simon, & Thompson, 2006). This DFID definition mentions two different zones in which PUIs can be divided: *“A zone of direct impact – which experiences the immediate*

impacts of land demands from urban growth, pollution and the like; AND a wider market-related zone of influence – recognizable in terms of the handling of agricultural and natural resource products” (ibid).

Periurban typology

The periurban typology defined by Iaquinta and Drescher (2000) provides similar insights as the periurban interface, but their typology allows a broader spectrum of periurban areas to be characterized. An important consequence of this typology is the scenario abilities that the method incorporates. Like the DFID studies, Iaquinta and Drescher (2000) share the view that periurban areas are generally villages that used to be located in rural areas, often at considerable distance from the city. With rising migration towards urban regions, these villages have received a lot of in-migration. This has resulted in changes in their make-up. They are typically characterized by traditional housing, new shanties and huts, as well as urban type formal houses (Iaquinta & Drescher, 2000). They also identify the periurban area as areas of social compression and intensification where the density of social forms, types and meaning increase, agitating conflict and social evolution. According to Iaquinta and Drescher (2000), there is no clear consensus on what constitutes a periurban area. In order to create a unified understanding of what constitutes a periurban area they, therefore, created a typology of such an area as they felt that literature used the term periurban to describe contradictory processes and environments.

For instance, ***proximity to the city***, they argue, is not a fixed zone which could be determined as being periurban. According to McGregor et al. (2006), a reasonable generalization for large cities is a periurban zone between 25 and 50 kilometres around an urban area. This would mean that the periurban area of Kathmandu would incorporate the whole Kathmandu Valley. Off course, is the proximity to a city important to a comprehensive understanding of periurban, but it is not incidental to an elemental understanding of periurban (Iaquinta & Drescher, 2000). According to them, periurban is better explained through the existence of some level of ***urbanism***. There are three underlying factors to define urban; these are the demographic, economic-sectoral and social-psychological component. The latter component is often neglected from periurban definitions, but according to Iaquinta and Drescher (2000) ignoring this component is missing reality. The ***social-psychological component*** essentially refers to those values, attitudes, tastes and behaviours that are seen to be characteristic for urban as opposed to rural dwellers and is crucial in the reasoning of Iaquinta and Drescher.

The typology identifies the institutional frameworks and relevant networks in five different types of periurban zones. According to the authors, the typology can be used as a tool to identify the key institutions in the area of interest, i.e. periurban communities in the Kathmandu Valley. They distinguish five specific periurban types connected to institutional classes - village periurban, in-place periurban, chain periurban, absorbed periurban, and

diffuse periurban. (See appendix 1 for a more detailed description of the characteristics of institutional contexts by periurban type).

1. *Village periurban*

These areas are often rural villages, not geographically close to an urban area, yet experiencing substantial urbanism in the form of 'urban values'. They are often forgotten as a periurban zone, although, according to Iaquinta and Drescher (2000), they still face urban influences. Therefore, their definition as a periurban zone should be based on their social-psychological transformation instead of geography or size. This feature can increase solely through mass-media influence and the diffusion of consumerist ideas, in developing countries they are more likely to occur vis-à-vis such processes as:

- Inflow of out-migrant remittances,
- Out-migrant infusion of "urban" ideas and modes of behaviour,
- Out-migrant infusion of non-income resources, and/or
- Out-migrant participation, particularly strategic, in community decision-making.

2. *In-place periurban*

These areas are close to the city and are the result of in-place urbanization. That means they are in the process of being absorbed by the city. Mostly, they are formed from periurban villages combining rural in-migration with in-migration from the nearby urban area. Such areas tend to perpetuate and reinforce the existing power structure and bases of inequality, also conflicts between newcomers and long-term residents are likely to flare up if large numbers of in-migrants are involved (Iaquinta & Drescher 2000).

3. *Chain periurban*

In-migration to a single place, leads to the creation of an urban village. This is called chain migration and is the translocation of a specific village to a periurban setting. It is a highly stable environment.

4. *Absorbed periurban*

This category refers to a place close to, or already within, the urban context, and has already been there for a considerable amount of time. These locations are characterized by the maintenance of traditional institutional arrangements, which are derived from the culture of the original inhabitants who have formed the majority of the location for a long time. An absorbed periurban type derives from either a chain periurban or an in-place periurban type.

5. *Diffuse periurban*

This category is close to a city where in-migrants have come from a variety of places rather than a single one. This type of periurban has a greater potential for both conflict and negotiating new institutions than a chain periurban type.

2.5 Conclusion

This literature review has looked into the changing interface of WATSAN governance in the light of changes in thinking about development in general, and WATSAN policy in particular. It has examined the community-based concept by analyzing its advantages and disadvantages, and also the levels at which participation should occur to ensure success. The conclusion reached is that participation positively influences the effectiveness of community-based projects. The factors which could lead to an effective community-based approach have also been reviewed. There is no claim to have made an exhaustive survey of the subject, rather, in the scope of this study, to have participated in a small way in the ongoing debate on how to realize more successful projects.

Of significance for this study has been the review of the various types of periurban settings. By classifying the periurban setting of a project area, key processes are then identified that could influence the institutional context of the community. When looking at community-based projects in service delivery, the institutional context of a community is an important indicator of community participation. Also important is the way project plans have been formulated into a community-based approach. It is clear that in an effective community-based approach, a joint effort between the government's WATSAN agency and the community is a prerequisite. There is less evidence that a joint effort involving private, public and community forces is necessary to become effective. Other factors that play a role in the effectiveness of a community-based project include the level of education, household size and household assets.

Participation has a positive effect on the outcome of a project, although this assumption should be handled carefully in view of the critique put forward in the literature; there is a fine line between the positive and negative effects of participation. An instrument of analysis is Arnstein's participation ladder (1969); also the levels of participation identified by Prokopy (2005). Both instruments are particularly useful in a WATSAN context, and could be used to assess the rungs of participation. There are various methods and indicators available to assess the effectiveness of participation. An effective community-based approach could be assessed by an index variable or by selecting a few unique measurements. Such an assessment could also take into account the layers of successfulness, the project outcome and the wider impact of the project.

3. Regional thematic context

3.1 Introduction

As mentioned before, Nepal has beautiful landscapes and people, but the country is also struck to poverty. The civil war experienced in Nepal has tortured the country and its development for ten years until 2005. Because of the unrests, the government structure has fallen apart and lower tiered government bodies are incapable of meeting the demands of the population. Another aspect of the unrests is the centrality of the government. The Kathmandu Valley is the country's most prosperous region but is facing problems because of rapid urbanisation. A major consequence is the problematic WATSAN situation of its inhabitants. This issue is being addressed in the urban area by the government and multilateral organisations, but leaves the smaller periurban villages out of its scope. These periurban areas have since recently been targeted by UN-HABITAT and WAN.

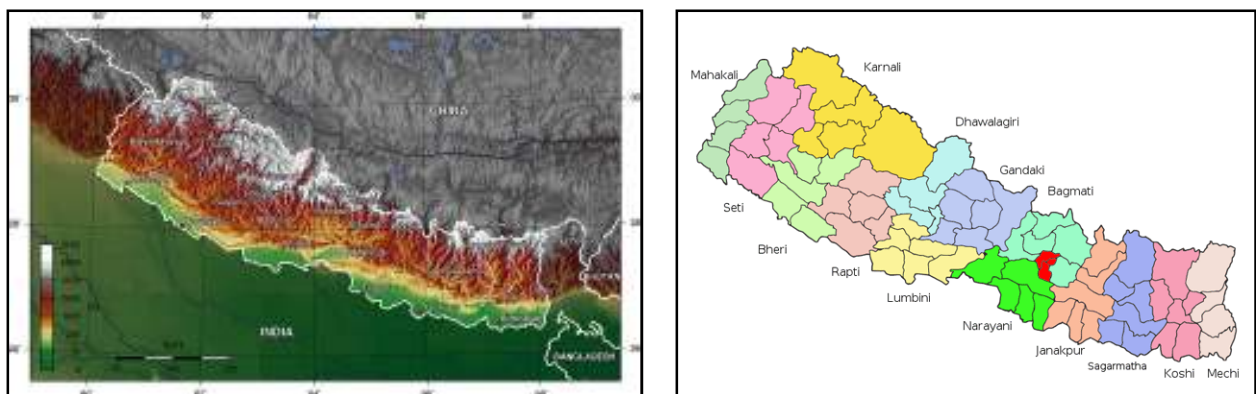
This chapter will elaborate on the WATSAN problems from a national towards a local perspective, which indicates the problems within the periurban areas of Kathmandu. The first part of this chapter will introduce Nepal and its development problems, whereby the main focus goes out to WATSAN. From the national perspective the focus will change to the regional perspective. Nepal's capital Kathmandu will be introduced, from where the WATSAN problems in the Kathmandu Valley will be described. This includes the urbanization in the valley, the development of the Kathmandu metropolitan area and the Melamchi project, which is meant to provide all the people of the capital with clean water. The Melamchi project is also very important for the water solutions in the rest of the valley. Finally, a local perspective will elaborate the periurban context of access to water and sanitation. The villages under research are periurban villages and therefore have specific water and sanitation problems.

3.2 Nepal

Nepal, a small landlocked country rooted deep in the Himalaya's and squished between Asia's two giants: India and China. Nepal is home to the Mount Everest, and its natural wonders attract over 300.000 visitors a year (van Dalen & de Vries, 2002). But the country is known for more than only its mountains; Nepal is also a country marked by poverty and political struggles. The country can be divided into three environmental sub-regions that stretch, like a band, from east to west over the country: The high mountain area, the hills and the flatlands (Terai). The high mountain region is located in the northern part of the country towards the Tibetan border. As the map shows (Figure 3.1) this region is white, and the natural zone stretches from east to west over the northern part of the country. Two other regions can be divided. South of the high mountain region is the hill area of Nepal. The

region has still got steep hills and rough valleys, but is compared to the high mountain area much more available for human settlement. Nepal's capital Kathmandu resides in the hill area of the country (brown zone on the map). Down in the south and at the border with India, the green area is the Terai. The Terai natural region begins in the northern parts of India, the Ganges delta plains and from there ends at the Himalaya. Here is where most people in Nepal live. The right map in figure 3.1 shows the different districts of Nepal highlighted in different colours. The three districts coloured red make up the Kathmandu Valley and the area of interest of this study.

Figure 3.1: Maps of Nepal



Source: Wikimedia Commons

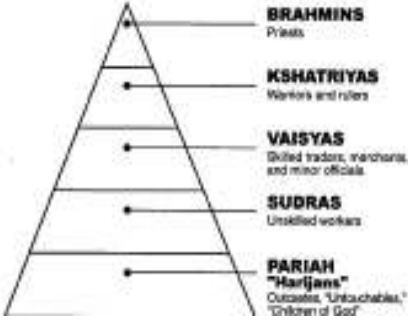
3.2.1 Social

The dominantly agricultural population of 29 million people in Nepal is a remarkable mix of people. The main religion in Nepal is Hinduism, but also Buddhism and other religions have their appearance within the country (table 3.1). Noteworthy is that Nepal is the only official Hindu state in the world. While India, for instance, is dominantly Hindu, they are not an official Hindu state. One important feature of Hinduism is its social stratification system. As known, most Hindu people follow the socially stratification of the caste system. This system is very important in shaping peoples everyday life. For Nepal it is important to highlight the difference between castes and ethnicities as these are often used interchangeably. The Nepalese population can be classified into three major ethnic groups in terms of their origin: Indo-Nepalese, Tibeto-Nepalese, and indigenous Nepalese (Savada, 1991). Related to these major ethnic groups, over 100 different so called ethnicities can be found in Nepal. Often with an own language and distinct culture. Caste-wise, most Hindus and Buddhist people are organized according to the socially stratified system of castes. Table 3.1 has included the main caste witnessed in Nepal. The traditional caste system has four main castes. The upper caste is the Brahmans or Brahman-Hills, which were traditionally priests. Below the Brahmans are the Kshatriyas or Chettri which constituted the military in Hinduism. The largest group belongs to the vaisyas and Sudras. These major castes are in reality subdivided in many other castes. The Newars, the traditional inhabitants of the Kathmandu Valley and

the dominant group in Siddhipur and Lubhu, has its own caste system which runs parallel to the Hindu-caste system described. Furthermore, Newars are not by definition Hindus, many Newars, as other Hindus, take elements of Hinduism and Buddhism.

Table 3.1: Religion and castes in Nepal

Religions		Castes	
Hindu	80.6%	Chhettri	15.5%
Buddhist	10.7%	Brahman-Hill	12.5%
Muslim	4.2%	Magar	7%
Kirant	3.6%	Tharu	6.6%
other	0.9%	Tamang	5.5%
		Newar	5.4%



Source: CIA, 2009

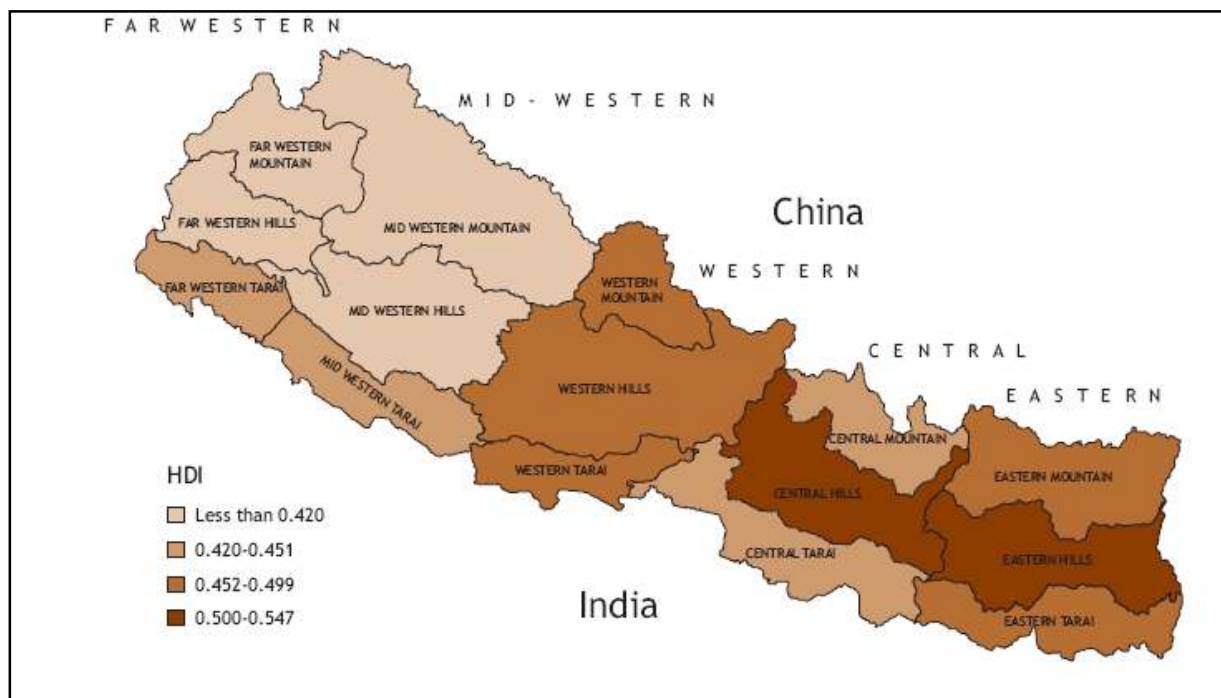
3.2.2 Development

Nepal is among the poorest and least developed countries in the world with almost half of its population living below the poverty line. The Human Development Index (HDI), ranked the country 144 out of 182 countries, with a HDI of 0.471 in 2001 (UNDP, 2004). Within Nepal vast regional disparities can be witnessed (UNDP, 2004). The Kathmandu valley is the country's most prosperous region. The valley inhabits the country's capital including most national government institutions. Next to this, the capital is the country's economic centre and is home to Nepal's international airport. There is a gap between the HDI in urban areas and rural areas whereas the urban areas outstrip the rural zones. The most set back regions of Nepal are the far and mid-western and the central development region.

3.2.3 Political

In recent history, Nepal was marked by violent struggle because of the Maoist insurgency that kept the country in its grips since the 1990s. Before the Maoist came to prominence however, Nepal was known as a kingdom. The kingdom was unified in 1768, and was ruled by royals until as recently as 2008. The struggle against the monarchy is not new however. In 1947 the Nepali congress was established, with the goal of creating a democratic government and ending the Rana regime, the dynasty that had been in control since 1844. The congress had some success: in 1957 the Nepali people could vote for the first time. The success did not last long however, as the king took all power back in 1959 by dissolving the parliament and setting up a new political system: the *Panchayat*. The *Panchayat* was a parliament that consisted only of people that were appointed by the king (van Dalen & de Vries, 2002).

Figure 3.2: Human Development by eco-development region



Source: UNDP 2004

The Panchayat system survived until 1990, when large-scale demonstrations forced the king to install a true democracy under a new constitution. The monarchy remained in a powerful position in politics however, which led to a political system that was constantly in a state of crisis. The inability of the government to bring development to the country, especially to rural Nepal, was a perfect breeding-ground for Maoist revolutionaries. This revolution picked up speed in West-Nepal in 1996 because of the failure of democracy. The Maoist movement gained power over most of the districts and formed 'people's parliament's' to rule the districts. Soon, the revolutionaries' power extended to the whole country and they eventually participated in the national parliament as the Communist Party of Nepal (CPN-Maoist) (van Dalen & de Vries, 2002).

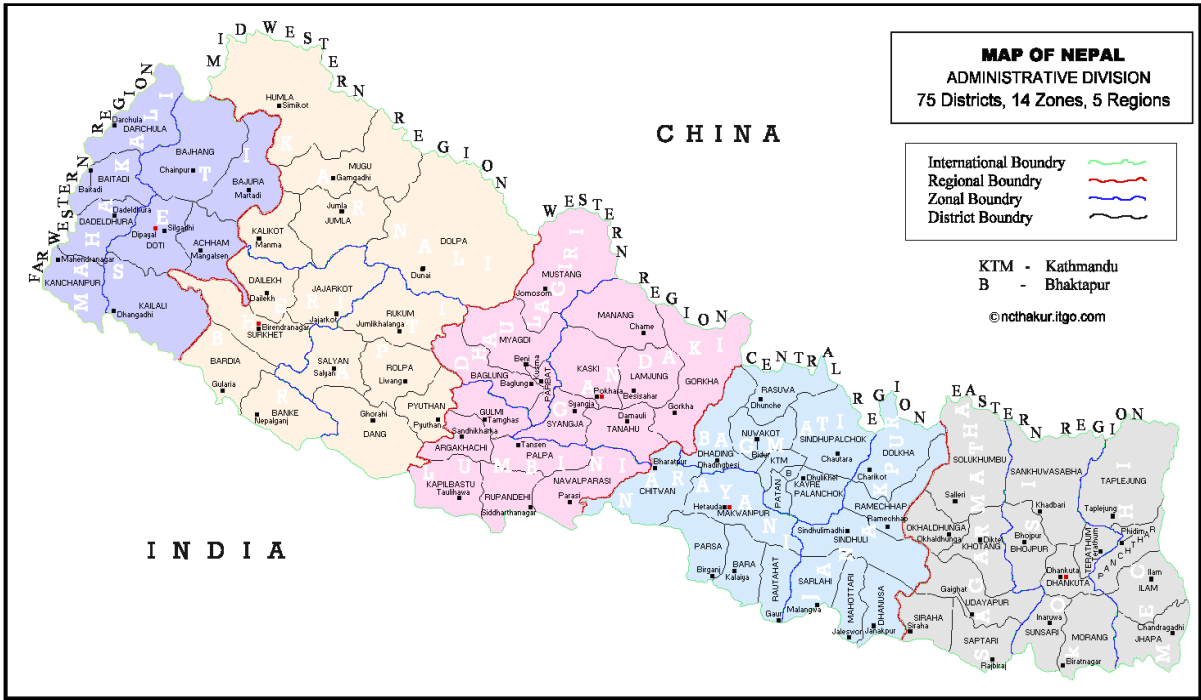
As the communist struggle for a socialist republic hardened, the Maoists left the parliament and took their struggle underground, throwing the country into a civil war. The politically weakened Nepal got another stab when the Crown Prince in 2001 killed many in the royal family, including the King and Queen and himself. The new king and his undemocratic rule were highly unpopular in Nepal. This led to many protests and in 2006 the king agreed to hand power back to the people. After this, the process of change speeded up. The monarchy was abdicated and Nepal was declared a secular state. The Maoists subsequently won the majority of the seats in the Constituent Assembly in April 2008, but was sacked due to a crisis in June 2009, after which government took place without the Maoists. At date, December 2009, Nepal's coalition is headed by Prime-Minister Madhav Kumar Nepal from the Communist Party of Nepal (Unified Marxist-Leninist). Still, it was witnessed ourselves,

the political situation in Nepal is unstable; though going back to war seems highly unthinkable.

Government structure

Nepal is divided in five administrative units (figure 3.3): the state, five development regions, 14 zones, 74 districts and at the lowest end there are the local bodies (cities, municipalities and villages). Nepal is still a highly centralized country (Nijenhuis, 2006). Most recognizable efforts for decentralization in Nepal have been in 1992 and 1999 with the Local Self-Governance Act (LSGA). The Decentralization Act of 1992 forwarded these acts taking place after the restoration of democracy in 1990 (NDF, 2002). The 1992 act provides three subordinate levels of local governance. These lower tiered government organizations are the District Development Committees (DDC), the municipalities and the Village Development Committees (VDC). Most notable is the 1999 LSGA which not only institutionalises subordinate levels of local governance, but provides authority to local bodies in collecting taxes, selecting and implementing local-level programmes and preparing periodic district plans (UN HDR Nepal, 2004).

Figure 3.3: Administrative divisions in Nepal



Source: ncthakur.itgo.com

At national level, the Nepal Water Supply Corporation (NWSC) is responsible for provision of WATSAN in municipal (urban) areas whereas the Department of Water Supply and Sewerage (DWSS) is responsible in the rural areas. However, in practice, role and responsibilities are not clearly defined between these agencies, especially for periurban centres and emerging towns like Siddhipur and Lubhu. Local authorities like the District Development Committee

(DDC) and Village Development Committees (VDC) are also providing WATSAN facilities at several places. Siddhipur is facing problems because none of the agencies are taking full responsibilities for provision of safe water and improved sanitation (ENPHO, 2005). In such a situation, WATSAN can be improved only by empowering water users by establishing local WATSAN users' committees.

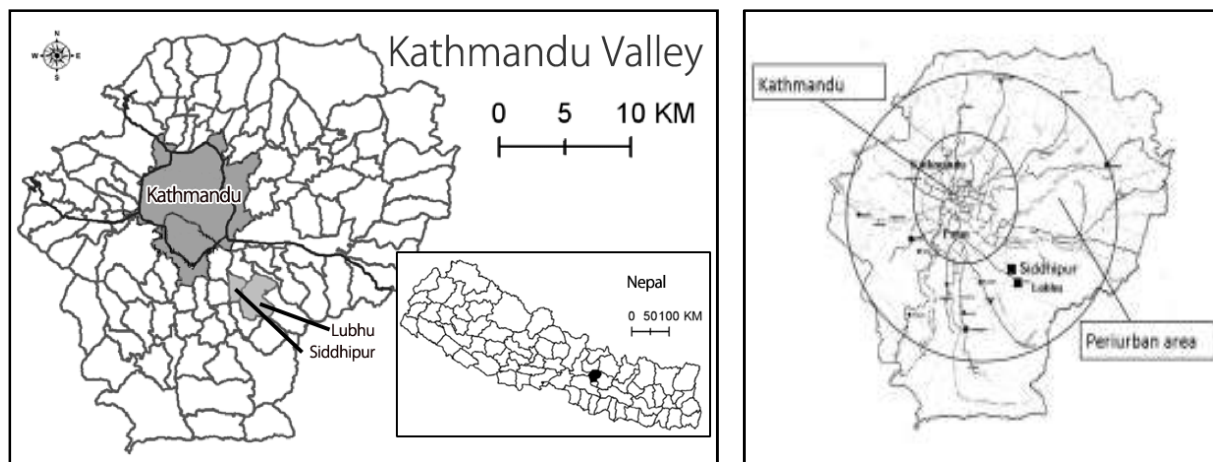
WATSAN policies

Often there is a lack of policy in Nepal (Sherpa, 2009). At a central government level there is very little attention for what happens at small periurban communities like Siddhipur and Lubhu. The state WATSAN policy can best be described as an 'enabling' policy. There are basically two important policies regarding the projects. These are: the Tenth Plan and the Rural Water Supply and Sanitation National Policy, Strategy and Strategic Action Plan (RWSS). They acknowledge the inadequate capacity of the state and therefore 'enable' the help of other actors in service delivery. For instance, an important element of the RWSS is to support partnerships with (I)NGOs and cooperative policy making by relevant ministries and (I)NGOs at a central level (Adhikari, 2009). Another major element of both plans is the inclusion of users in service delivery. The plans support community participation, women involvement, mobilization of users groups, sanitation committees and child clubs (ENPHO, 2005; Adhikari, 2009). The promotion of users commitment to service delivery includes provision that have to be taken care of, such as, cost recovery for O&M, rehabilitation of existing supply schemes, promotion of simple technologies, etc.

3.3 The Kathmandu valley

The Kathmandu Valley has a population of around 1.6 million people. The valley marks a flat area of the Bagmati River in the hills-zone of Nepal and is host to the economic and political central city of Nepal, its capital Kathmandu. The bowl-shaped Kathmandu valley, a natural region which contains some of the oldest human settlements in the central Himalayas, comprises two densely populated urban centres, 'Kathmandu Metropolitan City' and 'Lalitpur Sub-Metropolitan City' (Patan). While distinct administratively and politically, they are so interlinked with each other that there are no clear geographical or socio-cultural boundaries between them (Thapa, Murayama, & Ale, 2007). Therefore, in this thesis, Kathmandu and Patan will be referred to as simply Kathmandu. Kathmandu, together with three nearby municipalities within the valley, Kirtipur, Madhyapur Thimi and Bhaktapur, form the Kathmandu metropolitan region. There are also many agricultural villages in the peripheral parts of the metropolitan region and beyond, here referred to as the periurban area of Kathmandu.

Figure 3.4: The Kathmandu Valley



Source: Thapa, Murayama, & Ale, 2007

Source: (ENPHO, 2005)

3.3.1 Urbanization problems

The Kathmandu valley faces rapid urbanization since the 1970s (table 3.2) which is characterized by an unplanned rapid growth of the city and has created several problems in the city and valley. Taking a look at the figures, until the 1970s the urbanizing trend was moderate. From the 1970s the urbanization process took off and increased the population from just above 300,000 inhabitants in 1971 to over an expected 1.2 million in 2011. The last two decades even doubled the population of Kathmandu. Thapa, Murayama, & Ale (2007) argue that rapid development of economic opportunities, facilities and urban amenities in the city, and uneven allocations of resources for development and institutionalization in the rest of the country have added to the pressures for migration to the capital. This it leads to a change of land use in the valley. The cities' sprawl has occupied agricultural land and converted it to urban area. Furthermore, in recent years the traditional agricultural system in the city fringe is undergoing significant transformation and farmers who were mostly interested in subsistence farming now change towards commercial farming (Thapa, Murayama, & Ale, 2007). The most prominent problems of urbanization and land use changes are a shortage of drinking water and the haphazard disposal of solid and liquid waste leading to pollution of water bodies (ENPHO, 2005). The cities' water agency can only supply drinking water to 50% of the people and the water is not safe for drinking. Waste water treatment is almost negligible and leads to contamination of rivers and streams in the valley and beyond (ENPHO, 2005).

Table 3.2: Population trend in Kathmandu

Year	Population	APGR ¹
1952/1954	148 762	-
1961	168 732	1.27
1971	209 451	2.19
1981	315 035	4.17
1991	537 123	5.48
2001	834 837	4.51
2011 ²	1 240 957	4.04

Source: Thapa, Murayama, & Ale, 2007

Melamchi project

In order to address these issues the Nepalese government in cooperation with the ADB has initiated a mega project, The Melamchi Water Supply Project (MWSP). This is a mega project because it is aimed to serve the WATSAN needs of the people living in Kathmandu. The relative size of the project it has already exceeded its expected finalisation. The MWSP has received its name from the Melamchi valley, which is about 100 kilometres far from Kathmandu, from where it is aimed to collect 170 million litre water a day. The water is then transported from the Melamchi Valley to Kathmandu. Other major components of the project are the rehabilitation of the existing distribution network and institutional reforms for efficient service delivery and management of the Kathmandu water supply system (ENPHO, 2005). As the project is focussed on the municipal area of Kathmandu the periurban areas of the Kathmandu Valley are neglected, while they face water water scarcity and pollution of the rivers.

3.3.2 Periurban areas ‘negligence’

The periurban areas are neglected by official efforts to improve the WATSAN situation. The negligence is characterised by the absence of public, private or civil society development efforts in the periurban areas. At the local level there is no adequate government capacity. The setting of the project areas means that these communities can neither be called urban nor can it be considered a rural area. The settlements in the Kathmandu Valley used to be traditional villages, but their proximity to the capital means that the villages receive many urban influences. What is important to note about the location for this research project is that the periurban setting is problematic for the supply of WATSAN. With the fast infrastructure development of the Kathmandu metropolitan city in the valley, these ancient cities have been neglected in the development process and are now considered as villages (ENPHO, 2005). Due to the change in commercial activities and their demand for services following the rapid urbanization witnessed in the Kathmandu Valley, the majority of the

¹ Annual Population Growth Rate

² Projected population

population of these areas, which were prosperous areas in the past, are now living as poor urban communities (ENPHO, 2005). The areas have so far been deprived from development programmes. The budget that is allocated to the local governments is insufficient for infrastructure improvements including WATSAN facilities, as periurban areas require more than the funds allocated to rural VDCs. While some periurban areas have access to piped drinking water, the absence of the responsible institutions at the local level and lack of regular operation and maintenance funds, the supply facilities are in state of negligence and water is not safe for drinking (ENPHO, 2005).

International donors

In response to these negligence two international donor organisations have been instrumental. These are UN-HABITAT Nepal and WaterAid Nepal (WAN). UN-HABITAT Nepal is a United Nations organisation and has started working in Nepal under the Water for Asian Cities programme since 2004. The WAC programme has the following main objective:

To support the cities in Asia and the Pacific region to meet the WATSAN related MDGs by enhancing capacities at city, country and regional levels and creating an enabling environment for pro-poor investments to be channelled into the urban WATSAN sector. (www.UNWAC.org)

The WAC program is sponsored by the ADB, UN-HABITAT and the 'Ministerie van Buitenlandse Zaken' of the Dutch government to reach the MDGs in Asian cities. Because the ADB is involved in the WAC programme and they are working on WATSAN in the build up area of Kathmandu (MWSP), for UN-HABITAT the urban areas are not of interest. Therefore, to support the WAC, UN-HABITAT Nepal is working in small urban centres and periurban centres of the country. With service delivery activities, UN-HABITAT supports the objective of the WAC without interfering in the work of ADBs mega project, the MWSP.

The London based INGO WaterAid is a funding agency which works through its implementing partners. WaterAid Nepal is part of WaterAid 'global which has its headquarters in London. 'The work of WAN started in 1987 and its first partnership is from 1992 with establishing its partner Nepal Water for Health' (NEWAH) (Rajbandari, 2009). Initially WAN worked through NEWAH in rural areas and gradually NEWAH became recognised as a leading NGO in WATSAN sector in rural areas. NEWAH is also one of the biggest partners of WaterAid Global. WAN is full focused on water, sanitation and hygiene (WASH) and is now recognised as a knowledge catalyst in the sector (Rajbandari, 2009). From 2000 WAN started its work also in urban areas with very small interventions through its partners. They first started with a local Nepal NGO: Lumanti. They have not grown so big or mature in urban sector but have diversified their partners; they now work with service delivery partners Lumanti, CIUD, ENPHO and NGO Forum (Rajbandari, 2009).

Poverty mapping

The main instrument to implement the project and to make sure the funds would go to the right people in the community was the poverty mapping. This mapping was a census of the whole community that was conducted in 2006 and 2007 in Siddhipur and Lubhu respectively. The methodology for mapping the poor was developed by a local NGO, CIUD (Centre for integrated urban development), and was developed to be used in periurban areas. The poverty mapping is an extensive household census. It shows the socio-economic standing of the community, giving data on “demography, education, economic development, health, environmental sustainability, types of facilities provided to the settlement, etc.” (CIUD, 2007).

The aim of the mapping exercise is to get a clear view of the households living in the community, and of the problems and possibilities of the community. Knowing where the poorest households live and what their main problems are will enable a project to incorporate effective pro-poor measures and target those households that are in need most. The project documents note the following on prioritising the poor:

Based on the result of the poverty mapping, the ultra poor were prioritised. The WATSAN improvement activities were provided first to this category by subsidizing the costs. Following the ultra poor, the other categories on the poverty hierarchy were then provided subsidies in the programme activities such as toilet construction. The non-poor categories were not provided any kind of subsidy, instead they were encouraged and motivated to contribute financially. (ENPHO, 2007).

3. 4 Conclusion

This chapter, the contextualization of the theme, has sought to explain in what kind WATSAN situation Nepal, the Kathmandu Valley and its periurban areas reside. It was shown that Nepal development has hampered. Half of the population is living under the poverty line and Nepal is ranked low on the HDI of the UNDP. There are vast regional disparities in Nepal. Compared to other regions the Kathmandu Valley is the most prosperous one. The Valley is facing rapid urbanization which has issued several problems. One of these is the WATSAN situation in the city. The Melamchi project is initiated to address these issues but has a focus on Kathmandu and leaves the periurban areas out of its reach. It has been shown that the public sector is almost invisible to the local WATSAN problems that exist. Therefore civil society, in the form of International, national and local CBOs have taken action and community based projects have been set up in Siddhipur and Lubhu. The next chapter will elaborate on the projects.

4. The Projects

4.1 Introduction

Under the WAC programme, UN-HABITAT and WAN are working together in serving the urban poor through their WATSAN activities in periurban areas of Kathmandu. Within this partnership, programme activities were implemented under the joint effort of WAN and UN-HABITAT Nepal in Siddhipur and Lubhu. This chapter will elaborate on Siddhipur and Lubhu and the community based approach which was a focal point of the projects. The WATSAN situation of the communities will be looked into together with the institutional context of the WATSAN system. Hereafter the project will be looked upon, about what the goals were, how the projects defined the community based approach, which approach was taken to implementation the projects and which activities have been carries out to reach the goals. Finally this chapter will be recouped in the conclusion.

4.2 Siddhipur

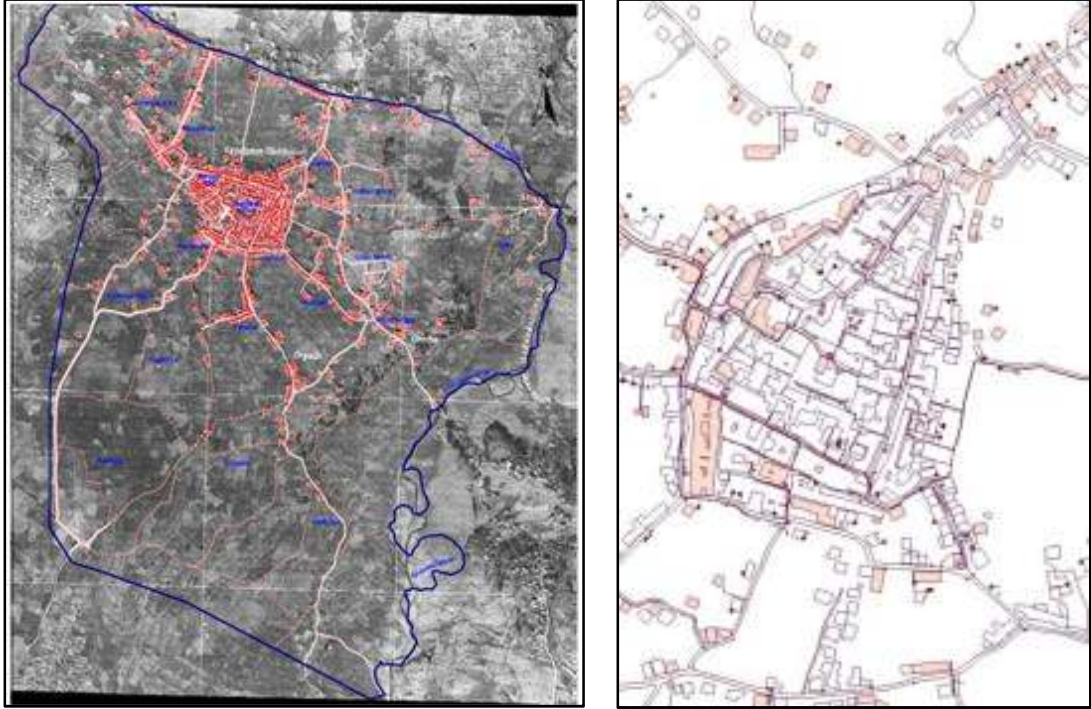
Siddhipur is a periurban village in Lalitpur district in the Kathmandu Valley and has the status of a VDC. The traditional Newari village is located some five kilometres south east of Patan (see figure 3.4). According to the 2001 countrywide census, the projected population in Siddhipur is expected to be 6199 inhabitants and 1308 households in 2005 (ENPHO, 2005). Siddhipur, which is locally also known as Sano Gaun, has a traditional setup with a small core area and an outside area, all of which are targeted by the project. The blue line in figure 4.1 marks the boundary of the Siddhipur VDC area. The Siddhipur settlement is located some 200 meters from the main road between Lubhu and Lalitpur. There is a central square, on which a health post and temple are located, and several smaller squares and ponds. The houses in the core area are built close to each other, and people live in relatively high density. Streets are often connected to each other by very narrow alleyways that go underneath houses. Siddhipur is known to be a very homogenous village with the majority of inhabitants coming from the farmer's caste (Maharjan). Siddhipur, like Lubhu, was known to have severe and acute (drinking) WATSAN problems, so the need for the project was high.

4.2.1 WATSAN situation before the project

WATSAN is one of the major problems in Siddhipur were only 52 public stand post supplied untreated water to the entire village, free of costs, and most households do not have toilets (ENPHO, 2005). The water supply system was over 30 years old and comes from an unprotected intake in the Godavari River. The system is owned by the DWSS, but the authority does not have a regular operation and maintenance plan (ENPHO, 2005). Next to the piped system there are 10 dug wells around the village. These sources provide water of a

very poor quality, ENPHO (ENPHO, 2007) reports, “due to the poor drinking water quality and sanitation conditions there were many cases of epidemics and seasonal outbreaks especially during the monsoon season which affected the children and elderly people in the village”. There is no sewerage system in Siddhipur. In the absence of such a facility 60 percent of the houses do not have access to any type of toilet systems. There are main areas for open defecation, of which four are so called open public toilets for women which are simply demarcated by a boundary wall. Excreta from these ‘toilets’ are directly discharged into an irrigation canal. Due to lack of adequate and well functioning sanitation system, the majority of the population still practice open defecation (ENPHO, 2005). An in-depth analysis of water use and sanitation will be submitted in chapter 6. Another major cause of unsanitary situation in Siddhipur was due to the poor drainage situation. In some places there was a drainage system, but was clogged most of the times, in other areas there was no drainage system at all.

Figure 4.1: Siddhipur project area and settlement



Source: ENPHO 2006

4.2.2 Project initiation

Because of this need, influential people from the villages with connections at UN-HABITAT and ENPHO, tried to mobilize these. WATSAN issues are often seen as public services and therefore governmental issues. In the Nepali case, the local government structures are so weak that there is no capacity to address these issues. Therefore, in order to still attack the situation, leaders from Siddhipur came together during an assembly and addressed the issues to NGO people in Kathmandu. These NGO people in Kathmandu have the capacity and

financial resources to start working on the WATSAN situation. For NGO staff it was also important that the villages showed the aspiration and desire to do something (Tuladhar, 2009), though more factors were of importance. When analyzing the role of the community, some important village members have been crucial to initiate the project, as they have been pushing for a project in their village. The project initiation was therefore partly demand driven or bottom-up.

But why has Siddhipur been chosen to initiate a project? The incentives from the NGOs to initiate the project are the following. As mentioned the will of the people help was strong. Another very important factor in Siddhipur is the homogenous community of the village. As shown in chapter three the village consists almost entirely of people with the same ethnicity and from the same caste. In some way a homogenous community makes the project less risky (Tuladhar, 2009). This factor seems to be important for UN-HABITAT which just had entered in Nepal and were eager to start a project, but therefore also one which was relatively not too risky.

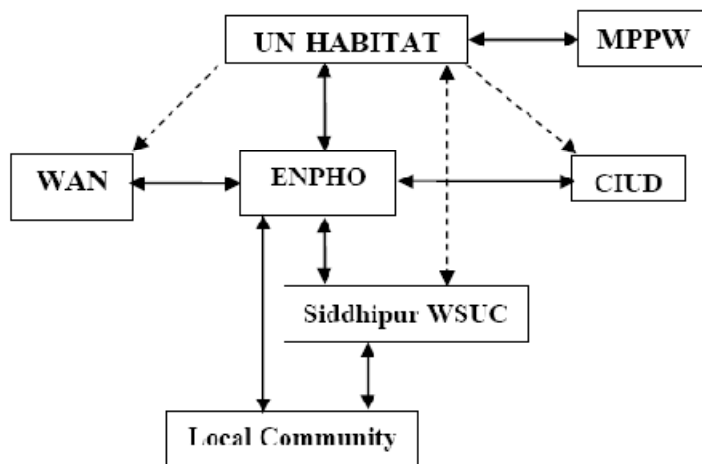
4.2.3 Community based approach

The WAC programme will be implemented in a fast-track community-based approach with active involvement of local NGOs and support from relevant government agencies (ENPHO, 2005). The fast-track approach means that emphasis was put on quick decision-making, and UN-HABITAT aimed to show how a broad project could be implemented in a relatively short time span. The project in Siddhipur was implemented as shown in figure 4.2. In the project document and approval letter from government (ENPHO 2005) it is stated that *'for the first time the community of Siddhipur will be responsible for the project initiation, construction, operation, management and maintenance of the system'*. The idea of the project was to always put the community on the forefront to ensure maximum community participation and develop community ownership over all the project activities. UN-HABITAT supported technically and financially, while the actual implementation of the project was done by a lead partner NGO. This is a common way for UN-Habitat to work. ENPHO, the lead NGO was responsible for implementing the project in close cooperation with the WATSAN Users Committee. Further, the project sought support from relevant government agencies and partner NGOs in the field of WATSAN. The project was streamlined with government policies in Nepal under the MPPW. These have been discussed in chapter 3 (WATSAN policies).

To facilitate smooth implementation of the programme, a local Water Supply and Sanitation Users Committee (WSUC) was established in Siddhipur. ENPHO and its partners provided technical support for the programme while all the programme activities were implemented through directly through the local community. The Siddhipur WSUC was formally registered with the Lalitpur District Water Resource Committee of the Lalitpur District Development Committee (DDC). The registration of the WSUC provided legitimacy to the Siddhipur WSUC

to act as an independent institution with its own constitutions and code of conducts. Through their official status the WSUC was encouraged to lead different programmes. The WSUC comprises of representatives from traditional institutions such as *Guthis*, representatives of different political parties, former local community representatives, social workers and women representatives. There a total of 11 members in the committee where more than 3 members of the committee are female.

Figure 4.2: Program implementation approach in Siddhipur



Note:

- MPPW: Ministry of Physical Planning and Works
- ENPHO: Environment & Public Health Organization
- WAN: Water Aid Nepal
- CIUD: Centre for Integrated Urban Development
- WSUC: Water & Sanitation Users Committee

Source: ENPHO, 2005

A main strategy of the programme was to empower the local community through participation thereby, enhancing the local capacity to maintain and sustain the project facilities (ENPHO, 2007). Participation was foreseen by informing and involvement processes. The people should be informed by the project, through meetings, assessment, awareness, FGDs and gatherings about the problems, solutions and options of the programme. Next the community should also be involved in finding solutions to the problems. The project plans aimed at discussing and deciding in a participatory approach to find options and solutions for the problems. Next to this the project was focussed on involving the community during implementation wherever was possible.

Prioritizing the extremely poor

Apart from community participation in general, the emphasis of the project in Siddhipur was on the extremely poor. Based on the result of the poverty mapping, the extremely poor were prioritised. The WATSAN improvement activities were provided first to this category by subsidizing the costs. Following the extremely poor, the other categories on the poverty hierarchy were then provided subsidies in the programme activities, such as, toilet

construction. The non poor categories were not provided any kind of subsidy instead they were encouraged and motivated to contribute financially.

Co-funding

Co-funding was sought in the community for all the programme activities. One of the project agreed upon rules is the contribution of cash from the community towards the project. This does not mean the community had to transfer an amount of money towards the project account, but implies the costs for acquiring, for instance, a toilet or a tap. The budgeted contributions from the community in cash was USD 50.000 and comprised 14,3 percent of the total project budget. The project plans foresaw a budget of USD 350.00 of which UN-HABITAT would finance USD 250.000 and the rest would be 50/50 divided between the community and the lead NGO; ENPHO. Next to cash contributions the project plans also foresaw in contributions in kind. For instance, when a household wanted to install a private tap, the digging to connect the house to the main network would be the responsibility of the household. This would save money compared to when someone had to be hired for the digging.

4.2.4 Project activities

In order to improve the WATSAN situation of Siddhipur, the programme focused on four elements: water supply, sanitation and solid waste improvement together with capacity building and awareness activities. The main intention of the project is to supply *“effective and efficient WATSAN services to [the] entire population of Siddhipur VDC in a community-based approach”* (ENPHO, 2006). The water services include the construction of a new intake in the Godavari River, installing a drinking water treatment plant that consists of a tube settler, four slow sand filtration units and a chlorination unit. This treatment should ensure that the water supplied is of WHO standards. The project will furthermore install a 9,7 km long distribution network in the community, and lastly, will rehabilitate the existing stand posts and other traditional water sources. Private households and small groups of households can get a connection to the water network.

In the sanitation area, the activities include a public health campaign, rehabilitating and building new storm-water drainage systems, constructing ECOSAN toilets, as well as subsidising pit latrines and septic tanks. The project furthermore planned to establish a faecal sludge management plan, but this was never completed. Although not part of the project plans, during implementation it was decided to start a Community-Led Total Sanitation (CLTS) campaign (ENPHO, 2006).

As a central waste management system was too complicated and too expensive, the project focused on household based waste management. Most households already had a form of waste management, so the focus was on the effectiveness of waste management, waste

management of organic material as 80 percent of the waste consists of organic waste and building on the capacity of local women existing technologies. Waste management is seen by the project as an integral part in improving the WATSAN situation (ENPHO, 2007).

A fourth area of intervention was capacity building. These activities included setting up several community groups, including the WATSAN Users committee and the SHE-team (Sanitation and Hygiene Education). Community awareness campaigns are also part of the capacity building, as well as trainings in health, education, proposal writing, etc. for members of the committees (ENPHO, 2007).

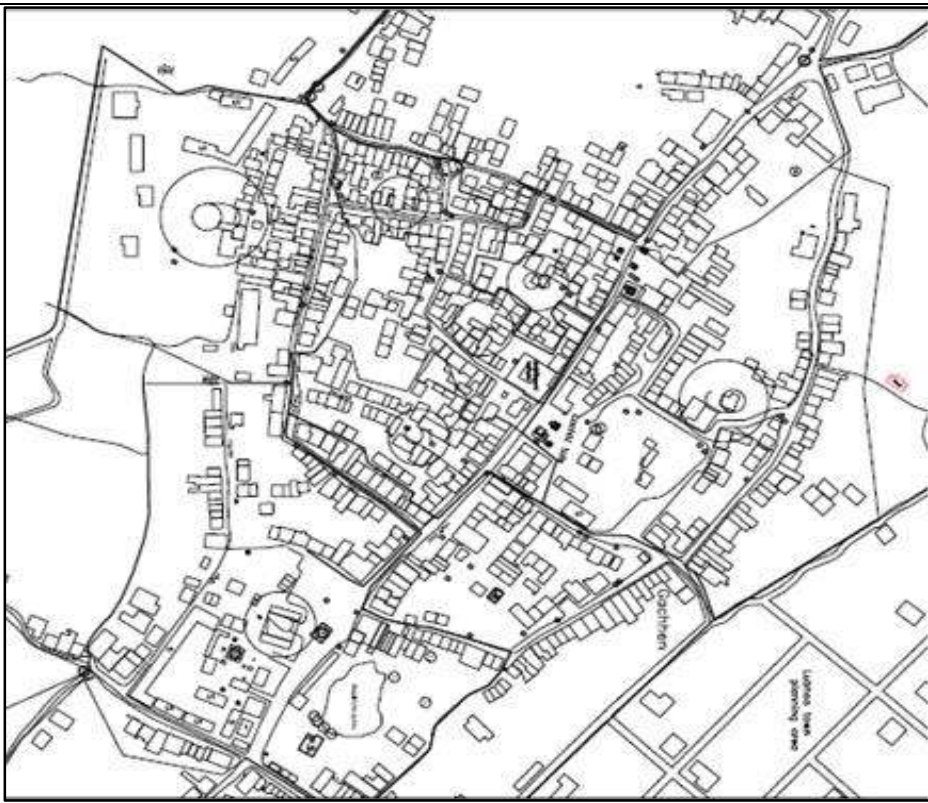
4.3 Lubhu

Lubhu is located close to Siddhipur, a few kilometres further along the road that comes from Patan. Lubhu, as Siddhipur, has the status of a VDC and is located next to Siddhipur VDC (see figure 3.4). Contrary to Siddhipur, the core of Lubhu is located on the main road, which makes the periurban village livelier than Siddhipur. The project in Lubhu focussed on the core area of Lubhu, leaving the fringe areas of the VDC with low population density. The core area has a population of 5134 as of February 2007. Lubhu is not as homogenous as Siddhipur is. It has more different castes and also has a group of Dalit households living in the butchers' community. The circumstances in Lubhu before the project, in terms of WATSAN, were in a similar deteriorating state to those of Siddhipur.

4.3.1 WATSAN before the project

The WATSAN situation of Lubhu is a major problem, though the situation of the facilities, especially the water sources, is less problematic in comparison to Siddhipur. The community is served by 46 public taps build 30 years back and 19 traditional wells. The piped water sources are *Chapakharka* system and *Dovan* System. The water quality of Chapakharka system, though qualitatively still poor, is much better than the two other sources, especially compared to the water from the wells. Therefore, the *Chapakharka* system is used by most people for drinking water, while the other two sources are primarily used for other purposes. There is a huge gap between demand and supply of water (WaterAid 2007). Management of waste water in the area is being concern from the environment as well as health and hygiene point of view. With the urbanizing trend, this issue is becoming more and more important. Even in such a close proximity to the capital city, this old settlement does not have complete toilet coverage. Open defecation can be seen in the peripheral walkways. Solid waste has become equally demanding issue in recent years (WaterAid 2007).

Figure 4.3: Lubhu VDC, core area



Source: WaterAid 2007

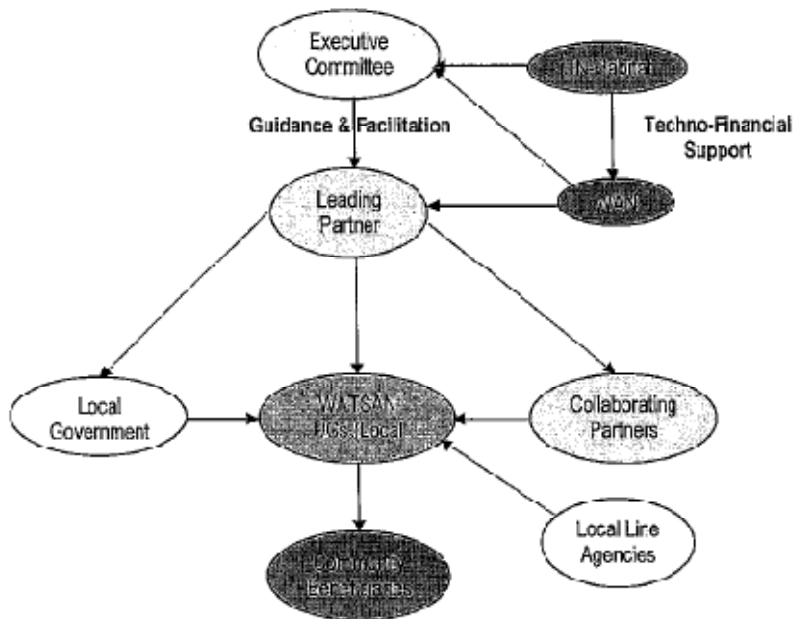
4.3.2 Project initiation

The project in Lubhu is part of the Water, Environmental Sanitation and Hygiene Programme for Urban Poor (WESH), which is a joint programme of UN-HABITAT and WaterAid Nepal. Next to the project in Lubhu, the joint programme includes projects in Narayan Tole and Bharatpur. Some crucial factors for the initiation of the Lubhu WESH plan came together to start a project. As explained, the need in Lubhu to improve the WATSAN situation was high. The sometimes very bad situation was noticed and in particular within a part of Lubhu known as the 'Butchers community'. *"It was a Horrible place"*, said the director of the implementation NGO in Lubhu (CIUD) during an interview. This part of Lubhu, the butchers' district was planned to be the focal point of the project. CIUD, the implementation NGO, has a partnership with WAN and proposed to improve the WATSAN situation in Lubhu. Because the project falls in the mandate and approach of WAN they financed, but only a small part. Through a partnership between UN-HABITAT and WAN the project was scaled up, but still smaller than the initial plan. As with Siddhipur, Lubhu falls also within the mandate of UN-HABITAT. Finally, other community committee characteristics played a role. The need has already been mentioned, but also the relatively organized community in Lubhu and its size fit for a project, according to the donors. Because the people in Siddhipur were even better organized, a project was first initiated there, and only later the project in Lubhu was initiated.

4.3.3 Community based approach

The project will adopt a demand responsive approach from the very beginning of project selection, planning and implementation for water supply and sanitation schemes (WaterAid, 2006). The WESH programme is the first time in Nepal where UN-HABITAT cooperates on an equal basis with an INGO (WAN). The project management committee (PMC), which represents the user in Lubhu, has the main responsibility to implement the project. The programme implementation approach for Lubhu is shown in figure 4.4. As in Siddhipur, the main implementing NGO in Lubhu (CIUD) works through the PMC. The Lubhu project differs in institutional setup from Siddhipur because WAN is equally involved in the project. UN-Habitat worked through WAN in this project, and had much less direct dealings with the implementing NGO. The PMC represents all the wards in Lubhu core area. The wards all have separate user committees that have quite a lot of responsibilities. Apart from these ward committees there are also user committees for all the project facilities. In total, there were 34 groups or sub committees initiated with help from PMC. In those committees most members were female. In total 220 female and 102 males represented the local users committees. From the 34 UCs, there were 18 well committees in which 168 female and 19 male are a member.

Figure 4.4: Program implementation approach in Lubhu



Source: WaterAid Nepal, 2006

Pro-poor approach

The project in Lubhu, as in Siddhipur, has a pro-poor focus. During the poverty mapping the poor have been located and the mapping aimed at targeting the poorest groups in Lubhu. According to the project plans, the planned activities in the project have been based upon

the findings of the poverty mapping. This is shown in the subsidising system that has been taken into use for the implementation of toilets. The toilets have been subsidised according to the household's status from the socio-economic survey. The poorest group got the most subsidies, the relatively less poor were given less subsidy and the non-poor were not supported to install a toilet under the project scheme.

Co-funding

The community in Lubhu were obliged to participate in the programme costs. As mentioned above in the pro poor approach section, households have been obliged to financial participate acquire project facilities. In the case of the toilets, the contribution was depended upon the poverty status acquired during the poverty mapping exercise. Next to this, for instance, well improving was financed completely by the well users. Taking the community financing together their financial contribution was USD 85.000, which corresponds with a share of almost 40 percent of the total costs. The other 60 percent of the budget is financed by an equal share between UN-HABITAT and WAN (WaterAid, 2006).

4.3.4 Project activities Lubhu

The planned activities in the project differ from the actual implementation of project facilities. The activities in Lubhu are concentrated around the improvement of sanitation, and small element in the project plans is reserved for water supply improvement. While in Siddhipur, water supply was a very important element in the plans, though sanitation was as well, in Lubhu the attention is smaller due to some external reasons. A major change in project plans happened because the planned slaughterhouse and waste water plant were not constructed.

The original plans for the Lubhu project included plans to improve the water situation in Lubhu by implementing similar works as those that have been undertaken in Siddhipur. Improvement works have been assessed to Lubhu's two main water sources, *Dovan* and *Chapakharka*, the last one of which is the most used source for drinking water. Access to water remains a major problem in Lubhu and many of the respondents in this study complained that it was both dirty and too little. The mandate to work on the water sources in Lubhu had however already been given to a different NGO. It was therefore decided that the two main water sources for the village were left out of the project scheme. Instead, 20 dug wells were renovated in the project scheme so that the periurban village would keep its traditional sources of water and have another source of water in case the two river sources fail to produce enough water for the village. Next to the well improvement, a complete structure for rain water harvesting system was installed in Shree Mahalaxmi Secondary School in Lubhu.

Initially, the plans in Lubhu included the construction of a slaughter yard in the community and waste water treatment plant. These plans were not feasible and have been put aside during the project. The butchers were reluctant to construct the facilities as it was very hard to work with the butchers. From the beginning to the end they had problems with the facilities to construct them (Joshi, 2009).

The project has reached several sanitation goals. From the initial assessment that was carried it was found that some households in the core area of Lubhu did not have a private toilet. To reach coverage of 100 percent under the project scheme 150 toilets were constructed. To improve the environmental sanitation in Lubhu the project has constructed 2000 square meters of pavement and 1500 meters drainage.

Under the program there has been the formation of 34 users committees. A Program Management Committee (PMC) was formed as a parent institution for the local users committees. Part of the program was focused on capacity building for these UCs by giving training at the community level and awareness training. Further a baseline survey was conducted and several meetings were organized.

4.4 Conclusion

This chapter has given an overview of the projects that have been conducted in Lubhu and Siddhipur. Both projects have been implemented on the basis of a community based approach. A major strategy of the project programmes was to empower the local community through participation, thereby enhancing the local capacity to maintain and sustain the projects. The instalment of a WATSAN users committee to implement the project activities has been crucial in this approach. Next to this, the community has been regarded as important in finding local solutions to the problems, participate in the implementation phase and take responsibility for the O&M of the facilities. Another shared approach between the project in Lubhu and Siddhipur were pro-poor strategies. The analysis of the community based approach will be conducted in chapter 7.

Finally, it is important to conclude on some of the differences between the two projects. There is a difference in the approach that ENPHO and CIUD take in these projects. CIUD worked from the assumption that the poorest and most vulnerable should be the first beneficiaries, while ENPHO took a more of a broad scope and tried to uplift the community as a whole, instead of focussing mainly on one group of people. This can be seen in the two projects that are the focus of this study, although it should be mentioned that this is also due to the difference in scope and budget. The Siddhipur project is broader and more all encompassing. The project in Lubhu had a smaller budget which meant that choices had to be made as to who and which areas would benefit from the project. The focus was then put on the poorer households and areas of Lubhu.

5. Research Design

5.1 Introduction

The research design will describe the line of reasoning and the use of methods of this study. This chapter will start with the research objective and main research question. The conceptual model, based on the theory, will describe the main terms and relations. These will be operationalised afterwards into measurable variables. Next, the hypotheses and the line of reasoning that will be followed in the forthcoming analysis chapters will be derived from the conceptual model. Finally, the methodology and limitations of this study will be described.

5.2 Research objective and questions

Following its mandate, UN-HABITAT and its partners have implemented community based WATSAN projects over the last few years. It was mentioned in the literature review that nowadays community based projects are hailed as to achieve better performance of WATSAN systems. Over the years and during the community based projects in the selected periurban areas the community based approach has been implemented. While successes have been achieved using UN-HABITAT's methodology, it is very important to look closely at these WATSAN (WATSAN) projects, as they are projects in a rather unknown periurban context of which only little information is available. The objective of this research will be to supplement the information that is needed by UN-HABITAT and its partners to better plan these community based projects in periurban areas with the goal to reach better outcomes. Therefore, here will be looked into the factors under which community based projects are more likely to succeed according to the following main *objective*:

To supplement the knowledge about community based approach of WATSAN projects in periurban areas so that UN-HABITAT Nepal and their partners can better plan these projects.

According to the objective the following *main research question* is formulated to guide this study:

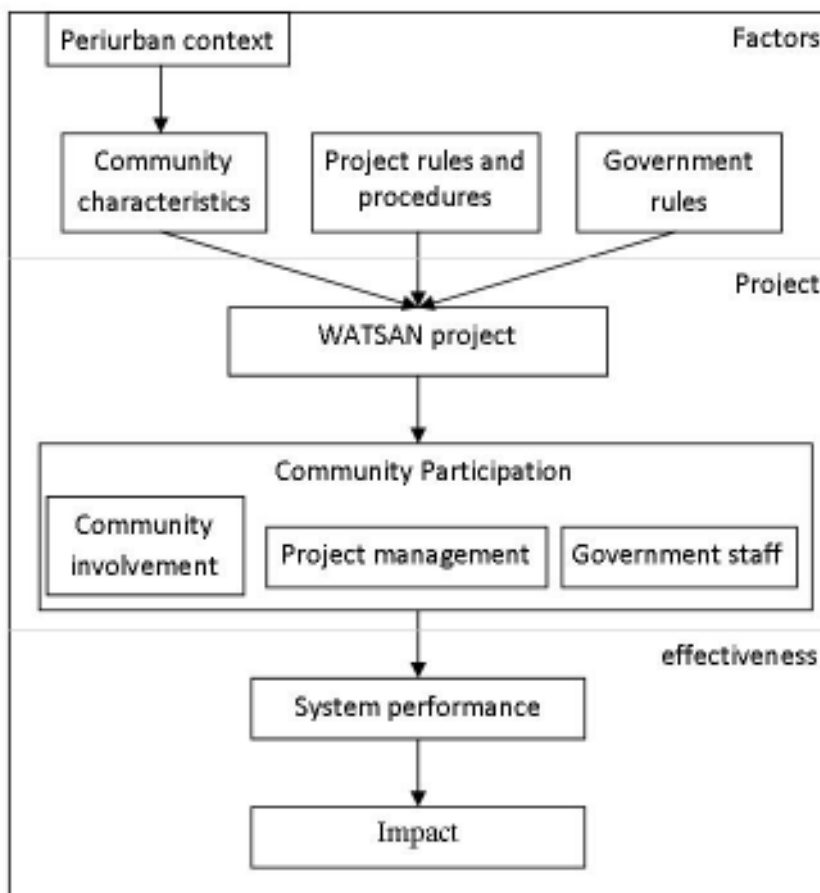
What are the factors which lead to a more effective community based approach of WATSAN project in Periurban villages in the Kathmandu valley?

This main research question is divided into three *sub-questions* which will guide the analysis chapters five, six and seven, respectively:

- Which community characteristics and main trends can be observed in the periurban communities of Siddhipur and Lubhu regarding factors which could lead to a more effective community based WATSAN project?
- To what extent does the project represent a joint effort between government staff and the community, poor and non-poor, in service design, implementation, and operation and management (O&M)?
- To what extent have the community based projects been effective, and what are the factors which lead to the effective community based approach (i.e. system performance and impact) of the project?

5.3 Conceptual model and operationalisation

5.3.1 Conceptual model



5.3.2 Operationalisation

This section will try to create measurable variables of difficult or complex terms in the conceptual model in such a way they become able to be used in this research. In regard of this study these terms are: factors, WATSAN project and effective community based approach.

Factors

The model is based upon collaborative action between community, government and NGOs which affect the community based WATSAN project. In this regard the institutions involved are NGO(s), the government and the community. UN-HABITAT and its partners, WaterAid and the implementation NGOs (other NGOs have been involved but on a rather small scale) have set out the rules and regulations of the project. The rules and regulations make clear which activities will be undertaken and whose responsibilities these activities are, financial as well as operational. Next to this, the government has an influence on the project as the project has to be in line with the countries institutions, rules and regulations. Finally, the community is a factor in the community based project. The community characteristics will be explained more elaborately below.

Community characteristics

Indicators of relevant community characteristics in this study are grouped under: one, population indicators - village size, population growth, household size, education and caste and ethnicity; two, socio-economic indicators - occupation and household assets (based on income and non-income related indicators); three, WATSAN situation of the households will be assessed on the basis of harmonized indicators from WHO/UNICEF (2006) - improved/unimproved use of water source and sanitation, time to fetch water, gender disparities and water treatment. The institutional context of Siddhipur and Lubhu is derived from the rural urban linkages of the communities to their institutional context.

Periurban institutional context

The periurban typology of Iaquina & Drescher (2000) makes it possible to understand the rural-urban linkages of a periurban area and they relate this to a institutional context. Their typology identifies the institutional frameworks and relevant networks in the different types of periurban, thus can be used as a tool to identify the key institutions in Siddhipur and Lubhu. The typology is based upon distance to the city and the inflow of urbanism. Urbanism is a socio-psychological component and indicated by the inflow of urban ideas through: mass media, migration flows and type of economic activities undertaken in the periurban areas.

WATSAN project

Community based projects are a demand responsive approach to the provision of WATSAN. This approach calls for a joint effort between government, NGOs and the community. So, community participation is a dependent variable of the factors that determine it. On the other hand, is the community based approach a driver of system performance and impact? Community based approach of WATSAN projects is, partly, the participation of beneficiaries in different phases of the project. Participation of the community in the distinguished phases is operationalised as follows (a divide is made between the poverty categories classified by the 'poverty mapping' exercise):

- Project design

Active participation in the design of the project (voice) and according to the final decisions made about the project (choice).

- Implementation

The contribution of beneficiaries in this phase is linked to the construction of the facilities (e.g. taps, toilets, pavement and drains) and incorporates participation in the form of labour, materials and money.

- O&M

In the O&M phase, community participation is assessed based on the responsibilities of the community in this phase. Another aspect is the responsiveness of the water users committee to its members, for example, elections, information sharing, consultations, decision making, etc.

Next to community participation, the community based approach also mentions the joint effort by the community and government staff. The joint effort is operationalised by assessing the participation of government agencies at the central, district and local administrative levels

Effective community based approach

The effectiveness of a project can be explained by the direct outcomes, here *system performance*, and the wider *impact* of the project. Within these two levels of project effectiveness, there are many ways to assess a projects success. Like mentioned in the literature, in general two methods can be used. First, the creation of an index variable. Second, by selecting unique measures. Here, for both system performance and impact, the second method will be used. **System performance** is assessed by:

Equal access

One important aspect of measuring effective community based approach is equal access as this is crucial for a sustainable service (Dayal, Wijk, & Mukherjee, 2000). Access to a service is a complex variable and is operationalised here as:

- Proportion and nature of people using the service. The nature of use is specified by the proportion of use classified by the different poverty groups and other characteristics of households without access to the service. (Dayal, van Wijk & Mukherjee 2000)
- Quantity and quality of the access: Adequate methods of water supply and sanitation. Quality of the water. Time and distance to the source. Seasonal availability (seasonality). Affordability of the service (UNICEF, 2006).

Consumer satisfaction

Consumer satisfaction is indicated by the households' satisfaction with the service from the project. This is closely linked with satisfaction with service design (Isham & Kähkönen 2001). First, the satisfaction rate is measured on a five rung scale from 'very unsatisfied' to 'very satisfied' and is indicated by the percentage of households in a village that report being either 'satisfied' or 'very satisfied' with the new scheme (Prokopy 2005). Second, in the community FGD the 'rich' and 'poor' group indicated their perceived benefits and the degree to which these benefits have been important. This allows to assess if the perceived benefits equals their demand, thus if the benefits from the project are satisfactory.

Tariff payment

Tariff payment is used as an indicator of financial sustainability. The indicator, used for this, is the percentage of household who use the system and who report that they pay the tariff. This allows comparing Lubhu and Siddhipur about water revenues and thus the financial sustainability. This variable does not however, tell us if the payment off tariff is sufficient to cover all the cost for operating a system. The effectiveness of financing is indicated through the coverage of investment or/and recurrent costs and universality and timeliness of payment.

Next to *system performance* as an indicator of effectiveness, *impact* is another. It differs from system performance, because it is not the immediate outcome of the project, instead it is the wider social impact which is determined by the performance of the system. Indicators of *impact* are:

Health

Health can be measured through several methods; one of these is the self reported health measure (Isham & Kähkönen 2002). In the household survey the women are asked about the change in general health impact in their families since the implementation of project facilities and they are asked about the change in incidence of several water related diseases. After considerations with the implementation NGOs it was chosen to include the following water borne diseases in the survey: Diarrhoea, eye and skin infection, Typhoid, Dysentery and worms.

Time savings

Time savings has impact on the lives of people because the time used to fetch water, is time which, for instance, could have been used for income generating activities. Time savings, here, is a self-reported measure of time spent to fetch water before the project and time spent after the project (i.e. time it takes to go there, get water and come back). The time savings of the different poverty groups is important indicator to assess poor people's time in comparison to people from a better off household, because the time spent to fetch water cannot be used to generate income.

5.4 Hypotheses

The expected results of the relationships elaborated in the operationalisation are formulated in the form of hypotheses. Hypotheses assume a relationship between two variables that exist today, not in the present tense (Cone & Foster, 2006). The hypotheses below are derived from the examined literature in the theory chapter, which have been visualized in the conceptual model and predict the results of this thesis. The following work hypotheses are derived from the conceptual model.

1. The periurban context has an impact on the institutional context of the community.
2. The effectiveness of the community based WATSAN project depends on the joint effort between the community, NGOs and the government.
3. The project aimed at a community based approach, therefore it can be hypothesized that the level of participation is very high.
4. The poor have less participated in the project than better off in the community.
5. The community based project will not be a joint effort between the community and government staff.
6. Community participation leads to a better performance of the WATSAN system.
7. It is expected that the poor will have less access to WATSAN facilities from the project compared to better off in the communities.
8. The water supply and sanitation services in the three communities have improved the living conditions in the communities. Community members have better health and the project brought about time-savings in water collection. This has given community members the possibility to invest their time in a more efficient way.

5.5 Methodology

This study has involved several methods of quantitative and qualitative data collection. Firstly, many documents from the project were reviewed, like reports, draft evaluation, WSUC data, etc. Secondly, to provide quantitative data, a household survey was conducted in both Lubhu and Siddhipur in order to assess the impact of the project on the community. Thirdly, qualitative data was gathered through semi-structured interviews held with people from the community and with relevant stakeholders from the communities, such as, WSUC/PMC and SHE-team members and with key-persons of institutions involved in the project, like NGO staff and government officials. In the fourth place, focus group discussions (FGD) were held in the two communities – both with local people and members from the WSUC/ PMC. The FGDs with community members were conducted with a group of poor women and a group of better off women in both communities.

Survey

The main data collection method used for this study is a household survey. This quantitative method has been conducted in Lubhu and Siddhipur. The sampling method used is described in the next section. The reason to do a household survey was to gather data in order to make a statistical analysis. The survey was prepared in Nepal by the researchers and the research assistant. In both communities pilot surveys were carried out. The survey has been translated from English to Nepali. The interviews itself were taken in the local language, Newari, but the local enumerators who conducted the surveys were able to read in Nepali and talk in their local language. The enumerators had done interviews before, this experience made it easier to work. It was also very important to work with local enumerators, because people are hesitating to talk openly to people from outside their community. The household survey target was to involve the women household head, because they are dominantly involved in water fetching in Nepal. The household survey for Siddhipur and Lubhu is taken up in appendix 2.

Sample in Siddhipur

182 households in Siddhipur were surveyed. The sample was based on all the houses that were in Siddhipur when the poverty mapping was undertaken, before the project. The sample was clustered on the different poverty rankings that were given by the poverty mapping. These are: extremely poor, very poor, least poor and non-poor. Table 5.1 shows the exact figures for the sample. The extremely poor and non-poor categories are over represented in the survey because the amount of extremely poor and non-poor households is relatively small. To make sure that there is enough data to analyse these groups, a bigger percentage of households in these groups had to be included in the survey.

Table 5.1: Houses and Sample in Siddhipur

	Households (N)	Households (%)	Sample	Actually surveyed	In sample (% within group)
Extremely poor	66	5,8	44	30	41,1
Very poor	595	52,2	97	76	10,7
Least poor	450	39,4	72	61	12,3
Non-poor	31	2,7	19	15	46,9
Total	1142	100	232	182	

Source: own database

Sample Lubhu

The survey that was conducted in Lubhu was somewhat different from the survey in Siddhipur. Similarly, the sample that was taken for the Lubhu survey used a different approach than the sample in Siddhipur. A stratified sample from the whole project area

(Lubhu core area) was not an option, as the project did not have a reach as wide as the Siddhipur project. The number of toilets from the project that would have been included in survey would have been very small, so that, no analysis could have been done with it. It was therefore decided to survey every household that received a toilet from the Project Management Committee (PMC) under the project. The list with households that had received a toilet, which was obtained from the PMC office, had 138 households on it that could be used (others missed data). In the end 106 households were surveyed for this study. The households that were not surveyed had either moved or were not at home at the time of surveying (although every house was visited three times). There were also several households that did not wish to participate in the study. These figures are listed in table 5.2

Table 5.2: Houses and Sample in Lubhu

	Households (N)	Households (%)	Sample	Actually surveyed	In sample (% within group)
Extremely poor	64	5,9	25	18	28,1
Very poor	568	52,1	77	68	12,0
Least poor	387	35,5	22	14	3,6
Non-poor	71	6,5	0	0	0,0
Unknown	0	0,0	14	6	
Total	1091	100		106	

Source: own database

Semistructured interviews

This study has conducted several semi-structured interviews with experts, project managers, NGO staff and community members. The semistructured interviews have followed an interview schedule with suggested themes, this to leave scope for the interviewees to develop their responses. Benefits of using semistructured interviews can be in-depth knowledge of phenomenon's, interviewees might more easily discuss sensitive issues, complex issues can be discussed and interviews are a easy way to get information (Cone & Foster, 2006). Next to these benefits, some limitations regarding the use of semi-structured interviews could be the skill of the interviewer, it is time consuming and expensive, not very reliable, difficult to analyse, difficult to generalize and the validity of the method (Cone & Foster, 2006). To cope with these limitations they are used for in-depth or sensitive knowledge of a phenomenon only. The interviews with the 'experts' have been written out at length and every part is coded into themes. The themes are used as a label for a specific part of the interview. These labels can then be used in the particular thesis section to explain a phenomenon in-depth or to elaborate on a new area. The interviews will be used as quotations in the text.

Focus Group Discussions (FGD)

FGDs were held with the users committees in Siddhipur and Lubhu, the WSUC and PMC respectively and with the community. To learn about conducting FGDs in Nepal, a meeting was held with Ram Dangol, a consultant that specialises in focus group discussions, and with Yubraj Shrestha from NEWAH (Nepal Water for Health). The last meeting resulted in the use of NEWAH Participatory Assessment tool (NPA). This tool is based on the Methodology for Participatory Assessment (MPA) from the IRC/WB (Dayal, Wijk, & Mukherjee, 2000). NEWAH customized the methodology for the Nepali context, specifically the rural Nepali context because NEWAH is a rural based organization. Then it was better fitted toward the realities of specific context in the case of rural Nepal. The Nepali focus of the NPA has been very helpful for this study, though the communities under study here differ from the villages assessed by NEWAH using the MPA. The main crucial differences are: (1) the size of rural villages is smaller; (2) most rural villages incorporate larger caste differences; (3) WATSAN practices differ. Taken these differences into account the NPA is changed on same aspects so the exercises fit into the context of Siddhipur and Lubhu.

FGD Community

The community FGD were done in Siddhipur and Lubhu with a poor group of women and a better off group of women. The poor group included women from the extremely poor and very poor category and the better off group of women were selected from the least poor and non-poor groups. The discussions should have been done with four groups according to the tool; also two groups of poor and rich men. Due to time and money constraints however it was chosen to do only two with women in each community. Women were chosen because they are the main WATSAN users and because in the surveys we also chose to interview women. For both groups, in Siddhipur and Lubhu, 25 women were randomly selected and invited, with the permission of the users committees (WSUC & PMC), by a local female and our research assistant. While 15 women for one FGD would be perfect we invited more in case there would be a low appearance, as this was considered because of the rice planting season in Nepal. By inviting 25 women there would surely be enough women to do the exercises. In the available, though limited time with the women from the community it was chosen to conduct three exercises during each FGD. The first exercise was a voice and choice exercise, the second about the perceived benefits and the last one about gender disparities in the household.

5.6 limitations

Some limitations are present in this study. First off al, time and language constraints have occurred. The fieldwork of this study had to be conducted in a time frame of three months. This limited amount of time has put a lot of pressure on the research. Next to this, during the research three languages had to be used. English was the dominant language for interviews. The Survey however was in Nepali, though the language spoken in the

communities was Newar. Because of this language constraint a lot of effort has been in translation. The work of our assistant in translation was invaluable.

Second, the sample in Siddhipur is different from the one in Lubhu. The project in Siddhipur included the whole community, thus all the households were in the sample. While the sample was stratified on the poverty groups, the population analysis have been conducted through using a weight factor, significant for population. The project in Lubhu was targeted on the people without the toilet, therefore many people in the community could not be included in the sample. For instance, in the non-poor group all households had a toilet and are thus not represented in the sample. The analysis Lubhu will therefore only be significant for the sample.

Finally, two problems in data gathering with the survey should be noted. In recording the incidence of several water-borne diseases in a household, the surveyors sometimes recorded the option 'much less often' when they should have recorded 'the same'. For this reason, the health of the households has improved slightly less than this study shows. Secondly, there was a problem with the question on the construction type of the house. A house can be permanent, semi-permanent and temporary. The surveyors were not entire clear on the distinction between permanent and semi-permanent. This can change the poverty categorisation of a house, but this cannot have affected more than a few households.

6. Siddhipur and Lubhu: Profile and Trends

6.1 Introduction

This chapter will function as background by giving a profile and trends of the villages. This means, in regard of the sequence of the thesis, this chapter will show in which kind of setting the community based projects were embedded, i.e. Siddhipur and Lubhu. As such this chapter will be the background for the community based analyses in chapter 7 and the outcomes off the community based projects in chapter 8. An important trend is the change of Siddhipur and Lubhu from rural villages to dynamic periurban areas. The periurban setting is of influence on many kind of aspects of the profile of both villages. In the light of the periurban setting the villages' population, socio-economic, WATSAN and institutional situation and trends will be discussed.

6.2 Lubhu and Siddhipur: periurban areas

'It [periurban context] provides clues as to how to modify interventions and increase their likelihood of success' (laquinta and Drescher 2000)

Siddhipur and Lubhu are not 'traditional' periurban areas, though periurban features of both villages influence the communities in a way that it affects many aspects of life. In addition to this, a trend can be witnessed in the villages, where they become more and more complex periurban areas with all the problems included (in chapter 2, theoretical framework, the characteristics and problems related to periurban areas have been described). It is therefore relevant at this moment to analyse their periurban setting and related consequences, but it is also relevant to discover urbanisation trends as they could have a major impact on the villages and the WATSAN services in particular. The sustainable use of community based WATSAN services could become problematic through these processes of change.

According to the literature, Siddhipur and Lubhu are not 'traditional' or 'typical' complex periurban areas because they lack some periurban characteristics which could make these areas (already) complex and problematic. As shown in chapter 2, McGregor *et al.* (2006) generalize complex periurban areas as villages that used to be located in rural areas, often at considerable distance from the city. With rising migration towards urban regions, these villages have received a lot of in-migration. The result of this are changes in the make-up of these areas. They are typically characterized by traditional housing, new shanties, huts, as well as urban type formal houses. While both villages under study here are rural villages at a considerable distance to the city, they are not characterized by rising migration towards the city and areas which receive a lot of in-migration, though they do receive in-migrants, but this is not a lot. The villages are also not characterized by new shanties, huts or other forms

of temporary housing facilities. These villages are dominantly built up with traditional houses and new urban type formal houses. The latter could also be a consequence of urbanisation processes.

Though not traditional, Siddhipur and Lubhu are periurban villages changing from a rural to a more urban setting. Siddhipur and Lubhu come close to the village periurban type as defined by Iaquina and Drescher (2000). Village periurban is described as areas that are geographically non-proximate to an urban area, yet are experiencing substantial urbanism. The first indicator, being non-proximate to an urban area, is doubtful though the second is clearly a feature of both villages under study here. As mentioned in the literature review chapter, there is not a fixed zone as to where a periurban area ends and becomes rural, thus a specific distance to demarcate the end of the periurban zone is missing. For the villages studied here the distance from the Kathmandu urban area is 5 and 6 for Siddhipur and Lubhu respectively. This means these communities are relatively proximate to the city. Though proximity to an urban area is important it does not determine the village periurban type as described by Iaquina and Drescher. According to them, the more important social-psychological feature is a crucial factor for the village periurban class. They argue that through mass media, the diffusion of consumerist ideologies and out-migrants inflow of remittances and infusion of “urban” ideas there is a substantial form of urbanism witnessed in village periurban areas. Taking this into account, both villages show these features of the village periurban type.

The experience of urbanism through mass media, consumerist ideologies and out-migrants in Siddhipur and Lubhu can be indicated as follows. First, good examples of mass media are the television and radio. In both Siddhipur and Lubhu the survey asked about communication possibilities of the household. This means: is there a television or/and a radio in the house? In Siddhipur, 96 percent of the households own a television and 66 percent owns a radio. In Lubhu, the figures for television and radio are 91 percent and 48 percent respectively. The presence of radio and Television could demonstrate there is a significant influence of consumerist ideologies on the people, though this does not make them a periurban village. Second, especially Siddhipur, but also Lubhu are facing a considerable portion out-migrants going to work overseas. The out-migrants related inflow of remittances is therefore very high in the case of Siddhipur and a bit lower for Lubhu. Remittances will be discussed later in this chapter. The influence of out-migrants on the social-psychological dimension of urbanization (urbanism) can therefore be assumed. Both factors influence the urban dimension in the villages. In addition to this, there is another important factor of influence which is unmentioned so far and which is a true urban indicator. This factor is the percentage of the labour force in non-agricultural activities.

Siddhipur and Lubhu are still located in a agricultural context, this is even more true for Siddhipur as the majority of people belong to the ‘farmers’ caste, though a increasing

number of people nowadays work in non-agricultural related economic sector. In 2005, the baseline study (CIUD, 2006) data shows the percentage of people in non-agricultural sectors of 60 percent and 55 percent for Siddhipur and Lubhu respectively³. By different means, non-agricultural activities can be indicated by the place of work and the type of employment of the village members. From the people who are economically active in Siddhipur and therefore generate income, a little less than 20 percent is working as an employee. For most of these people it means they are working for a permanent wage outside Siddhipur, often in the Kathmandu metropolitan area. It shows, that of the working population in Siddhipur, 11,5 percent is working within the Kathmandu metropolitan area. These figures show the proximity to the city and the experience of substantial urbanism (i.e. the social psychological dimension of urbanization) in Siddhipur and Lubhu.

These villages are not what have been mentioned in the literature, 'typical' or 'traditional' periurban villages, maybe therefore they often have been ignored. The term periurban has become interesting because these areas could no longer be seen as rural or as urban. They face their own realities and therefore its own theoretical thoughts. These theoretical thoughts mainly see periurban as poor squatter areas with a complex social setting due to migration processes. On the other hand, as shown above, both villages can fit into the definition of periurban, as conceptualised by Iaquinata and Drescher (2000). The consequence of this typology will be discussed at the end of this chapter were a connection will be made between the periurban type (i.e. village periurban) and the institutional set-up of Siddhipur and Lubhu, which is a key factor to the community based approach of WATSAN services. Before that, to better understand the institutional context of these communities their population, socio-economic and WATSAN profile and trends in the villages will be discussed.

6.2 Population

The core areas in Lubhu and Siddhipur are both traditional Newar style settlements with a similar population size. Lubhu VDC has 8965 inhabitants and the population of the core area is 5134, as measured in august 2007 (CIUD, 2007). The settlement itself has a population density of 79 persons per square meter. Siddhipur has a population of 6046 people, from which most live in the settlement part of the VDC. Both settlements have a similar kind of appearance with traditional Newar housing facilities (Figure 6.1). This style is characterized by three storey houses, which creates a relative high settlement density in comparison to other rural villages.

³ These figures are taken from the Poverty Mapping that was conducted in Siddhipur and Lubhu.

Figure 6.1: Traditional housing in Siddhipur and Lubhu



Source: own database

6.2.1 Population growth

The only figures available which estimates population growth in the area is calculated for the whole Lalitpur district, and shows a increase of the population of around 2,7 percent. As shown in chapter 3, Siddhipur and Lubhu VDC are only a small part of the whole district which for instance also incorporates the city of Patan. Patan, the satellite city of Kathmandu attracts many rural in-migrants which dominantly affects the estimated population growth for the whole district. Patan's urbanization processes occur outside Siddhipur and Lubhu VDC, therefore, the calculated population growth is no indicator for population growth in Siddhipur and Lubhu. Population growth is determined by the natural processes of birth, death and migration. Change in population through natural processes will be discussed below on the basis of age, which shows this has only a minor effect on population growth. On the other hand, this study has been informed by NGO staff that significant in-migration from the city to both VDC's occur. This will be discussed in the next section.

In-migration from the city

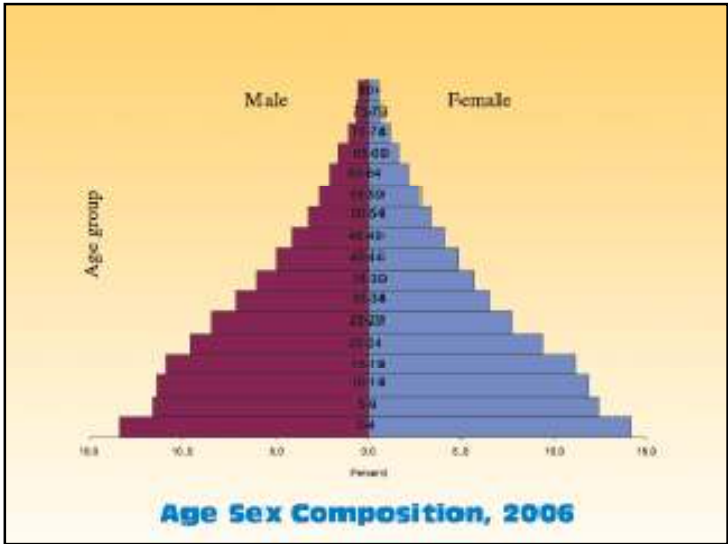
Due to several reasons there is a growing trend of urban in-migration in Siddhipur and Lubhu. Next to the information shared by NGO staff who worked in the communities, a former evaluation by a private consultant of the WATSAN project in Siddhipur informs about the in-migration of people from the city, i.e. Kathmandu. In an interview with the project manager of the Siddhipur project the phenomenon of urban in-migration was confirmed. The project manager says it has a lot to do with rising landprices in Kathmandu city, even more now, after the insurgency, many people come to Kathmandu, which mobilizes people to move outside the city to areas like Siddhipur. This means that Siddhipur and Lubhu differ from the 'village periurban' type, because in-migrants from the city come to the communities. If the in-migration continues, the periurban character of the communities will

change due to the diversification of people with different backgrounds who reside in the communities.

6.2.2 Age

The median age, according to the survey, is 30 in Siddhipur and 28 in Lubhu, which in comparison to the country is very high. The median age is the age that divides the population into the numerically equal groups; that is, half of the people are younger than this age and half are older. The CIA World Factbook makes account of the median age and reports for the whole of Nepal a median of 20.8 years. The lower median age is explained by the age distributions in Siddhipur and Lubhu with relatively a minor percentage of people below 20 and a lower dependency rate in relation to the whole country.

Figure 6.2: Age distribution Nepal



Source: CBS Nepal

The age distribution of Siddhipur and Lubhu shows the form of an urn in which the age groups 15-19, 20-24 and 25-29 years old are relatively very large. The distribution differs from Nepal’s presentation of its population, as this is having the shape of a pyramid, with most people in the lowest age groups. A pyramid form, as shown for Nepal, represents a high crude birth rate and a high crude death rate and mostly indicates a rapid population growth. Population growth in Nepal is estimated at 2% (Country at a glance, WB, 2008). The main difference between the age distribution of Nepal and the villages is the percentage of people below twenty, indicating a lower birth rate than the country’s average. A possible reason for this phenomenon could be urban influences in the villages as they are proximate to the city. In accordance with a small young proportion of the population is a lower dependency ratio in Siddhipur and Lubhu compared to Nepal.

Table 6.1: Population groups and dependency ratio

	Siddhipur (2009)*	Lubhu (2009)*	Nepal**
Under 15	31	25	52,8
Between 15 - 59	63	66.8	39,6
60 and older	6	8.2	7,6
Dependency ratio	50	49,63	89

Source: * Mapping the poor, 2009; ** CBS of Nepal 2009

The dependency ratio shows the people who do not gain income in relation to the people engaged in work. This means the population of a geographic area is divided in people below 15, between 15 and 64, and people of 65 and older. Following the Central Bureau of Statistics (CBS), Nepal's

dependency ratio is much higher than the areas under study here. It is noteworthy that in Nepal's rural area's (95) the dependency ratio is much above the countries average and in urban areas (63) it is under the average, with the dependency ratio of Kathmandu as the country's lowest.

6.2.3 Household size

The average household size is 5.4 and 4.6⁴ in Siddhipur and Lubhu respectively. The country's average household size is 5.3 and in urban areas the average rate is about 4.8 people per household (CBS Nepal 2009). Thus, the Siddhipur average is just above the country's average but much higher than the rate in the Kathmandu metropolitan area. On the contrary, households in Lubhu have on average smaller households in comparison to the rest of Nepal and Kathmandu.

6.2.4 Education

Education and literacy are important for people's involvement in a project. For instance, an illiterate household head will not easily join groups or attend meetings about the project. Therefore, if the extremely poor are dominantly illiterate, it would be plausible to assume these people will not be part of decision making about the project.

The conducted baseline study and household census in 2005 shows the education level of the inhabitants of Siddhipur above the age of six. It shows that 55.2 percent has school education and only 6.4 percent is tertiary educated (i.e. college education after primary and secondary education). 10.1 percent is able to read and write only, while the remaining 28 percent of the population cannot read and write. For people in the different poverty groups, above the age of six, the figures are shown in table 6.2. A test has been executed to assess if there is a relation between education and a households poverty category. The test results showed a significant relationship between the variables.

⁴ The survey and PM found the same average household size.

Table 6.2: Education in Siddhipur⁵

%	Primary	Secondary	Tertiary	Can read and write	Cannot read and write	DK/NA	Total
Extremely poor	26,1	17,2	0,7	16,4	38,1	1,5	100
Very poor	25,1	22,9	2,5	26,8	21,8	0,8	100
Least poor	23,4	28,6	4,9	22,8	19,1	1,2	100
Non-poor	6,0	25,3	30,1	18,1	15,7	4,8	100

Source: Own database

For Lubhu, also a significant relationship exists between the variables education and poverty classification: extremely poor, very poor and least poor. The educational levels of the extremely poor and very poor group are much lower than the educational level of the least poor group. Illiteracy in the extremely poor group is very high, up to more than one fourth of the group, combined with high percentages for primary education graduates only. Higher education and bachelor, master or PhD graduates are below indicated as tertiary graduates which is scarcely witnessed in the poorest segments of the community.

Table 6.3: Education in Lubhu⁶

%	Primary	Secondary	Tertiary	Can read and write	Cannot read and write	Total
Extremely poor	38,2	14,5	2,6	18,4	26,3	100
Very poor	35,0	19,4	3,2	20,4	22,0	100
Least poor	17,9	40,8	9,9	16,9	15,5	100
Unknown	29,2	12,5	12,5	12,5	33,3	100

Source: Own database

6.2.5 Heterogeneity: Castes and ethnicity?

Siddhipur is ethnic and cast-wise more homogenous in comparison to Lubhu. The data on castes and ethnicities in the settlements are acquired from the baseline study that has been carried out for the WATSAN projects. It shows the very low rate of households moving, which makes the data from 2005 still reliable at this moment. The data shows that the villages are mainly populated by Newar People. In Siddhipur the Newars comprise 90 percent of the population and in Lubhu this is 85 percent. In both villages the main other ethnicities are Brahman, Chetri and Thapa/Magar. Caste-wise the two villages show a

⁵ The table is also significant for the population. A Chi-Square test was conducted for the sample and this showed there is a significant relation between education and poverty groups.

⁶ The Table only refers to the sample. These figures cannot be aggregated to a village level. A Chi-Square test was conducted for the sample and this showed there is a significant relation between education and poverty groups.

different picture. Among the total households in Siddhipur, 77 percent of the people belong to the Maharjan (farmers) caste. In Lubhu the Newar people are divided over several castes, like (also) Maharjan, Shrestha, Rajthala, etc. The data show that the villages are dominated by the Newar group and Maharjan caste in Siddhipur, though Lubhu shows several caste minorities.

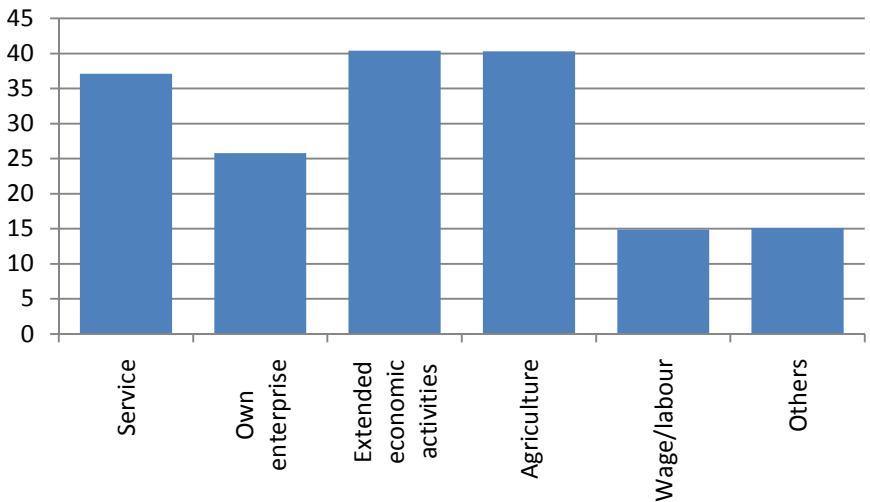
6.3 Socio-economic profile and trends

6.3.1 Economic activity

Occupation

Traditionally, Siddhipur and Lubhu were dependent on agriculture, but as the theories on periurban areas in chapter 2 have shown, households living in periurban areas tend to diversify their livelihoods, and agriculture loses importance. This process can be observed in Siddhipur and Lubhu as well. Agriculture and extended economic activities are the most practiced economic activities. Extended economic activities are not registered and are not regular but are supporting in earnings. Examples of such activities in Siddhipur are vegetable packing, making pickles, sewing, knitting carpet with straw (i.e. *Sukul*), drying grams, etc (CIUD, 2006). Particularly *Sukul* is a very dominant extended economic activity in Siddhipur. In Lubhu such activities are weaving clothes and making *Marcha*. These activities are done in

Figure 6.3: Occupation in Siddhipur



Source: CIUD, 2006

leisure time, mainly by women to support the household income. The 2005 census showed that 40 percent of the households in Siddhipur was active in agriculture, and the same percentage in extended economic activities. The next major occupation is service.

The figures from the 2009 survey show a markedly different picture of the economic activities in Siddhipur. When weighted to represent the Siddhipur population, the figures from the latest household survey show that 94 percent of the households are active in farm

work, while in 88 percent of the households there is at least one member active in weaving straw mats. Virtually all of the poorer households are engaged in farming and *sukul* (figures on land ownership are presented in section below). Only some of the better off households do not farm and/or weave mats. For farming, it is possible that the difference in the figures between the census and the survey is because of the fact that not all households earn money from farming. Some households farm only for their own needs, or have only irregular income from the farm work. In this study, earning a regular income with farm work was not a necessity to be recorded as a farmer.

Table 6.4: Occupation Persons (N)

Farming	172
Office	75
Business	36
Tailoring/ clothes making	20
Mason	15
Source: own database	

The figures for Lubhu show that the village is leaving its agricultural base and is taking urban characteristics. Services and own enterprise are the major occupation by the people involved in income generating activities. The figures for Lubhu are taken from the baseline study that was conducted in 2007 (CIUD, 2007). In comparison to the figures in Siddhipur, in Lubhu the main occupation of employed people is in the service sector. In 2007 about 57,4 percent of the adult population are employed in various income generating activities. In comparison to Siddhipur agriculture and extended economic activities are less dominant, instead service and own enterprise economic activities are the main sources of income.

Table 6.5: major occupation of employed people

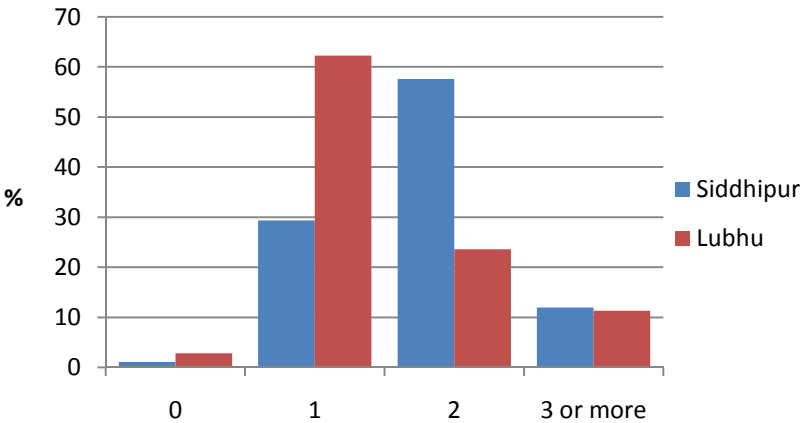
Service	15.3
Own enterprises	13.2
Extended economic activities	9.0
Agriculture	8.6
Wage Labour	6.4
Livestock	0.2
Others	4.7
Total	57.4
Source: CIUD, 2007	

Economic activities

It is remarkable that most households in Siddhipur and Lubhu are active in more than one economic activity. The table shows that on average people in Siddhipur are involved in more than one economic activity. The main reason is because of the involvement in the extended economic activities and agriculture next to their major occupation. In Lubhu people are less

often involved in more than one major occupation. Over 60 percent is involved in one economic activity.

Figure 6.4: Involvement in economic activities



Source: own database

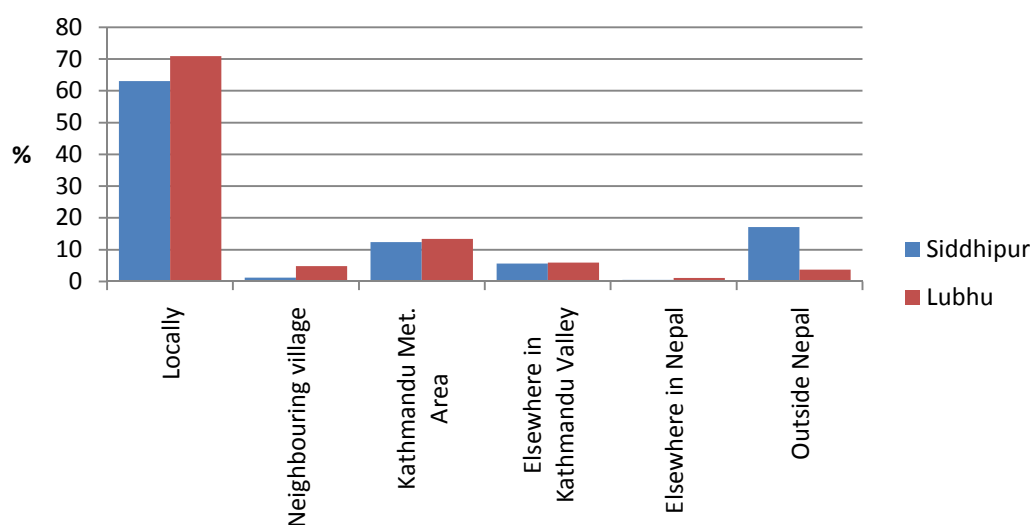
Economically inactive people

As defined by the Population Census 2001, economically inactive population includes student, persons involved in own housework or extended economic activity, and non-worker (i.e., not willing to work). It does not include job seeking person. The percentage of economically inactive population in Siddhipur is 38.6 percent and for Lubhu this is even higher, 46,7 percent. The economic in-active people in both villages is mainly represented by females. For Lubhu, this is higher, with 68 percent of the inactive people are females (CIUD, 2006). The economically active and inactive population is considered only for age 15 years and above.

Place of work

As shown in figure 6.5, the majority of people are working in the village they reside. The higher percentage of Lubhu residents also working in Lubhu could be explained due to the economic diversity and dynamics in the village. This means more people can find work in Lubhu as the village is economic more lively. In the case of Siddhipur, people have to move more often outside the village to find work. Another explanation could be the large workforce from Siddhipur working abroad. The people who work outside Nepal and the different percentages between Siddhipur and Lubhu will later be discussed in the remittances section of this chapter. There is also a substantial workforce of both villages working in the Kathmandu Metropolitan Area, i.e. Kathmandu and Patan. The metropolitan area is quite easily accessible via the road on which also many busses leave for the city. Remarkable is the low percentages for people working in neighbouring villages and the category elsewhere in Nepal.

Figure 6.5: Categorization of work locations



Source: own database

6.3.2 Household assets

Household assets will be divided in two parts: Income and poverty groups. The first part is related to the actual income of the households. This is surveyed and comprises different income types, like income from labour (primary and secondary income gathering activities) and remittances. Especially in the case of Siddhipur remittances is an important source of income. Because of flaws in the income assessment, the second part is related to non-income household assets based on the methodology created for UN-HABITAT to assess poverty levels in periurban areas. This study has made a new assessment of poverty levels.

Income

Income can be a very effective way to analyse the socio-economic status of a household. Though in the case of Nepal, and therefore this study, some problems exist with assessing a household's socio-economic status on the basis of income figures. Income information from a household survey in Nepal is unreliable because: (1) People don't know their actual income. For many Nepalese, income is not a set amount of money which is being transferred to their bank account every month. Besides that, a household's income is often fluctuating, for instance, one month the income for a household can be NRs. 100 and the next month NRs. 200. These reasons and others make it that many people do not know their actual income; (2) It is widely known that household members tend to give much lower figures than what they earn in reality because people tend to be afraid of taxes, and therefore they give lower figures. Taken these concerns into account an income assessment is made below.

Poverty line

According to income figures, most people in Siddhipur and Lubhu live below the poverty line. From the poverty mapping that was carried out in Siddhipur in the end of 2005 the median annual income per household in Siddhipur was found to be Nepal Rupees (NRs). 50.196. For Lubhu this is NRs 80,400.00 (CIUD, 2006). In USD the annual median income of Siddhipur and Lubhu are 1063,76 and 1072,00 USD⁷ respectively. Relying on these figures it can be noticed that the income in Lubhu is higher than in Siddhipur. For purposes concerning this study, income figures from the survey have been calculated for the different poverty groups. Strangely, when looking at the figures for the different poverty groups (table....) the relative income gap between Siddhipur and Lubhu cannot be not confirmed.

Table 6.6: Income per household classified on poverty category (NRs.)

	Siddhipur		Lubhu	
	Median monthly	Daily per capita	Median monthly	Daily per capita
Extremely poor	4700	34,72	3500	39,09
Very poor	6100	53,87	5000	45,54
Least poor	8330	59,71	6500	54,04
Non-poor	10000	83,08	--- ⁸	---

Source: own database

The Millennium Development Goal (MDG) has defined the poverty line as an income level of a dollar a day per person. The conversion of dollar to Nepalese Rs. is based on yearly average exchange rate of the year 2004 which is US\$1= about Rs. 73.657 according to international Monetary Fund, United Nations Economic and Social Commission for Asia and Pacific (CIUD, 2006). According to the above figures the daily averages of the different groups show a daily income below the poverty line, except the non-poor group. In percentages, for Siddhipur 80,5 percent and in Lubhu 68,1 percent of the people live of less than one dollar a day (CIUD, 2006). These alarming figures are based on income data which has been explained can be very biased. To get a better grip on the socio-economic status a non-income related method has been used in this study; Poverty Mapping

Remittances

One third of the households in Siddhipur receive remittances from a male family member who is mainly involved in unskilled labour in the middle-East. From the sample, 46 percent of the households in Siddhipur have a member abroad, 52 percent has not and 2 percent of the households have missing data. From the 46 percent, which are 84 households, most of the people are abroad for work and to a lesser extent studying purposes, respectively 87 percent and 13 percent. Most popular working destinations are Middle Eastern countries like, Saudi

⁷ Calculated with universal currency converter at www.xe.com on November 8, 2009

⁸ No data, as this group was not within the sample

Arab, Qatar and UAE. The majority of these abroad members are of youth group (between 20 and 35) and male. The few females abroad are there for studying purpose only. When households has one or more member abroad for studying purposes they do not sent remittances. On the other hand, a majority of households who have a member abroad for working purposes do receive remittances or did in the past. The percentages for receiving remittances at this moment or in the past from household members abroad are respectively 75 percent and 84 percent. Therefore, from the sample it can be concluded that about 33 percent of the households in Siddhipur receive or have received remittances. This amount or percentage can be valued as very high, in the Siddhipur case 1 of every 3 households receive income from members abroad.

In Lubhu there are relatively few households who have a household member abroad for working or studying purposes, thus which receive remittances. From the survey still some 20 percent of the households declared to have a member abroad. This is a different picture from the poverty mapping which only found around 2 percent of the households with a member abroad. Possible reasons for the difference could be the increase of villagers who went working abroad over the last few years. It was witnessed that *Best Western* opened a bank facility in Lubhu to process remittances flows, though it is not likely that there has been a huge increase in only the last few years. Another reason is the sample of this study. The sample is biased towards respondents from the poorer groups, which makes it more likely to have households within the sample in which people have lower educational degrees and therefore are doing unskilled work. It is these jobs for which Nepali workman are required abroad. To assess its impact, remittances will be related to the general income figures of Siddhipur and Lubhu described above.

Remittances vs. Income

The median monthly remittances are 5000 Nepali Rupees in Siddhipur, which equals an amount of NRs. 60.000 on a yearly basis. When compared to the income figures of Siddhipur as a whole the remittances are very important to a household income. Taken the median figures, remittances almost double a household's income. When looking at the different poverty groups, there is no significant difference between the percentages of households within a group who have a family member abroad for working purposes. Therefore it can be concluded that for the poorer groups in the communities the income from remittances have a bigger influence on their income generated compared to wealthier groups.

Box 1: Nepal, remittances country?

One of the reasons behind the increase of income and living standard in the periurban areas is supposed to be the remittances. Following the reasoning of Adhikari (2008) remittances is even the single most important factor for the increase of Nepal's income in the last few decades. Remittances is money earned by family members abroad and sent to their family

in Nepal. In the survey and in previous research attention has been paid to remittances phenomenon in Siddhipur and Lubhu. These conclusions can be made up.

Use of remittances

It can be noticed in and around the villages, and in the Kathmandu Valley in general, that there is a lot of change going on. For instance in Siddhipur, it is clear that new houses are built on empty plots on the edge of the village, but also inside the village changes are visible. Many houses are being renovated and the streets show there is a lot going on. To see the influence of remittances on the changes going on in Siddhipur we asked about the use of remittances. These are the answers which came up from the survey:

Table 6.7: remittances use		Figure 6.6: Remittances use	
School/study	62		
Constructions current house	3		
Construction new house	12		
Invest in business	2		
Save	7		
Daily expenses	88		
Repay loan	22		

Source: Own database

The table shows that remittances are mostly used for daily expenses, to pay for school or study costs and repay loans. In other words to fulfil contemporary needs. Long term investments, like investments in a new house, current house or in a business are not obvious from the above figures. Therefore, the changes, as mentioned above, could be explained only very marginally by remittances used for building a new house. Off course, other factors are of influence, which probably come from outside the villages. For instance, people from Kathmandu who build new houses in the periurban, empty areas. This research is only concentrating on the two periurban villages and from this perspective no clear evidence from the survey comes up that the witnessed changes come from inside the village with the use of remittances money.

Return migrant workers from Siddhipur and Lubhu

Because of worldwide economic recession over the last year and during the research period, the respondents with a family member working abroad were asked if any members of their family returned from working abroad in the last 6 months, and if yes how many and why. Hypothetically this would show Nepalese workers abroad losing their job in the Middle East and return home. Consequently this would have a major impact, as shown, on the

income base of many households. From the survey there is no clear evidence that the worldwide economic downturn already had an effect on remittances.

Poverty status

It has been experienced that it is very difficult to get reliable information on income of households in practice. On the other hand poverty can also be defined as a lack of basic necessities of life such as enough living space within the house, facilities used by the house, features of the house, etc. This study takes over the methodology used by UN-HABITAT to classify the poverty level of the household on the basis of the standard of living using various indicators, which are:

- Type of dwelling unit
- Type of toilet
- Sufficient living area in the house
- Kitchen facility
- Type of fuel used for cooking
- Possession of facilities of solar heater/geasure for hot water, washing machine, refrigerator, oven, telephone, mobile phone, computer, access to internet, television, radio, bicycle, motorcycle, and car

According to this methodology, each household has been assigned to the weights based on above mentioned indicators and all weights are summed up. The household with the highest weight (i.e., 33) is certainly the well-being household with all facilities and better features of kitchen, toilet, etc. On the other hand, the household with the lowest weight (i.e., 3) is certainly one of the poorest households of the settlement (UN-HABITAT 2006). The criterion so far developed has classified the living standard into four classes – (A) extremely poor, (B) very poor, (C) least poor and (D) non-poor.

Siddhipur

The results of the new mapping are shown in table 6.8. The old categorisations are listed vertically (rows) and the new categorisations are listed horizontally (columns). By following the extremely poor row from left to right, it can be seen that of the original 30 extremely poor, zero are now in this classification. 21 households of this group are currently ranked as very poor, while 9 are least poor. There are furthermore some households that have gotten a higher score because there was a problem in recording the construction of the house. This has affected the scoring of the poorest most, but it is not expected that a lot of households got a higher ranking because of this.

It can be said that the differences in Siddhipur between the old and the new ranking are substantial. In the original extremely poor and very poor group in particular, many have raised one category. It is unclear why some of the non-poor have dropped one category, on

the other hand the decrease of some households could be influenced by the vulnerability of poor-people. What can be said with certainty however is that the majority of the poorest households in the community are currently less poor than before the project. The project in Siddhipur has definitely helped in accomplishing this, though this is, of course, not the only determinant.

Table 6.8: Cross tabulation of old and new Poverty groups in Siddhipur

		New poverty groups				Total
		A	B	C	D	
Original poverty groups	Extremely poor (A)	0	21	9	0	30
	Very poor (B)	1	20	52	2	76 ⁹
	Least poor (C)	0	2	49	10	61
	Non-poor (D)	0	0	4	11	15
Total		1	43	114	23	182

Source: own database

Lubhu

Based on the methodology of the original poverty mapping, the new scores for Lubhu are given in table 6.9. The problems with recording the construction of the house in the Siddhipur survey have not been observed in the Lubhu survey. A note on these figures is necessary though: the sample in Lubhu was not a general sample, but based on the households that received a latrine. This new scoring can therefore not be generalised for Lubhu as a whole. It is however significant for the households that were involved in the project.

Table 6.9: Cross tabulation of old and new Poverty groups in Lubhu

		New poverty groups				Total
		A	B	C	Unknown	
Original poverty groups	Extremely poor (A)	2	13	3	0	18
	Very poor (B)	4	46	18	0	68
	Least poor (C)	0	3	10	2	15
	Unknown	0	4	2	0	6
Total		6	66	33	2	107

Source: own database

According to the scores listed in table 3.1, the extremely poor group has risen most since the project; the majority now falls into the least poor group. For the original very poor and least poor groups, no big changes are observed. The majority has stayed in the same group.

Conclusion household assets

It has been experienced that it is very difficult to assess households' assets and levels of poverty in both villages. Problems have occurred with generating and analyzing income as well as with the standard of living method described as 'poverty mapping'. Though, this

⁹ From one household no new poverty category could be calculated

study finds income the most problematic method. On the other hand the data has shown that for most people, in all classifications, the situation has improved over the last years. This does not mean however that people are not poor as the scoring shows that most households have left extreme poverty but are still in poverty (i.e. within the extremely poor, very poor and least poor categories)

6.4 WATSAN Situation

The water situation in Siddhipur was very bad, even compared to the better (also alarming) water situation in Lubhu, but has improved on quality, quantity, reliability and regularity, this in contradiction to Lubhu. To assess a household use of improved drinking-WATSAN this study used the harmonized survey questions from the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF). Through using harmonized questions it becomes able to compare data from different countries. For this study, comparing the data is not of great importance, though because the questions and answer categories are used across the globe, the assessment is of good quality and off a relative small, but with the right indicators, as they serve as a core to include in more exhaustive household surveys. As has been the case with this study.

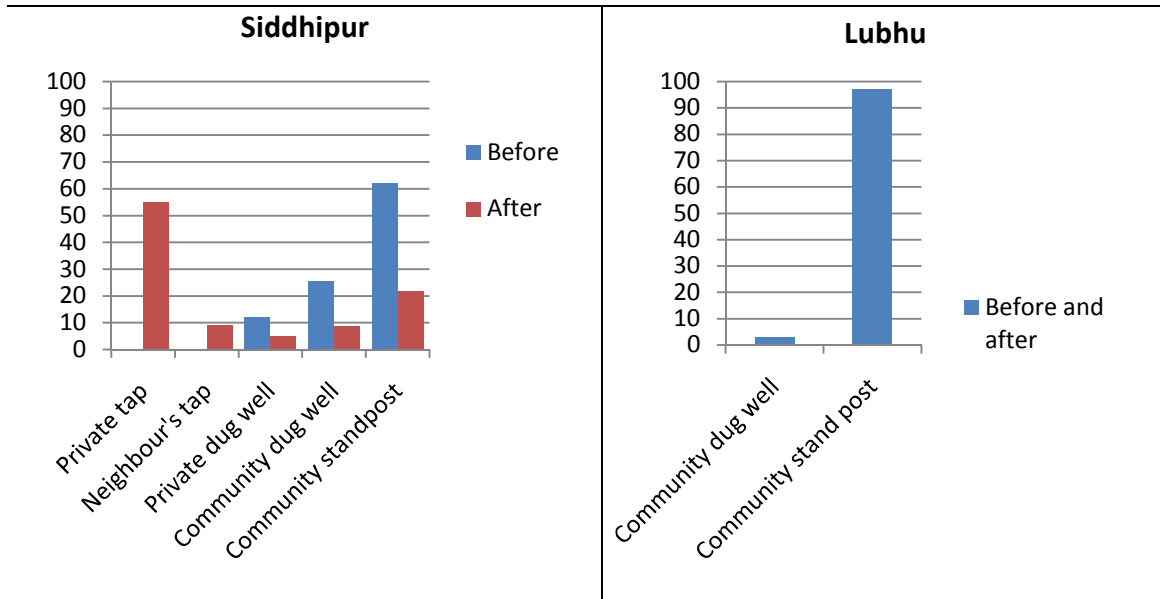
The harmonized questions for drinking-water provide information about the type of water source used, the time required to collect the water, and the household member responsible for fetching the water. There is also a question about the treatment of household drinking-water. The sanitation-related questions focus on access to sanitation facilities, and include questions about the type of sanitation facility used by the household and whether the facility is shared with others. Several other factors affect the quality of the access that a household has to drinking-water. Such factors include continuity, reliability, seasonality and affordability of water supplies, which is too exhaustive for the purpose of this study.

6.4.1 Drinking-water

Main drinking water source

This indicates if the drinking-water is safe. The assumption is that certain types of drinking-water sources are likely to deliver drinking-water of adequate quality for peoples basic health needs. Improved sources are: a piped water supply into the dwelling; piped water to a yard/plot; a public tap/standpipe; a tube well/borehole; protected dug well; a protected spring; and rainwater. Water sources that are “unimproved” are: an unprotected dug well; an unprotected spring; a cart with a small tank/drum; a water tanker-truck; and surface water.

Figure 6.7: main source of drinking water before and after projects



Source: own database

From the drinking water sources in the table all the community dug wells in Siddhipur and Lubhu, before the projects are unimproved because they are not protected from runoff water and from bird droppings and animals. In Lubhu these dug wells have been renovated and have been commissioned with a slab. These are now classified as improved, however this doesn't count for the Siddhipur dug wells. The few private dug wells in Siddhipur are covered with a slab. Community stand-posts are a protected source, according to the WHO/UNICEF, though in the case of Siddhipur the water intake for the taps is an unprotected source directly from the river. The water is not treated before it runs from the taps. Therefore the community stand posts in Siddhipur are also classified as unimproved sources, for Lubhu the community stand posts are protected. Aggregating this data to the village level, before the project, in Siddhipur a little more than 10 percent and in Lubhu 97 percent had access to an improved water source. After the project the people in Siddhipur with access to an improved drinking water source had risen to 68 percent and for Lubhu now almost all people have access to an improved source. While the used sources in Lubhu are classified as improved according to the WHO/UNICEF standards many problems exist with the sources. One of these problems, in Lubhu, is the time it takes to fetch water from the public sources.

Time to fetch the water

The purpose of this question is to assess whether the main drinking-water source is sufficiently close or accessible to the household to ensure that there is an adequate daily volume of water for basic household purposes. Excluded from the fetching time analysis are the private taps, because they are build on the premise of a household and therefore, water fetching time for households with a private tap can be ignored. Because not all private dug wells are situated on the premise of the owner, this study takes the time indications for

fetching the water from a private dug well in account. Another reason to do so is because often a private dug well is used by several households.

For analyzing water fetching time, before the project, all households are included as private taps didn't exist in Siddhipur back then. In Lubhu there aren't any before or after the project. This assessment takes the median time to fetch the water as an indicator preferable to the mean water fetching time because the former is less dependent on outliers which effect the latter. Before the project, the median time was 15 minutes. In order to get a better insight on the time spent for fetching the water, it will be determined for how many households the trip takes more than 30 minutes. The 30 minutes indicator is set by the WHO/UNICEF as a standard for sufficiently close or accessible. It shows (table 6.10) that 44 percent of the households in Siddhipur are not sufficiently close or have easily access to a drinking water source. The figures show the enormous progress that the project has made. A little less than 60 percent of the households now have a private tap and only 10 percent of the people in Siddhipur have non-sufficient access to a drinking-water source.

Table 6.10: Time spend collecting water before and after the projects

	Siddhipur		Lubhu	
	Before	After	Before	After
Median time to fetch the water (minutes)	15	10	60	60
% water on premise	0	58	0	0
% more than 30 minutes	44	9,4	65	65

Source: own database

Contrary to the dramatic decrease in Siddhipur, the people from in Lubhu indicated a median time spent to fetch water of one hour. There is no change before and after the project, as such, this is not remarkable as only wells have been renovated in the project. There are no household in Lubhu who have a source for drinking water on their premise, before or after the project. Thus, according to the standard of 30 minutes, 65 percent of the households in the sample will spent more than the set 30 minutes to fetch water. In comparison to Siddhipur sample this is a dramatic difference.

Gender and generational disparities in hauling the water

Hauling water in Nepal is done almost always by women. This study and also the 'Mapping the poor' study by UN-HABITAT have no adequate survey data on this issue, though still a daring conclusion can be made. That is: during interviews and conversations with people from the projects it became clear that hauling water is a female job. It was said that for more than 90 percent the hauling was done by females and this should account for most parts of Nepal. For instance, during the interview with the project manager from CIUD, it was told

that the dug well users committees formed in Lubhu consisted out of 168 females and 19 males because they are the users of the wells. This confirms the just made observation.

Water treatment

Water treatment information at the household level provides an indication of the quality of the drinking-water used by the household. The data shows that before the project in Siddhipur, 81 percent treated their drinking water and 19% didn't. This has changed through the project years and people now value the quality of water in Siddhipur better than before. Households which treat their water has decreased to, a still high 58 percent and 42 percent does not. In Lubhu there has been no change in water treatment before and after the project. As high as 68 percent of the households in the sample treats their water. A more detailed insight in water treatment is given in the following Table.

Table 6.11: Water treatment in Siddhipur and Lubhu

(%)	Siddhipur		Lubhu	
	Treatment	adequate	Treatment	adequate
Before	81	50,5	68	41
After	58	51	68	41

Source: own database

The most used water treatment methods in Siddhipur and Lubhu are boiling, filtering and the handkerchief. A handkerchief refers to pouring water trough a cloth which filters particulates from the water. Other, but very few used methods are chlorination and SODIS. According to the WHO/UNICEF the handkerchief is not an adequate method to treat water. The other methods are adequate because these disinfect water and kills organisms causing diseases. For Siddhipur and Lubhu the percentage of households who use adequate methods are given in table 6.11. The other part, up to 100 percent which is not shown in the table, is households who treat their water inadequately.

The (still) large use of inadequate methods for water treatment could lead to water born diseases. The table shows that half of the people in Siddhipur and even more in Lubhu, before and after, are using inadequate methods for water treatment. It has to be mentioned of course, as shown above, that the amount of people treating their water has dramatically decreased (Siddhipur), because the quality of water has risen. Therefore the risk of water born diseases has decreased, but this is not a reaction towards better methods used for water treatment. To further decrease water born diseases it should be strived for to supply as much people as possible good quality water, but also inform people about better water treatment methods so that adequate methods are used to diminish the risk of water born diseases.

6.4.2 Sanitation

The table shows the dramatically changed toilet use by showing adequate and inadequate toilet use by household members in both villages. Adequate sanitation coverage at the moment is close to a 100 percent. The criteria for adequate or inadequate toilet use have been taken over from the WHO/UNICEF. A sanitation facility is considered adequate if it hygienically separates human excreta from human contact. The types of technology that are likely to meet this criterion in Siddhipur are: Pit-latrines and septic tanks. Types of sanitation facility that are not likely to meet the criterion are: community toilets; directly to drainage; field or river.

Table 6.12: Adequate and inadequate toilet use in Siddhipur and Lubhu

(%)	Siddhipur		Lubhu	
	Before	After	Before	After
Adequate	35	95	17	100
Inadequate	60	5	77	0
Missing data	5	0	6	0

Source: Own database

Sanitation use in Siddhipur has changed dramatically over the last years. Before the project 40 percent of the households had a private toilet (i.e. 40,8 percent of the people surveyed), the other households in Siddhipur didn't have a private toilet, they were going to the community toilets (50,6 percent of the people) and in the field/river (9 percent). Of the households with a private toilet, most of them (i.e. 68 percent) have a septic tank. A septic tank is an excreta collection device consisting of a water-tight settling tank, which is normally located underground, away from the house or toilet. The treated effluent of a septic tank usually seeps into the ground through a leaching pit. It can also be discharged into a sewerage system (WHO/UNICEF). From the other 30 percent households their private toilets are divided between single- and double pit latrines. Finally, very few household have a toilet which is directly connected to the drainage. This picture has changed. After the formal project, now 97 percent of the households have a private toilet. People using the field or river have almost been distinguished. From the survey, a few people still used the community toilets which are at the edge of the village.

In Lubhu, all the households in the core area without a private toilet have been targeted by the project, so that all households in the core area now have a private toilet. From the project organization this study has been informed about one or two households who have severely opposed a private toilet.

6.5 Institutional context

Finally, and very important for the community based analysis, is the institutional context of both villages. What does this mean, institutional context? Institutional, defined by laquinta and Drescher (2000) is, *'the broad range of cultural meaning and social organization that includes informal and traditional relations'*. So, institutional is about cultural and social life in the villages, which are often shaped by informal and traditional rules. Especially the way of social organization in the villages is very important when people are supposed to participate, manage and take control over a project, in this case the WATSAN services. Therefore institutional here is used as the cultural, informal and traditional rules that shape social organization. The institutional context will be analysed according to laquinta and Drescher's periurban typology, as has been discussed in the beginning of this chapter. This study has classified Siddhipur and Lubhu as 'village periurban'. Confirming the villages to a typology means this has some consequences for the institutional set up of the villages as the type of periurban connects with an institutional class. This will be looked upon in greater detail in this section.

Despite the introduction of urban attitudes via the out-migrants and other processes, Siddhipur and Lubhu to a lesser extent, have very strong traditional institutions and remain stable. As described before, 'village periurban' environments like Siddhipur and Lubhu are tradition oriented and in most respects look like rural villages. Population size and density are relatively low and many residents are still involved in agricultural activities. The differentiating factor is the infusion of urban attitudes and values in the villages by what has been explained the very strong individual networks with out-migrants and service sector oriented occupation in urban areas of a growing amount of inhabitants. But these ideas are absorbed slowly into the traditional context, often by what is described by laquinta and Drescher (2000) as redefinition. In very ethnical and caste homogenous villages like Siddhipur and Lubhu this might be very much the case.

Even though change is effected, in 'village periurban' areas, the traditional institutional structures remain largely intact (laquinta & Drescher 2000). The demand for change is very low. Because of the long term stability of the traditional system it has a high resistance to change and thus incorporates change very slowly. This means for a project, which is to be implemented in Siddhipur and Lubhu, the people will resist exogenous change. These insights should be taken into account when planning and implementing a WATSAN project. On the other hand, as described by laquinta and Drescher (2000), change increases the opportunities for egalitarianism and the erosion of stratifications. Therefore the project could make progress in eroding stratifications systems as caste or gender. Though, following the institutional context of the periurban typology this change should be brought very

carefully as people could be very resistant. Iaquina and Drescher (2000) report the most likely types of adaptations, for instance through WATSAN interventions, in village periurban areas as *“novel solutions which maintain the appearance of tradition and meet modern sector needs”*.

6.6 Conclusion

Siddhipur and Lubhu show features of the village periurban type, classified by Iaquina and Drescher (2005). They are changing from a rural perspective to a dynamic periurban type of villages that show processes of urbanization. In this chapter the main characteristics and trends observed stand in relation to their process of urbanization. It is thus believed that this is the prime process of change today and in the future. The periurban context is therefore an important tool for analyzing features and trends in the communities. Both traditional villages are not complex areas, but rather fit into the definition of village periurban. This type is characterized by traditional set up and the inflow of urbanism through mass media, remittances and the percentage of labour in non-agricultural activities. The latter is an important change happening in these communities of traditional agricultural context. Remittances make up an important source of income in Siddhipur nowadays.

Other major trends in the communities is have been analysed are the improvement of the living and WATSAN situation in the communities. According to the new poverty mapping that has been carried out, for most people, in all classifications, the situation has improved in recent years. Based on the indicators of the standard of living it is found that most households have more basic necessities then before the project. It is important to note however, that most people are still poor. It could be concluded that people have found to be less poor.

The project has have had a major impact on the water and sanitation in Siddhipur as a whole and the sample households in Lubhu. With the use of the WHO/UNICEF harmonized survey questions. In Siddhipur the effect of the instalment of private taps by half of the households have had a major impact on the quality, quantity, reliability and regularity of the water. The analysis showed the dramatic decrease of time to fetch water in Siddhipur. This timesaving will be analysed more elaborately in chapter 9. Both Siddhipur and Lubhu have a total sanitation coverage, through which open defecation, practiced regularly before has been diminished. The health effects of the described changes will be analysed in chapter 9.

7. Community participation

7.1 Introduction

Demand responsive projects through community participation create ownership under the users and will improve the sustainability of WATSAN services. The projects under study here have been implemented through this approach, as has been elaborated upon in chapter 4. In order to see if the potential benefits of participation are included, this chapter will analyse the role of the community in the projects and assess their level of participation. An emphasis in the analysis will be put on the involvement of the different poverty groups according to the poverty mapping that was carried out. This to see who has been able to participate, where to poor also involved, or was participation predetermined for the better off. Often participation has been used as a false pretence to involve the poor and the idea of reversing power relations have been missed, instead the benefits of a project could be taken over by (local) elites. Participation will be assessed by using the hierarchy of Prokopy (2005) and '*the ladder of citizen participation*' by Arnstein (1969).

An effective community based project does not stop at the formal ending of the projects, i.e. after planning and implementation. Instead, operation and maintenance of the services is an integral part of WATSAN services (Mansuri & Rao 2000; Prokopy 2005). Therefore, this chapter will be divided in the phases: design; implementation; and O&M. On the basis of these phases an analysis will be made on the active involvement of the community, or in other words, to what extent they were involved in each particular phase. In addition, the phases will serve as a framework to see which poverty groups participated in each phase. As will be shown in this chapter, the WSUC/PMC is a crucial in community participation, therefore a assessment will be made on the overall transparency of these community based organizations (CBO) towards its members (the beneficiaries). Finally, a comparison will be made between the community based approach in Siddhipur and Lubhu.

7.2 Siddhipur

The project in Siddhipur was community based. The WATSAN services from the project were local solutions to the WATSAN problems. The community, were involved by the implementation partners in all phases and would eventually be responsible for the O&M of the facilities. Implementing this approach should enhance the sustainability, or success of the project and its facilities. The project in Siddhipur will be analysed first and hereafter the project in Lubhu will be assessed.

7.2.1 Design phase

This is the first phase, starting after initiation of the project and ends when the actual implementation or construction of the project facilities set off. In this stage the project is planned and strategic decisions are taken. Community participation is measured in this phase according to the involvement or participation in the design of the project (voice) and according to the final decisions made about the project (choice). On the basis of these indicators it can be measured if the design of a project is responsive to the demands or needs of the community. It is believed that participation of the community improves the demand-responsiveness of a project. In this phase the difference is made between demand-responsiveness non-responsiveness.

Participation in service design

Decision making in the Siddhipur project is characterized by two levels. The strategic parameters of the project were set to cover the goals of the INGO (UN-HABITAT) and implementation NGO (ENPHO) and implementation decisions were made by the implementation NGO and the WSUC. The strategic parameters imposed some pre-determined criteria for the project in Siddhipur. For example, the WSUC in Siddhipur was only interested in water supply, which was their main agenda and their initial incentive, so the sanitation and hygiene part had to be pushed through. Another example is the scope of water supply. The target, set by the NGOs, was quality, quantity and 24 hours water supply (reliability) for everybody, including the poor as they should not be excluded (Tuladhar, 2009). It is not to say these decisions are made without the involvement of the WSUC, but were prioritised by the NGOs. So to say, during the strategic decision making process the NGOs advised the WSUC, sometimes strongly, about certain elements that had to be incorporated into the project, but all decisions also had to be approved by the WSUC.

Implementation decisions were made in cooperation between the WSUC and ENPHO, as those are the two main implementation agencies of the project. UN-HABITAT is not an implementing organization, but in the case of Siddhipur, as their first project, they closely monitored the activities, and thus were at the table when important decisions had to be made. This was to make sure their objectives were to be reached (Manandhar Sherpa, 2009). Examples of implementation decisions are: where to lay the pipes and how high the water tariff should be. The question is if this divide in decision making as witnessed through conversations with project staff is done with or without the community and to what extent? The active involvement of the community will be looked upon in greater depth through 'voice' and 'choice' in service design. For this analysis data will be used from FGDs with the WSUC/PMC and with the community, survey data and interviews with the NGO staff. Through using the different methods all stakeholders within the project are voiced.

First of all, as there is obviously no place for everybody to be involved in the actual act of decision making, household consultations are a good tool to become familiar with a

households wants and needs. In this way the people have an indirect saying in the decisions that are made. The project would in that case become needs driven and demand responsive. This is an advantage of community participation and leads to more effective projects. Extensive community consultations, through a census, have been carried out before the project and are documented into several reports on: (1) rapid assessment and requirement of the facilities; (2) Report on the socio-economic status and willingness to pay on the facilities; (3) a report on Initial Environmental Examination; (4) Gender assessment; and (5) poverty mapping.

Second, this study conducted a FGD with the WSUC in Siddhipur about, ‘who had a voice in deciding on the several decision moments?’ (Voice) and ‘who decided on?’ (choice). Several decision moments were discussed and emphasized some of the most important features of the project in Siddhipur. There were three possible categories on which could be agreed upon: (1) in the WSUC/PMC, this means if they themselves had been involved in decision making; (2) in the community, regarding to information sharing and decision making in the community. For instance through popular vote or through a assessment; and (3) in outside agency, which incorporated the agencies from outside the village, for instance UN-HABITAT, WaterAid, ENPHO or CIUD and are indicated in the table as NGO. The table below shows the results of the exercise. Though the exercises for ‘voice’ and ‘choice’ were not done simultaneously, instead separately, the agreed upon results from the ‘voice’ and ‘choice’ exercise were almost similar and have been taken up in one table. Table 7.1 indicates, according to the WSUC/PMC, who were involved in decision making and who made the final decision during several decision moments. For instance, taking the decision moment ‘monthly charges for water at the home’ the WSUC in Siddhipur feel that the ‘outside NGO’ and they themselves (WSUC) were involved in that particular decision.

Table 7.1: ‘Voice’ and ‘choice’ in Siddhipur

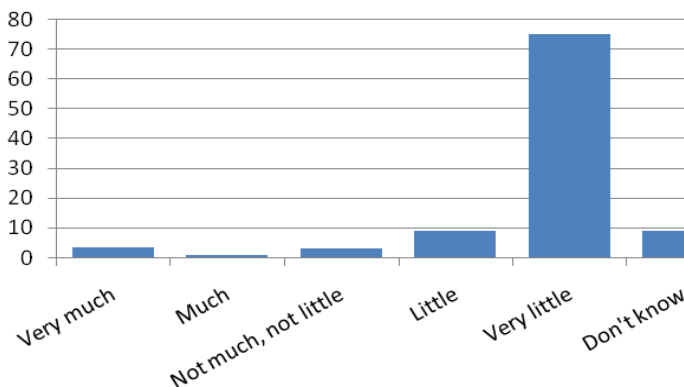
Decision moments	‘Voice’	‘choice’
Project initiation	Community – WSUC	Community – WSUC - NGO
Beneficiaries	WSUC	Community - WSUC
Technology of toilets and water treatment	NGO ¹⁰	NGO
Service level (private/comm. toilet/tap, service hours, etc)	NGO – WSUC	NGO – WSUC
Charges for construction of general project	NGO – WSUC	NGO – WSUC
Charges for construction private taps & toilets	NGO – WSUC	NGO – WSUC
Monthly charges for water at the home	NGO – WSUC	NGO – WSUC
Responsibility for operation and management	WSUC	WSUC
Location of facilities (dug wells, pavement, drainage)	WSUC	WSUC

¹⁰ In the case of the water system CIUD was mentioned and for the sanitation facilities ENPHO

From this table, according to the members of the WSUC in Siddhipur, they themselves were involved in most decisions made. Often, as they told, the choices were agreed upon by the WSUC and the implementation NGO (i.e. ENPHO). Other NGOs, for instance UN-HABITAT, were according to the WSUC not directly involved. To involve the community, a committee was setup represented by 35 community groups, ranging from health groups, women’s groups, community learning training groups (CLTS), savings groups etc. Leaders from these groups came together to discuss the problems, and what could be done. They used to meet once a month, and at this time the chairpersons and managers met together (so 70 people would meet). From the FGD it came forward that the involvement of the assembly has initiated the project but was further not involved in decision making. As a community based organization, the WSUC represents the community, and in this logic the voice of the community is represented. Though it is not clear if the WSUC is a democratic organization and representative to the people in Siddhipur. This is important when it is clearly impossible to consult the whole community in decision-making. Later in this chapter the representation of the WSUC will be discussed. A closer analysis of the community’s role in decision-making and design of the project is withdrawn from the household-survey.

Third, the beneficiaries’ involvement has been assessed through the household survey, which shows very little involvement. 80 percent of the families answered they had never been to a meeting about the project, though this means still 20 percent was involved in meetings regarding the project.

Figure 7.1: Community participation in decision making



Source: Own database

The people who did attend meetings often went to more than one meeting. From these household surveys there is a clear picture for female representatives of the household who went to meetings. In most cases these women were asked to join a meeting. Figure... shows the feeling from the respondents

towards taking part in decision about the project. 75 percent of the people in Siddhipur feel they took very little part in decision making and that the community had only a small role in the changes from the project regarding the WATSAN facilities. Because the large amount of the people don’t feel they took part in decision making the differences between the poverty

groups in decision making are not significant. There's no relation¹¹. With regard to the improvement in water supply in the village, a majority of the respondents thinks the WSUC was responsible for the changes (61 percent). For the other facilities from the project (toilets, drains and pavement), the majority did not know who was responsible.

Finally, from the FGD with community people (extremely poor and least poor group) in Siddhipur a similar conclusion can be derived regarding 'voice' and 'choice' in the project (table 7.2). In most of the decision moments mentioned, in the table, decisions were, according to the FGD, made in cooperation with people from the village. There is not always agreement on exactly who made the decisions, but participants knew that people from the village had been consulted. In most cases this was the WSUC, they say. With regard to whom information was shared with, it is clear that the community was not so much informed and did not directly have a 'voice'. This is confirmed as local women (extremely poor group) don't know about community meetings regarding WATSAN. None of those in the FGD had ever been to one of the meetings as they haven't been invited.

Table 7.2: Community FGDs in Siddhipur

	Extremely poor		Least poor	
Project initiation?	Outside agency	<u>0</u>	Outside agency/political parties	25
Who was informed about project details?	Only better off	<u>37,5</u>	VDC & village leaders	25
Details of water supply system?	Outside agency & better-of	<u>25</u>	outside agency & WSUC	25
Details of sanitation system?	Better off	<u>50</u>	VDC only	50
Level of services	WSUC	<u>50</u>	WSUC	50
Members of the WSUC	WSUC	<u>50</u>	Better off in community	50
Operation and maintenance	WSUC & Better off men/women	<u>50</u>	All members of WSUC	50
	Total score A group	262,5	Total score C group	275

Source: Own database

Poor included in service design

From the FGD, using NEWAHS methodology, participation in service design for the 'poor' and 'rich' is scored, the results show a very small difference between the two groups, indicating the poor have not been extensively less participated in service design. The 'rich' or the 'poor'? A 'voice' and 'choice' exercise was done with a 'poor' and a 'rich' focus group, using NEWAH's Participatory Assessment (NPA). The results of this exercise are quantified by the system of the NPA. The answer categories 25/50/75 percent are not very different from

¹¹ To test the relationship between the various poverty groups and attending meetings, a Chi-Square analysis has to be done, but because of the few people who went to the meetings it is not possible to execute the test.

each other; only the 0 & 100 categories are very different. For each question 100 is the maximum score. The maximum score can be acquired during a FGD when the people feel that also the poor have been involved in decision making. The lowest score, 0, is assigned when they feel the decision is made by an outside agency. These quantifications allow comparing the answers between the different groups and villages. Through illiteracy here the answers were read out and they were finally chosen by the FGD facilitator after discussion with the people. The method is more elaborately explained in the methodology chapter of this thesis. The results however shows that decision making, according to both groups, have been made by mainly the WSUC. In relatively less decision making moment they indicate the involvement of the VDC and outside agency. It has to be mentioned though that there could be confusion about the categories WSUC, better off and the VDC as there is overlap between them. The members of the WSUC were former members of the VDC and are also the better off of the community. Still, what is clear from the FGD is the decision making process is done in without the poor being able to change directions.

7.2.2 Implementation phase

This phase starts when the actual construction or implementation of project facilities start. In the case of WATSAN projects in the villages this meant the laying of pipes, construction of taps, construction of toilets, paving the streets, digging the drains, etc. The end of this phase is often, and in the case of Siddhipur and Lubhu also, the end of the formal project. Post-implementation starts the operation and management (O&M) of the services. The contribution of beneficiaries in this phase is linked to the construction of the facilities and incorporates all the project facilities (e.g. taps, toilets, pavement and drains). Contribution can be seen through three different acts, these are: contributing financial, Labour or materials. Next to beneficiaries contribution there is also the implementation supervision of the WSUC during this Phase.

Community participation

The Sanitation and Hygiene and Environment (SHE) team and the WSUC controlled the project implementation. The WSUC FGD and interviews demonstrates the committees check and influence on implementation. The SHE team implemented the sanitation part and gave training to women; the WSUC was responsible for the water supply element of the project. The 35 different groups were not used anymore during implementation. According to the FGD with the WSUC in Siddhipur was the relationship with the implementation NGO thorough. ENPHO is an expert on technological knowledge concerning WATSAN. There was also a joint account and both the WSUC and the implementation NGO had to sign in order to withdraw money from the project. The WSUC was also successful in attracting money from donors, like the VDC, themselves and were therefore solely responsible for this. The community wasn't much involved in this phase. The implementation NGO and the WSUC decided on all matters together. Only when there were very important matters would they

call for a community meeting, but these meetings were only with 1 person from every political group (FGD WSUC, 2009).

Except from the community elements of the project like pavement and drains, through which participation of the community was decided by the *tole* of residence, contribution were fixed and equal for all. The contribution for all elements included labour, material and part cash. According to the different elements this means, first, for the toilets people had to construct the upper part, second, for taps the connection charge was NRs. 600 and they had to take care of the piping to their house and third, for community elements they contributed labour and NRs. 10-15 a day. In this approach a pro-poor element was build in the project through which People had to deposit 1000 rupees which they would get back if they finished the upper part of the toilet. The poorest people were exempted from this (poor from poverty mapping). They didn't have to pay for the lower level, but everybody had to build their own upper level. In the next section a closer look will be taken to the poor in service establishment.

Poor included in service implementation

Tap contribution

People have to pay a fixed contribution for the connection of NRs. 6000 and a variable component depending upon how far from the road they live. Apart from that, people have to contribute labour to the service establishment by digging open the street upon their house. Both payment and labour were the same for all in the community. Analyzing the tap-connection charge (table 7.3) the survey showed that the average tap connection charge paid by households is NRs. 12.624. The project had calculated an average connection charges for households to be NRs. 9.320. The actual costs have thus become somewhat higher. During the project it was already recognized that the calculated connection charges (NRs 9.320) would be high for poor households. Table 7.3 shows that the average cost for installing a tap for the extremely poor group were even higher than this, making it more difficult still for the poorest to install a tap. As shown the number of taps installed for the poorest group is very low, only 5.2 percent of the taps build have been installed in the 'Extremely poor' households. Tests have shown that the differences in means are not related to the group to which a household belongs, though still the poorer categories have difficulties installing a tap. With respect to the cost of installing a tap, 46 percent of the people with a private tap from the program say the cost contribution is fair, while 48 percent thinks it is high or too high. The rest didn't have an opinion.

Toilet

For a private toilet households have contributed cash and labour to the construction of a toilet. The support from the program was fixed beforehand and differed per toilet type. According to the WSUC the cash and labour contribution for the same toilet were the same for all households. Up to pan level, the construction of the toilets was contributed and the

upper part was the household's responsibility. The households could decide to hire two masons of the project to build the lower part. The average household contribution towards a private toilet was Rs. 6050. 47 percent of the people with a toilet from the program thought contribution was fair, 29% found it too high and 12 % too low. Another 10% of the surveyed didn't know.

Table 7.3: Contribution averages toilets and taps¹²

	Tap (NRs.)	Nr of respondents	%	Toilet (NRs.)	Nr of respondents	%
Extremely poor	14.000	5	5.2	5.500	13	33,3
Very poor	12.645	35	36.1	6.450	22	56.4
Least poor	12.650	46	47.4	5.750	4	11.1
Non-poor	11.200	11	11.3	Too few cases	--	
Total		97	100		39	100

Source: own data

Community part (e.g. pavement, drainage, pipes and water treatment)

People contributed Rs. 10 to 15 per day, which was used to cover food on working days. This was the only expense made, although working days differed according to the *Tole* and how much work there was. The outcomes of the survey for the different groups are showed in table 7.4. It can be noted that the better off groups in the community paid a bigger contribution to the project, while the poorer groups contributed more labour days, during which they could not do any other income-generating work.

Table 7.4: Averages of contribution to community part¹³

	NRs.	Days
Extremely poor	140	6.5
Very poor	140	5.9
Least poor	220	3.7
Non-poor	420	4

Source: own data

7.2.3 Management and Operation Phase (O&M)

Ones the formal project ends as the implementation or construction of the facilities is finished, the operation and management of the system begins. In the case of Siddhipur the majority of works in the O&M phase is linked to water supply. This means the community

¹² For taps a One-Way-Anova-Test and for toilets a Kruskal-Wallis test was conducted and this shows that the difference between the group means are not statistical significant (95% confidence interval and weighted on the poverty group).

¹³ Ibidem

itself is responsible for a guaranteed, quality, quantity, affordability and regularity of water supply. Next to this, also in the O&M phase new tap connections and toilets can be delivered. As decided beforehand in the design of the project, the WSUC will become solely responsible for the system. To this extent the community is in control of the system, at least the WSUC is responsible as a community based organization. To further look into the involvement of the community the responsiveness of the WSUC towards its users will be discussed as a separate section in this part of the chapter.

7.2.4 WSUC responsiveness

The project started with a big community meeting from which the implementation NGO setup a 35-group committee (general assembly), in which all community groups were involved (FGD WSUC). This committee was asked to set up the WSUC, along the lines of government rules. This means for instance at least three women should sit in the committee and the committee has to be subscribed with the district. The general assembly involved all political parties, as well as other important people from the village. The wide community involvement was a precondition set by implementation NGO. Nepal is sharply divided along political lines, so if people will stay along these lines, it is very difficult to implement a project (interview director of implementation NGO). Thus, they (implementation NGO) wanted politics to stay out of the project by ensuring all political parties to be involved.

The members WSUC in Siddhipur received training to develop skills on O&M, monitoring & evaluation (M&E) and how to fix prices for water. Also, the committee hired permanent staff to operate and manage the facilities on a daily basis. An accountant makes budgets for every year, as well as a yearly financial performance record. These records were discussed with ENPHO the first two years. All users are identifiable and a monitoring and fining system for late payers is in use. Because of this, only a small part of the water users is not paying in time and no users (except for some community organizations) have not paid at all over the last three years. The budget and financial records have so far not been discussed with the users. This could be changed to make the community more aware of WSUC activities and performance. This would furthermore increase the WSUC's accountability towards the users. Ideally the users should also have a say in the budget decisions.

After completion the project was officially carried over to the WSUC, which became responsible for operation and maintenance of the services in Siddhipur. At present the WSUC has operated the facilities for over 2 years. In the preamble of the WSUC it is stated that the WSUC should have elections every two years, but at present there has not been an election and no plans are being made - according to the WSUC - to organize a general assembly for an election. The Committee consists of 11 members, which includes 8 men and 3 women, one of which is the vice chairperson.

Transparency

As shown a large part of the community based project is determined because of involvement of the WSUC. Here will be focused on the representativeness of the WSUC. In line with Prokopy (2005), it is hypothesized that if more households are aware of committee actions, the project outcomes will be better. For this purpose the awareness of the WSUC was asked in the survey on five indicators that show the transparency of the WSUC.

Table 7.5: WSUC awareness in the community

	Yes	No	Don't know
Households aware before construction started that village would be responsible for O&M.	12%	64%	24%
percent of households that know how the tariff is set	10%	90%	0%
percent of households that know whether other households pay tariff	23%	77%	0%
percent of households that know what happens at committee meetings	17%	83%	0%
percent of households that know someone on the committee	12%	87%	0%

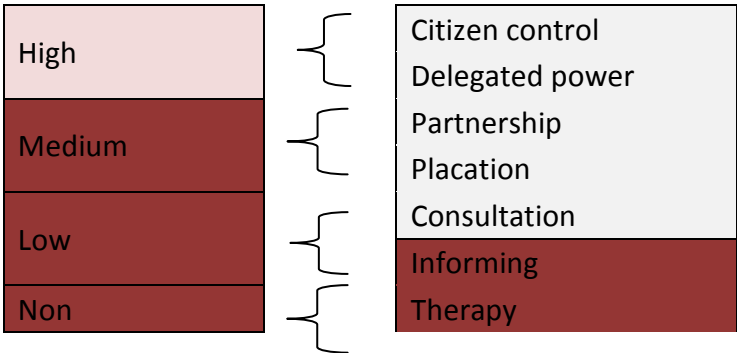
Source: Own database

The amount of awareness of the WSUC in the community is an important indicator of the transparency of these community-based organizations (CBO). Analyzing the committees' transparency, it is questioned if the committees represent the people in the villages. This study found that in Siddhipur the transparency of the committees is low (see table 7.5). All five indicators show that the community is only slightly aware about the role and responsibility of the committee, as well as what happens during WSUC meetings. The transparency is low, in cooperation with non forthcoming elections and reviewing records with the community the WSUC doesn't reflect accountability towards its users.

7.2.5 Conclusion: Participation in Siddhipur

Community participation in Siddhipur has been medium towards high and participation of the poor, linked to the ladder of participation, is up to a level of informing.

Figure 7.2: Community participation in Siddhipur





Community

Poor (have-nots)

Beneficiaries or participants, in the form of the WSUC were involved decision making about largely predetermined questions. As the initiation of the project also came from connections of village leaders with NGO people in Kathmandu the planning and design of the project were on a strategic level influenced by NGOs. There is also more knowledge and capacity at the NGOs, who have experience with WATSAN projects, while government agencies are incapable of managing and financing a public service like water supply. Though the WSUC, as an elected represent of the community, were involved and took part in the decisions on both the strategic as the implementation level. Next to this they undertook their own initiatives, for instance, in attracting funds from the VDC and DDC for the project. These initiatives make the participation of the community more than high, but it cannot be concluded that the community was in full control of the project. According to the WSUC FGD, they were involved in all elements of the project. Regarding this an image of mutual decision making between the lead NGO and the WSUC also derives from the FGD with the WSUC. Therefore community participation in Siddhipur is medium towards high.

The poor in Siddhipur have been informed and participated in implementation, but have not been able to influence decision making. An uncertain point is the participation of the community in important decisions, as they are the beneficiaries, and when striving for a demand responsive approach they should be consulted. As indicated in the survey, there has been a low representation of the community in attending meetings. In line with a low representation is the feeling of participation among villagers about decisions on the project. They feel there influence has been very little. They have tough been informed by the poverty mapping that was carried out. From the community FGD with the women there is no indication of 'rich' involved more in decision making than 'poor'. Equality also was found in the implementation phase regarding contributions that where the same for all. Though equal, both groups were not able to change decisions in the project.

7.3 Lubhu

The project in Lubhu is regarding its community based approach similar to the project in Siddhipur. People were supposed to participate in the several phases and next to this a community based organization was created (i.e. the Project Management Committee; PMC) to implement the project together with an implementation NG (i.e. CIUD). Therefore the same structure will be kept on to in this part of the chapter. The community based approach of the project will be assessed according to the involvement of the community and especially the 'poorer' groups in the several phases of the project.

7.3.1 Planning phase

The project in Lubhu officially took off in December 2006; this also initiated the planning phase. In the following section, in order to analyze the community based approach in the Lubhu project, 'voice' and 'choice' during the planning phase will be discussed.

7.3.1.2 Involvement in service design

Both the PMC and the community in Lubhu have participated in decision making. The question is whether how much they have participated? It is hypothesized here that a demand responsive project is suited to the needs of the community. As in Siddhipur, the project conducted extensive needs identification in the village. Have these needs been incorporated into the design of the project together with the beneficiaries?

In Lubhu, a FGD was undertaken to find out the committee's (PMC) view towards participation in decision-making by the community and the PMC. The results of the exercise are shown in table 7.6. From the FGD that was conducted with the PMC it shows that most decisions in the planning phase of the project were made by the implementation NGO only. For 'voice', or who took part in decision-making the same can be concluded, though the PMC was mostly informed and could exercise 'voice'. The decision moments in the projects that were discussed emphasized some of the most important decisions during the project in Lubhu. As the FGD shows, most decisions about technology, service levels, toilets, wells, etc, have been made by the implementation NGO. The PMC was subsequently given the choices in prioritizing where to locate the facilities. From a participation point of view this resembles a middle level of participation where the community, represented by the PMC, is able to make choices on predetermined decisions.

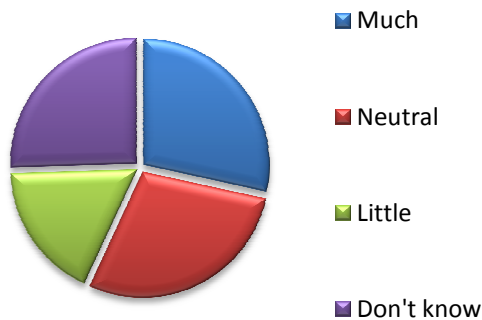
Table 7.6: 'Voice' and 'choice' in Lubhu

Decision moments	'voice'	'choice'
Project initiation	NGO – PMC	NGO – PMC
Beneficiaries	NGO	NGO
Technology of toilets and water treatment	NGO	NGO
Service level (private/comm. toilet/tap, service hours, etc)	NGO	NGO
Charges for construction of general project	NGO	NGO
Charges for construction private taps & toilets	NGO	NGO
Monthly charges for water at the home ¹⁴	-----	-----
Responsibility for operation and management	NGO	NGO
Location of facilities (dug wells, pavement, drainage)	PMC & community	PMC & Community

Source: Own database

Community consultations

¹⁴ There were no monthly charges for water included in the Lubhu project.



Source: Own database

It has proven difficult to assess community involvement in the design phase on the bases of a household survey. This study has acknowledged FGDs with the community a better method to assess involvement in the form of 'voice' and 'choice'. Though, still some information can be withdrawn from

the survey. From the surveyed households, almost 45 percent of the people went to meeting about the project. In just a little less than 70 percent these meetings have been attended by women and they went to meetings because they were asked or went out of interest. The next step in the survey was trying to assess their feeling towards involvement in decision making. This proved to be very difficult and most respondents (70 percent) had no idea if they took part in decision making. On the one hand this indicator is not useful for analysis, but on the other it gives an idea about the involvement of the people. If they don't know they took part, a very careful conclusion can be made they didn't feel part of decision making. A control question was asked, about, if the respondent feel their voice was respected by the project. The respondents feeling is shown in the figure and indicates a general feeling among respondents that their voice is respected and therefore gives a slight indication of a demand-responsive project. Can this very careful conclusion be strengthened by the results from the community FGDs?

From the FGDs with on the one hand the extremely poor and on the other the least poor it can be made up there has been dissemination of information about the project to the community (table 7.7). People from the Lubhu FGD, extremely poor and least poor group, discussed during the meeting that they had been informed and were consulted before the proposal was finalized. The final decisions, according to both groups were mostly made by the chairman of the PMC and better off men in the community. To get a better grip on demand-responsiveness toward the community, later in this chapter the responsiveness of the PMC towards the community will be analyzed.

Table 7.7: Community FGDs Lubhu

	Extremely poor (A)		Least poor (C)	
Project initiation?	Poor were consulted	<u>75</u>	Poor were consulted	<u>75</u>
Who was informed about project details?	Poor were informed but could not decide	<u>75</u>	Poor were informed and could decide	<u>100</u>
Details of sanitation system?	Poor also decided	<u>100</u>	PMC	<u>50</u>
Level of services (access to wells)	Poor also decided	<u>100</u>	Poor also decided	<u>100</u>
Members of the PMC	Outside agency	<u>0</u>	Poorest also decided	<u>50</u>
	Total score group A	<u>350</u>	Total score group C	<u>375</u>

Source: Own database

Poor included in service design

Who has participated in service design? The 'rich' or the 'poor'? There is no reason to believe, according to the above table, that the rich only been involved in service design. The scores, based on NEWAHs NPA, indicate a similar score between the 'extremely poor' with a score of 350 and 'least poor' which scored 375. One major difference between both groups is their idea about who decided on the members of the PMC. According to the 'extremely poor', they feel no ownership over the WSUC as according to them the committee is installed by 'outsiders'. On the basis of these scores it allows to conclude they have been similar involved, though a remark must be made. As in Siddhipur, the groups in the FGD didn't really make a distinction between 'poor' and 'rich' people and they often said '*all are equal*'. For instance, the women from the A group said they were not sure if the 'poorest' were involved, because they themselves are middle class, according to the 'extremely poor' as from the poverty mapping, but they still thought everyone was involved. This is why often the option '*poor men and women were included*' was chosen. They are themselves not really aware of the different poverty groups in the village, or maybe they refuse to acknowledge them. In comparison to Siddhipur, from the community FGDs it can be made up that there was more information dissemination towards the beneficiaries of the project.

7.3.2 Implementation

A major difference with the project in Siddhipur is the contribution of beneficiaries in the implementation phase. All the beneficiaries were obliged to contribute cash and labour to the services. The project in Lubhu had a focus on sanitation and hygiene, i.e. toilets and community facilities as pavement and drainage. Specifically for the toilet construction contributions were not the same for all. According to the status that was given to a household during the 'Poverty Mapping' exercise people got one of three options: 'Least poor' received no subsidy; 'very poor' received half subsidy; and 'extremely poor' got full-subsidy.

Table 7.8: Means of toilet contribution¹⁵

	NRs.	Days	N
Extremely poor	2560	5,7	14
Very poor	3255	5,2	60
Least poor	4892	5	14

Source: Own database

Toilets

Households contributed cash and labour to the instalment of a toilet. Households were given no, half or full subsidies for their latrines, depending on their poverty category. The subsidies were provided in the form of materials, to build the toilet up to the pan level. Households had to pay for the

rest (upper level) themselves. Table shows the average household financial contribution to construct the private toilet, which was recorded in the household survey (categorized per

¹⁵ For means toilet, a Kruskal-Wallis test was conducted and this shows that the difference between the groups means are not statistical significant (95% confidence).

poverty group). There is a clear difference between how much money each of the poverty groups spent on the toilet (more for the better off) and how much labour (more for the poorer). Only 7 percent of all household felt this contribution was too much as the rest thought contribution was fair (70 percent) or even low (20 percent).

Community part (e.g. pavement and drainage)

For the community part of the project the community also contributed cash and labour to the establishment of the service. These contributions were fixed (NRs. 500 - 2000) depending upon the size of the works in the household's *ward* and the width of their house (for pavements for instance, households had to contribute to the part of the road in front of their house). The unskilled labour for installing the facilities was also contributed by the people from the ward. The ward was responsible for mobilizing local people and monitoring the contribution.

7.3.3 O&M phase

Due to the kind of service facilities in the project, in Lubhu the O&M phase is completely community based. The O&M of the project facilities is the communities' responsibility, especially the created users committees. The PMC in Lubhu doesn't have responsibilities as for this moment for operation and maintenance. The project was finished in the beginning of 2009 and the private toilets are the responsibilities of the users while the dug wells and other facilities have their own users committees. Although it no formal commitments though, the PMC is still intact and meets regularly to manage and evaluate all the sub-committees and to look for new project funds.

7.3.3 PMC responsiveness

The PMC was formed, as in Siddhipur, during an assembly in the village. There was no election, the chairman, vice-chairman, secretary and treasurer (board) for the PMC were suggested and these persons were not contested. The rest of the committee (7 persons) has been made up from one representative of each *Guthie* involved in the project. This approach was taken in order to represent the whole community into the PMC. The PMC further consists of 3 women and 8 men, of which the women do not take place in the board.

Transparency

Here, the level of transparency of committee actions is analyzed. According to Prokopy (2005) it can be hypothesized that if more households are aware of committee actions, the better the project outcomes will be. For this purpose the awareness of the PMC was asked in the survey on three indicators that show the transparency of the PMC. In Siddhipur, five indicators were asked but because there is no tariff payment in Lubhu these two have been left out of the variable. The indicators show that there is a low awareness of the PMC and their activities in Lubhu, though there are more people who know about the PMC and their

activities in Lubhu than in Siddhipur. In the next chapter a link will be made with the outcomes of the project and the effect of transparency. Transparency of the PMC will be further elaborated and compared with Siddhipur in a forthcoming section of this chapter.

Table 7.9: PMC awareness in the community

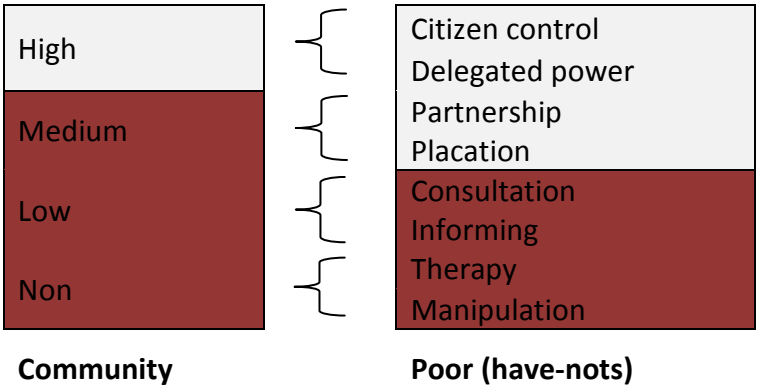
	Yes	No	Don't know
Households aware before construction started that village would be responsible for O&M.	14%	77%	9%
percent of households that know what happens at committee meetings	32%	66%	2%
percent of households that know someone on the committee	34%	66%	0%

Source: Own database

7.3.5 Conclusion: Participation in Lubhu

Linking community participation in Lubhu to the hierarchy of Prokopy, they have a medium form of participation. The poor score *consultation* on the ‘ladder of citizen participation’ by Arnstein.

Figure 7.4: Community participation in Siddhipur



For Lubhu, the participation of the community has involved more than labour and cash contributions to the services. The community has been informed about the project and the PMC was consulted before the final decision. However, in many times, the final decisions about the project’s facilities were made by the implementation NGO. They had planned the project beforehand, so the role of the PMC was, for instance, to prioritise locations to implement the project facilities, to set-up local users committees and to implement the activities. Therefore, the PMC participated in decision making about largely predetermined questions. Through the users committee structure the people targeted by the project were informed and consulted, from the FGD with the community groups there were even

indications of participation in making decisions. On the other hand it is clear that many decisions were already made before informing and consulting the community. The conclusion on community participation in Lubhu is that it is of a medium level. The community can exercise 'voice' and 'choice', but on pre-determined questions from decisions made in the project proposal, which was formulated by the implementation NGO.

The communities role, in particular the poor, because they have been targeted by the project, can be considered as being consulted. Arnstein (1969) argues that the most frequent methods used for consulting people are attitude surveys, neighbourhood meetings and public hearings. These activities were organised during the project. From the survey it was also shown that 455 of the people went to meeting about the project and that half of the people feel their voice had been respected. This indicates the involvement of the people, next to this, during the FGD people also felt they had been consulted. The conclusion that people have been consulted is according to Arnstein not enough participation. He argues that this rung of the ladder is still a sham since it offers no assurance that citizens concerns and ideas are taken into account (Arnstein 1969). When holding on to participation on this level what could have been achieved is the evidence that there has been enough effort in involving people.

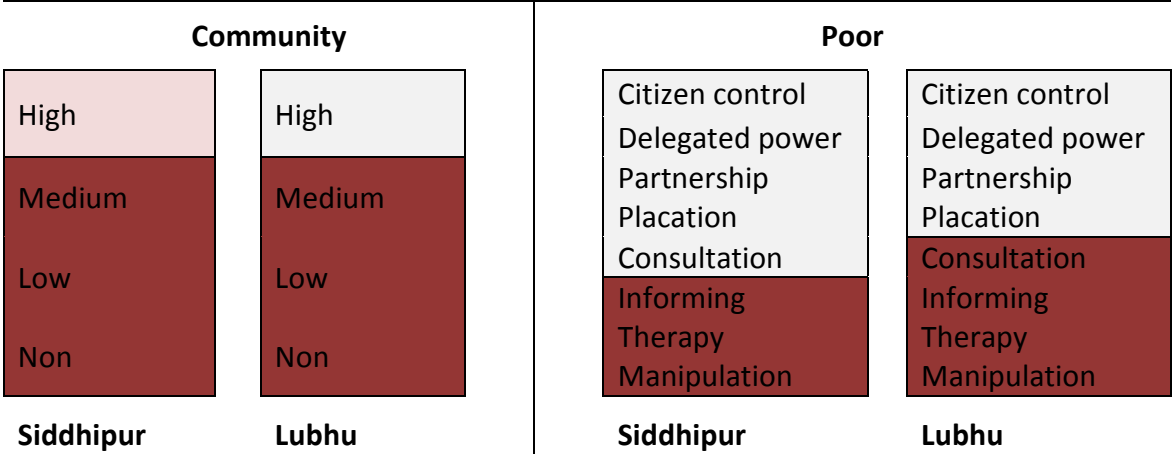
7.4 Comparison

The communities in Lubhu and Siddhipur have played a major role in implementing the projects. For both projects a management committee was set up in the early stage of the project, and these committees were made responsible for implementing the project – with the advice from an implementing NGO. In Siddhipur the WSUC has been more involved in decision-making than the PMC in Lubhu. The proposal of the implementation NGO in Lubhu for the project already had many pre-determined activities. In Siddhipur certain project details had been pre-determined as well, but more project decisions were taken in cooperation between implementation NGO and the WSUC. Thereby has the WSUC developed own initiatives. During the implementation of the project, contributions for constructing the facilities in both communities were high. In Lubhu the contribution for implementation had a more pro-poor foundation, while in Siddhipur there was more equality in contribution. This was possible because more freedom was enjoyed by the WSUC to determine the contributions, whereas in Lubhu the contributions were pre-determined by the implementation NGO. Using the poverty mapping to decide the contribution by local people in construction had a better impact in Lubhu. For the O&M phase, the general facilities in both villages are under the control of the users committees. In general the project in Siddhipur is more demand responsive than Lubhu.

The amount of awareness of the PMC and WSUC in the community is an important indicator of the transparency of these community-based organisations. Analysing the committees'

transparency, it is questioned if the committees represent the people in the villages. The study found that in both communities the transparency of the committees is low. Comparing Siddhipur and Lubhu: although both have a low percentage for transparency, more people are aware of PMC meetings in Lubhu and/or know someone in the committee. This could be the result of the social mobilizing structure of sub-committees that has been set up by the project.

Figure 7.5: Community participation in Siddhipur



7.5 Conclusion

In Siddhipur, active community involvement was certainly there throughout the project and the WSUC have been very important in all stages. The project initiation is partly demand driven and on most of the decisions, the community in the form of the WSUC, was consulted and able to be part of decision making. Though the WSUC is in control of O&M of the system, during the design and implementation phase the committee could not control the design of the project, instead the WSUC was informed but could not make the final decision. The community has had little ‘voice’ and ‘choice’ during the project. Not many people have been informed about decisions that were made, also were the villagers not able to choose the WSUC and have the first elections of the WSUC been postponed. The active involvement of the community was shown dominantly in the implementation phase. In accordance, the WSUC transparency is low, because people don’t know what happens at meetings or are being informed about the budget, financial and performance records of the WSUC. Another factor of community based projects is the inclusion of ‘poor’ in the project. This happened in Siddhipur. Concluding, community participation in the project can be analyzed as medium to high-level in the hierarchy of Prokopy (2005), this is mainly caused by the WSUC. The participation of the users and the poor in particular is very low, and is just at a level of informing the community.

From the assessment in Lubhu it can be concluded that the community was also involved during the different phases of the project. In the design phase the decisions about the

project have been made beforehand and the PMC was involved in prioritizing the facilities. The community was involved during this phase, with respect to the poverty groups, but it showed they were better informed as in Siddhipur. The scope of the Lubhu project could, off course, is a crucial factor in this process. During implementation the contributions were most active and differed according to the poverty status. This has made it attractive for the poor to get involved in the project. From this analysis, also a medium level involvement can be concluded. The next chapter will discuss the outcomes of the project and an attempt will be done to explain the differences in the outcomes/success as determined by the small differences in the community based approach between Lubhu and Siddhipur.

8. Project effectiveness

8.1 Introduction

This chapter will analyse to what extent the community based projects have been effective (i.e. system performance and impact), and what are the reasons for these outcomes. Chapter 6 has elaborated on the community factors that play a role in community based project. Hereafter, the community based approach of the projects has been examined in chapter 7. In this chapter, a closer look will be taken on the effectiveness of the community based approach, as the aim of this study is to contribute to better projects. Therefore, the effectiveness of the projects will be analysed according to the performance of the system and the wider impact on the community. System performance indicators used here are equal access, satisfaction and tariff payment. The impact of the projects refers to the wider effect of the project and will be determined by measurement of health and time savings due to the projects. Ultimately, it will be asked if the effectiveness has been better through the community based approach and how could more effective projects be reached.

8.2 System performance

8.2.1 Equal access

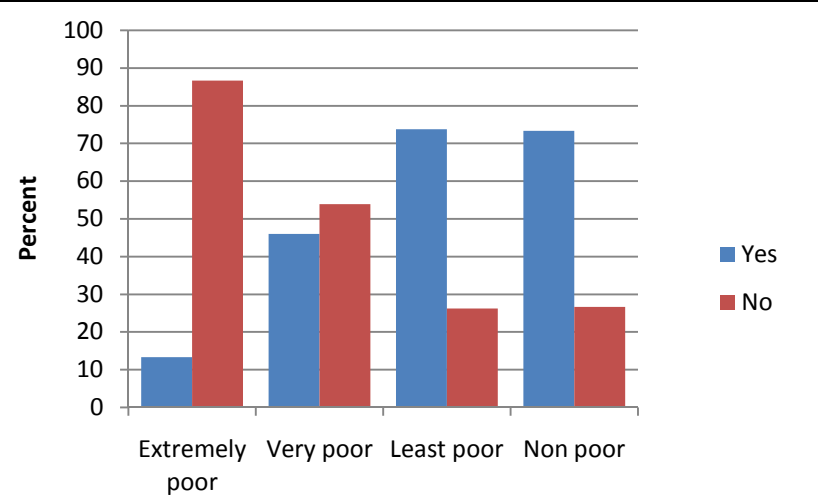
Equal access is an important indicator of system performance and defined as the proportion and nature of people using the service (Dayal, van Wijk & Mukherjee 2000). Equal access is crucial for a sustainable service. The nature of use can be specified for instance by the proportion of men/women or different poverty groups using the service. These categories are all important for the sustainability of the system but do not all cover the interest of this study. Here the focus will be on the inclusion of the poor, as this is part and parcel of a community based approach as defined in this study. Therefore, the question asked here is to what extent the different poverty groups have equal access to WATSAN facilities, i.e. private taps and private toilets, including the reasons for lack of access. Community facilities have theoretically always been equal accessible (e.g. community standposts, pavement, drainage and community dug wells). For a further elaboration on access of the people in Siddhipur I would like to refer to the thesis of JW van Rooij.

Siddhipur: Access of the poor

Figure 8.1 shows unequal access to water services from the project for the poorest groups in the community. In chapter 6, the section about the WATSAN situation of people in Siddhipur, it was shown which sources the people from Siddhipur used as their main source of drinking water. The division there was made between improved and un-improved sources

to analyse their situation, respectively 68 percent and 32 percent. Here the proportion of people using the services from the project will be assessed to get a grip on the increase of access to the improved drinking water services, i.e. private taps. The proportion using a private tap for the whole of Siddhipur is 52,5 percent, according to the WSUC and from the survey a private tap coverage of 56 percent was found. In both cases, the benefit of having a private tap is in Siddhipur dominant for the less poor/ better off groups in the community. In the 'least poor' and 'non-poor' group, a little under 75 percent of the households got a private tap. In the most vulnerable poverty groups, the 'extremely poor' and 'very poor' groups, just below 15 percent and 50 percent respectively of the households have a private tap connection.

Figure 8.1: Private tap connections per poverty ranking



Source: Own database 2009

Equal access gives a perspective where the poor are excluded. As shown there is unequal access of the poor to water supply facilities from the project. As this evaluation is conducted within three years of the formal ending of the project, the project is still running and operated by the WSUC. Therefore, access to the service should be controlled by looking at the sustainability of the project on the long run, because it might be the case if there is a inclusive project it would be financial not sustainable (Tuladhar, 2009). An inclusive project would mean that also the poor would have even access to the services. But because they are poor, what could be assumed is they would have difficulties in paying the water charges. If this would be the case for many household it could endanger the financial sustainability of the system. Therefore, strategically, the WSUC could have chosen to make sure the system is financial sustainable and later include the poor in the system.

Most of the households in Siddhipur have a private toilet in or at their house (96 percent access to service). In the survey, it was found that all the 'least poor' and 'non-poor' households had a private toilet, while of the 'extremely'- and 'very poor' households around 90 percent have a private toilet. The few people that do not have a private toilet cite that they have no money or no space to build a toilet, or that they don't know why they weren't included in the project toilet scheme. There are furthermore two households that received a private toilet from the project but who didn't finish constructing it, so they are still using the community toilets. These households quoted to have no money to finish the toilet. In the survey for this research, 45 households have constructed a toilet under the project scheme.

Table 8.1: Percentage households in the survey with a toilet, and with a toilet from project

	Private toilet percent	Toilet from project percent
Extremely poor	90	53
Very poor	93	30
Least poor	100	7
Non poor	100	0

Source: own database

Reasons for unequal access

There are several problems in reaching the most vulnerable groups in Siddhipur. As improved drinking water is concerned however, the most vulnerable groups have not been reached as much by the project. The connection charge is very high for the extremely poor households, and among the 'very poor' category there are also a lot of households that say they don't have a private tap because of the high costs. Although the monthly minimal charge of NRs 50 might not be a problem for many of these households, the high connection fees are. The pro-poor initiatives that were implemented by the project, such as the possibility to pay in instalments and working together with credit groups appear to not have been enough to get the most vulnerable into the private tap scheme. Many of the poor are however satisfied with going to the stand post for water, but it is worrying that the project undertook nothing to improve the water quality of the stand posts. It is furthermore a bad measure that the water hours from the stand posts have been reduced since the project. This means that the water situation for the most poor has not only deteriorated relatively to the better off groups, as these groups were able to install private taps, but the water situation for many of the most poor households has also deteriorated in absolute terms, as they get less water hours. With respect to building toilets, the subsidized toilets went mostly to households in the 'extremely poor' and 'very poor' groups. This is because they had relatively few toilets installed already before the project.

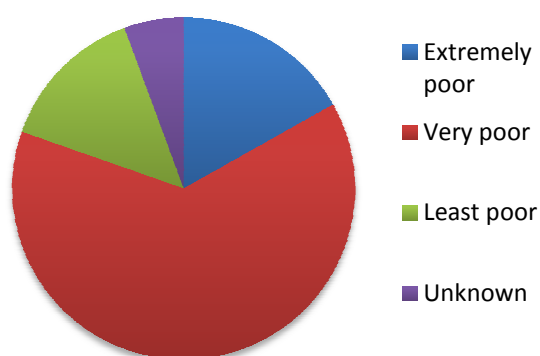
Low participation

The project pro-poor instalment was not demand responsive. A pro-poor instalment in the project was taken up for household who could not pay for the private tap. The community taps would be renovated and the quality of the water improved. This would mean that for every community tap there would be 5 to 7 households who used the tap and with a meter they would also pay for water (Sherpa, 2009). It was envisioned by the planners that the private taps would be too expensive for the poor households. This would be taken care of with the use of the public taps. The project management announced this option but no one came forward to make use of it. There was no incentive from the community to use this option, or they couldn't form groups for it (Sherpa, 2009). Therefore the public tap option was dropped and these taps still provide low quality water for free. The failure of this pro-poor initiative could be linked to the low participation of the poor in decision making. While these plans were taken up without negotiation with the poor in practice it was not effective. It increases the unequal access to water supply, which could have effects on the long term sustainability. It is still an option that the poor are included in the scheme on the long run.

Lubhu: access of the poor

The aim of the project was to reach 100 percent toilet coverage; therefore the proportion with access to sanitation services is 100 percent. This study has found only two households in Lubhu without a toilet (elaborated in chapter 5). The majority of the toilets that were built in Lubhu were for households in the 'very poor' category. 18 toilets were built for 'extremely poor' households, while none of the 'non-poor' households received a toilet from the

Figure 8.2: proportion of toilets build



Source: own database

project scheme, as they all had a toilet already. Because there are not many households in the extremely poor category in Lubhu, this category has benefitted relatively much from the project. Not all households had finished constructing the upper part of their toilet however. 17 percent of the respondents had not finished the toilet. The poorer groups had a higher percentage of unfinished toilets than the better off groups. This indicates that it is more difficult for the poorest groups to complete the upper part themselves. In the survey, these households complain that they do not have the money to construct the upper part themselves or to pay for labourers to do so. 35 of the respondents in the survey that was done in Lubhu were using the renovated dug wells (roughly one third of the respondents). From the different poverty categories the following percentages of the households have access to the water service, i.e. dug well: 'extremely poor' 22,9 percent; 'very poor' 66 percent; and 'least poor' 11,4 percent. Compared to the village, with 5.9 percent, 52.0percent and 35.5percent respectively for the

groups, the share of use by the poor is relatively high. The renovated dug wells improve the poorest groups' access to clean water.

Reasons for lack of access Lubhu

One of the starting points of the project in Lubhu was the focus on the butchers' community. CIUD has the aim of reaching the poorest groups in the community, and as the project initially had a very limited budget, it sought to support the groups that were most in need. The butchers' community came out as the area that was in need of a development project most. The butchers are considered as *Dalits* and this study found that some households in the community face difficulties in fetching water, as they are not allowed to use some of the stand posts. In the end however, many of the plans that had been developed for the butchers' community such as slaughterhouse and wastewater treatment plant have failed to materialize. All the partners, and particularly implementation NGO, have gone through great efforts to construct the slaughterhouse, but in the end it was the choice of some of the households concerned to not cooperate with the project. Although this is in no way the fault of any of the project partners, it has to be noted that because of this the most vulnerable group in Lubhu has not been reached as was intended.

8.2.2 Consumer satisfaction

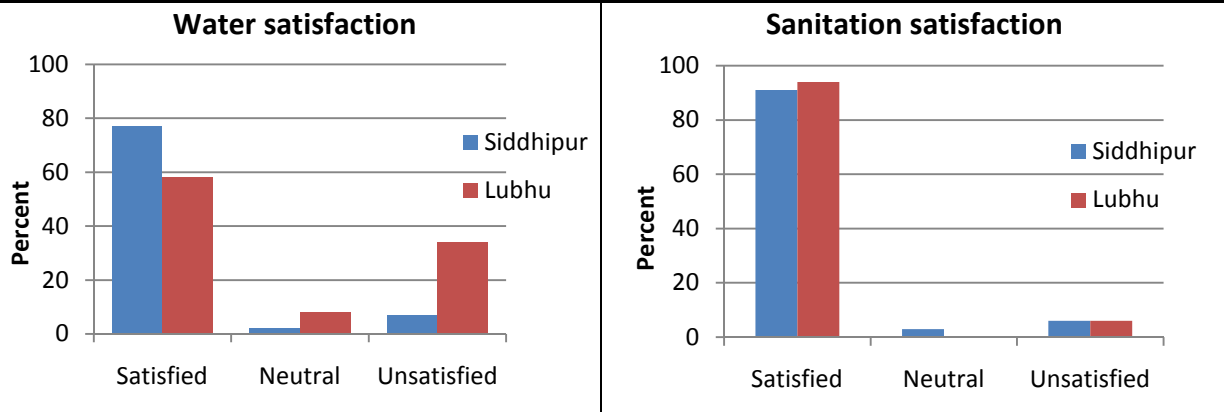
The project proved to be a great success regarding the satisfaction rates of the people. But when assessing the demand responsiveness through a different method do the same results show? Consumer satisfaction is a relevant indicator for sustainability of the services. This is assessed by the percentage of the households in the villages that reported being either 'very satisfied' or 'satisfied' with the new scheme. Survey data for measuring satisfaction is flawed though, therefore a FGD was held to see if the same satisfaction would come up from a discussion between community members. This shows whether the consumers are satisfied with the design of the service, feel ownership over the services and want to sustain the service over a longer period.

Siddhipur

The satisfaction rate of households that have a private tap from the project is very high. 77percent of the respondents answer that their household is satisfied or very satisfied with their tap water. This is a clear indication that the scheme has been a success and that the users in Siddhipur are content with the services provided. The target of the project was to include all the people in water supply, through private tap, community tap or else, therefore all the households are involved in the analysis, with or without a private tap from the project. The households with a private tap respond a satisfaction rate that is even higher, 97percent are satisfied or very satisfied. For households without a private tap, 72percent is satisfied. Most people of the latter are unsatisfied because other people in the village have a private tap and they don't. Consequential, the water they have to use from the public

standpost is of less quality than water from the private taps, even more so in the rainy season (seasonality). Further complaints were mentioned regarding the quantity of the water, it is not always enough and with problems getting a private tap connection. The people with a toilet from the project show an equal satisfaction as with water supply.

Figure 8.3 : Satisfaction with water from the project



Source: own database

Demand responsiveness in Siddhipur

From the FGD these are the perceived benefits of the extremely poor group:

1. Drinking water
2. Health
3. Cleanliness
4. Toilets
5. Drainage
6. Pavements

The perceived benefits are ranked in importance for the poorer group. Thus, for the poorer women drinking water is the most important benefit and pavement, also a benefit, but less important. These benefits give an indication if the demands of the particular group is being met. For the poorer group, this would mean their drinking water demands are being met, so far, as they gave it the highest importance of all benefits. This correlates with the satisfaction rate that was perceived in Siddhipur, and thus strengthens the conclusion that people are satisfied with the project facilities.

Reasons for satisfaction

The community has benefitted from the project against low costs. Through relatively low costs a number of people in Siddhipur have access to clean water at the moment. Looking towards the water sanitation before the project. Before the project 10 percent of the household in Siddhipur had access to an improved drinking water source and 35 percent access to adequate sanitation at the home. This has risen to 68 and 95 percent respectively.

Taking into account the quality improvement and therefore less risk to waterborne diseases the high satisfaction rate can be partly explained. The high level of participation in Siddhipur could also have affected the satisfaction. From the FGD it has become clear that the poorest group, which has the least access to water at the home, still value drinking water as the most important benefit from the project. In the FGD with poorest women only one woman had access to a private tap. This shows the demand responsiveness of the project.

Lubhu

The satisfaction rate among the households in Lubhu is also high. People are satisfied with the renovated dug wells, though there is also critique. The reasons why respondents are not satisfied are that there is less water than before, and that the pumps are not nice to use. In the focus group discussions people said they preferred taking the water out with buckets. Satisfaction with the sanitation facilities from the project is even higher than Siddhipur; this is influenced by the fact that all the people who have been in the sample in Lubhu have received a toilet from the project.

35 of the respondents in the survey that was done in Lubhu were using the renovated dug wells (roughly one third of the respondents). 50 percent of these users noted that water quality of the wells got better or much better after the project, while 34 percent claimed that the water quality had degraded. The main reasons quoted for the decline in water quality in the dug wells are that they are now covered, so no fresh air can get in. The satisfaction rates of the renovated dug wells are: 57 percent of the respondents are satisfied to very satisfied, while 34 percent are unsatisfied to very unsatisfied.

8.2.3 Tariff payment

One way to indicate financial sustainability is by the percentage of households who use the system and who report that they pay the tariff. The people in Siddhipur with a private tap pay the charges for water supply. They feel ownership over the system and by paying the tariff the costs for water can be covered so that the system will operate in a financial sustainable manner. This variable does not, however, tell us if the payment off tariff is sufficient to cover all the cost for operating a system. The issue of coverage will be slightly touched upon later on the basis of the data collected from the FGD with the WSUC.

Siddhipur

These charges (table 8.2) are currently used by the WSUC for the use of water from private taps. The use of community taps is not charged. These charges differ somewhat from the original plan. In the original plan, calculated for a longer period of using the system, charges for the use of water from private taps AND water from public standpost were included. Users with a private tap would be charged NRs 75 for the first 7000 litres and extra for more use. Standpost users would pay 50 NRs per month. Through problems the plan for the public

standposts have been dropped the use of standposts is not charged. The charges for using water from private taps have been lowered subsequently.

Table 8.2: Charges for water

Liters	NRs.
First 7000 liters:	50
7000 – 10000	12 extra per 1.000 liter
10.000 – 15.000	15 extra per 1.000 liter
above 15.000	20 extra per 1.000 liter

Source: ENPHO, 2005

Dayal, Wijk, & Mukherjee, (2000) use two indicators for effective financing of a water supply system. These two indicators are the coverage of investment and recurrent costs and the universality and timeliness of payment. From the survey, the self-reported tariff payment is 100 percent. This means all the households with a private tap pay tariff for the use of water. This has been confirmed by the WSUC who that apart from a couple of ‘organisations’ located in the village, like, the health post and the Buddhist monastery, all the households connected to the new system have paid their fees. The WSUC makes a yearly budget of the expected costs and benefits and makes up a financial record at the end of the year. To organize the budget all the household who are obliged to pay water tariff are identifiable and listed. The financial records show that all the households have paid in the last 3 years. There is only a small section of the households (2/3 percent) that paid late (FGD WSUC). Thus, looking at the payment off tariff, universality and timeliness of payments is guaranteed. This does however not indicate if the tariff is sufficient to cover the costs. It is a very complex task to analyse the financial sustainability of the system in Siddhipur, even more taking into account the operation period of the service has just exceeded three years and is out of the range of this study.

Reasons for payment

Several reasons for the universality and timeliness of payment can be mentioned. First of all, people are able and want to pay for good service. The WSUC has received training to set the tariff of the system. There is also a penalty for late payers making the incentive to pay late non-rewarding. Secondly, participation in the project develops ownership and this makes the people want to sustain the system and therefore pay tariff. A point of critique could be mentioned toward the future of the water supply system. The budget and financial records have so far not been discussed with the users. This could be changed to make the community more aware of WSUC activities and performance. This would furthermore increase the WSUC’s accountability towards the users. Ideally the users should also have a say in the budget decisions.

Lubhu

All people reported the payment of tariff for the use of water. From the survey 100 households responded the payment of water and the additional 7 of the sample didn't know. It is for every household compulsory to pay NRs. 100 per year for the use of the piped system which distributes *Chapakharka* and *Dovan* water. The amount of the tariff is very low and it is very much questionable if this indicates anything of the financial sustainability. The piped system is 30 years old, managed by the Nepal rural water authority (DWSS) and in a deplorable situation. Of the 49 standpost connected to the system, not one is working because of the low pressure at the tap, therefore people have broken the water line at ground level to fetch the water.

8.3 Impact

Apart from looking at the outcomes of the project, such as at access to the service and satisfaction with the system, this study also seeks to measure the wider impact of the project in terms of better health and time savings. For instance, when people are in better health they can spend more time being economically active, support their livelihood, and ideally escape from poverty. This - off course - also accounts for time saved for hauling water. It is assumed that the projects, especially Siddhipur, have had a great impact on the communities and is therefore taken up here.

8.3.1 Health

Self reported health

The survey included a section on the health impact of the project on the community. It was asked if there was any change in the general health condition of the household since the project and more specific about changes in the occurrence of typical water borne diseases. The majority of the households that were surveyed indicate that their household is in better health since the project. For the 'extremely poor' and 'very poor' groups, just over 50 percent of the respondents' families are in better health since the project, while this figure lies slightly higher at 63 and 60 percent for the 'least poor' and 'non-poor' groups respectively. The survey also looked at the differences in the occurrence of several water borne diseases before and after the project. The survey results are shown in table 8.3. The figures show that the occurrence of diarrhoea has declined quite steeply, as has dysentery. For typhoid and worms this decline is less obvious and eye and skin infections have actually gone up since the project.

Table 8.3: Occurrence in percentage of several water borne diseases before and after the project in Siddhipur

	Diarrhoea	Eye and skin infections	Dysentery	Typhoid	Worms
More often	14	33,5	15	20	25
No change	22	33,5	21	41	36,5
Less often	60	28	60	34	31,5
Don't know	4	5	4	5	7

Source: own database

In Lubhu, like in Siddhipur, the differences in family health before and after the project were asked in the survey. Most of the respondents answered that their household was in better health after the project. 73 percent of the respondents claimed to be in better health, while 25 percent said their health had not changed since the project. Looking at the differences in health changes per poverty group, a difference can be noted. Around 81 percent of the respondents from the 'least poor' and 'non-poor' groups said their households were in better health since the project. This percentage was distinctly lower for the 'extremely poor' and 'very poor' groups, of which 61 percent and 73 percent respectively said to have families in better health.

Table 8.4: Occurrence in percentage of several water borne diseases before and after the project in Lubhu

	Diarrhoea	Eye and skin infections	Dysentery	Typhoid	Worms
More often	4	8	3	4	1
No change	44	59	62	61	59
Less often	46	29	30	30	34
Don't know	6	4	5	5	6

Source: own database

Looking at the individual water borne diseases in table 8.4, the majority of the respondents saw no change in occurrence of the diseases, except for diarrhoea, where the biggest group noted that there was less diarrhoea in their household. Only very few people said they had a bigger occurrence of diseases in their family since the project.

8.3.2 Time savings

Siddhipur

The time spent on collecting water every day has changed positively, and is a clear indicator of the impact of the project. In general a household spends 18 minutes less to fetch water. This is an accomplishment off the project and relates – off course – to the instalment of private taps. The difference in tap connections among the four poverty groups clearly shows

from the amount of time spent to collect water (table). The better of groups, have decreased their time on collecting water since the project dramatically, while the more vulnerable groups saved much less time. The least change is observed for the extremely poor, who on average spend 4 minutes less on fetching water. The implication of these timesavings for the households in Siddhipur are: 70 percent of the households who have timesavings use this (extra) time for household tasks, other many repeated use of extra time are income generating work (14percent) and leisure (10percent).

Table 8.5: Timesavings Siddhipur in minutes

	Before project	After project	Time savings
Extremely poor	21	17	4
Very poor	23	9	14
Least poor	27	2	25
Non poor	29	5	24
General¹⁶	25	7	18

Source: Own database

Lubhu

Lubhu doesn't know time savings as in Siddhipur because there are no new water facilities in the village; the project has renovated 20 dug wells. Therefore, the median and mean time to fetch drinking water for the respondents before and after the project is around 60 minutes. This is much higher than after the project in Siddhipur, there, the time has been reduced to an average of 18 minutes which accounts for a difference of 42 minutes between the villages, which is extraordinary.

Table 8.6: Time savings Lubhu in minutes¹⁷

	Before and after the project	Time savings
Extremely poor	50	0
Very poor	60	0
Least poor	61	0
General	60	0

Source: own database

¹⁶ weighted on the relative size of the poverty groups in the sample

¹⁷ The results in the table only represent the sample. The results are not valid for the population of Lubhu.

8.4 Conclusion

In general, both project can be regarded a success. This study has chosen five unique measures to assess the effectiveness of the projects. Three of these are indicators for the performance of the system and two cover the wider impact of the services on the community. The reader can choose which indicator he or she finds important to assess the project effectiveness. The indicators do not form an index variable, though when taking the five indicators in account, except from access of the poor to private taps in Siddhipur, both projects show a good performance of the system which have a wider impact.

There are a few main reasons that hamper the effectiveness of the project. This study assumes relationship between community based projects and effectiveness of the projects. One of the major parts of the community based projects is the use of local knowledge in the project plans. The results from chapter three make clear that even though the participation for the community is high and medium on Siddhipur and Lubhu respectively, the participation of the poor is relatively low. They did not have the power to make their voice heard and negotiate their demands. Their lack in the participation in the planning phase of the project might have hampered the success of some of the pro-poor elements of the project like the community stand-posts in Siddhipur and the slaughterhouse in the butcher's district in Lubhu. Next to this, other factors have played a role, especially in the failure of the slaughter house. Early involvement of the community could have adjusted the plans in an earlier stage.

Finally, the systems performance and the impact not only show the success of the projects but also give an idea about the long term sustainability of the project facilities. In Siddhipur, the universality and timeliness of tariff payment, high satisfaction of the users with the services and over time a more equal access for the rich and poor might be indicators of a sustainable project. These, among many other factors are of influence of the long term sustainability of a project, so this is only a first indication. In Lubhu, the services are less reactive to the system performance. Most services elements, such as, the dug wells pavements and drainage are less depended upon operation and management and have their own users committees and the toilets are the responsibility of the users themselves.

9. Conclusions and Recommendations

9.1 Introduction

Both projects have shown to be effective community based projects in some areas and less in other. The aim of the study was to supplement the knowledge of the community based approach therefore it is constructive to put emphasis on the factors that could make these projects even better. This final chapter will recoup this study and formulate a final conclusion and make recommendations. The sub questions of this study will guide this conclusion and the main question will be answered in the final conclusion. For clarity purpose these are once more given:

Main Question

What are the factors which lead to a more effective community based approach of WATSAN projects in Periurban villages in the Kathmandu valley?

Sub-questions

- *Which community characteristics and main trends can be observed in the periurban communities of Siddhipur and Lubhu regarding factors which could lead to a more effective community based WATSAN project?*
- *To what extent does the project represent a joint effort between government staff and the community, poor and non-poor, in service design, implementation, and operation and management (O&M)?*
- *To what extent have the community based projects been effective (i.e. system performance and impact), and what are the reasons for these outcomes?*

9.2 Factors

The projects have targeted an area that has been neglected before. That is a big accomplishment and a great challenge at the same time. The location is problematic for supply of WATSAN. Areas have been neglected in the development process in contrary to the fast infrastructural development of Kathmandu metropolitan city.

Urbanization process

The urbanization of the communities into the village periurban type has given insights in relevant institutional structures present. It is hypothesized that the periurban context has an

influence on the institutional set-up of the communities which could hamper an effective community based approach. In chapter five, the analysis has elaborated on the classification of Siddhipur and Lubhu in the village periurban type. This type constitutes of traditional agricultural villages with urban influences through out-migration, mass-media and an increasing amount of people who work in non-agricultural related economic activities. This is related to an institutional framework based on traditional institutional structures. It is argued by laquinta and Drescher (2005) that these traditional structures are often resistant to change; therefore they might incorporate change very slow and often through a process of redefinition. The most likely type of adaptation would be novel solutions which maintain the appearance of tradition and meet modern sector needs (laquinta & Drescher, 2000). A differentiating element from the village periurban type is that the communities are relatively close to the city.

These insights allow concluding that it is important to deliberately involve the communities in finding solutions to water and sanitation problems and services in general. Regarding the communities under study here, the institutional structure linked to the village periurban typology of laquinta & Drescher (2000) can be found instrumental for the success of a project. *“Our framework — albeit incomplete — is still a useful conceptual tool for asking policy questions about why interventions work in some areas and not in others. It provides clues as to how to modify interventions and increase the likelihood of success”* (laquinta & Drescher, 2000). The village periurban typology of Siddhipur and Lubhu has given insight into possible institutional structures present which could hamper an effective community based approach. Participation of the community will increase the demand responsiveness of the project facilities. Demand responsive facilities are a prerequisite taking into account their resistant to change. In order to have sustainable facilities the communities should have influence on the direction of the project. Finding novel solutions that have an appearance of tradition should be informed by the local community. This is highly sensitive because of their resistance to change.

Box 2: Reflection on the periurban typology

The periurban typology gives insights into the consequences of an ongoing process of urbanization in these communities that are close to the city. The communities have witnessed a process of in-migration from the city in recent years. Further there is an ongoing process of expansion of Kathmandu towards the communities. laquinta and Drescher (2000), give examples of challenges which could occur in the in-place periurban type. This type could be a logic scenario for Siddhipur and Lubhu. They have noticed the likelihood of increasing newcomer-oldtimer conflicts in periurban areas with large numbers of in-migrants from the city. According to the institutional setup related to the village periurban type, laquinta and Drescher (2000) explain the traditional institutional structures make these communities

resistant to change. With ongoing processes of urbanization new challenges can occur in the future and for expansion of the water and sanitation services

An encountered problem of the periurban typology of laquinta and Drescher is that they are distinct in five classes. This makes the characterisation of the communities under one type volatile. However, this study has shown it does give valuable insights on the institutional structures and framework of the communities. Understanding of the institutional set-up is an important aspect of sound community based planning. Siddhipur and Lubhu are classified within the same periurban class though these communities differ on many aspects as well. Thus, non-similar communities are presented under an umbrella term, while, when examined in more detail, these communities differ on several aspects, and might have different responses to development interventions. For instance, while both traditional agricultural villages, rather proximate to the city; Lubhu has a more ethnically and caste-wise mixed population. This is a flaw in the typology of laquinta and Drescher (2000).

Another important factor is the will of the community to participate in the project. This study has not analysed the effect of social capital on the community based approach because it is out of its scope. From interviews with NGO staff it can be concluded that one of the major factors to initiate the project were the communities. Both communities and Siddhipur in particular, have strong social ties and community structures. The homogeneous character of the communities could be important factors for their social capital. For Siddhipur, the community made it easy to work there because the community was relatively organised. This made a fast-track approach possible. If this social organisation is lacking effort should be made to organise the community which makes it possible to implement a community based project.

Government

The Government's enabling policy support the community's involvement in service delivery, but it lacks the capacity which makes a joint effort between the community and relevant water authorities difficult. Nepal's government structure is very weak. At the central level the government has an enabling policy which is looking for partnerships with other actors, like NGOs and supra-national organisations like UN-HABITAT. These actors are taken up in policy making and steering action for improvement of the WATSAN situation. In the case of Siddhipur and Lubhu there is no interest in these small interventions, as the central authorities are more concerned with mega projects like the Melamchi Project. At the local level involved institutions are the VDC and DDC but these also lack capacity. However, the project in Siddhipur was able to involve these institutions in the allocation of funds. The project in Siddhipur is a community wide project which makes it politically valid to support as there is no conflict over resource by different groups. This is less so in the case of Lubhu, where the involvement of the government was very low.

NGOs

The role of NGOs in the development interventions here has been instrumental to the effectiveness of the project. There has been a lot of effort to make the projects a success and this has obviously worked as elaborated in chapter 8. These NGOs were CIUD in Lubhu and ENPHO in Siddhipur. A critical point which can be raised regarding the role of the implementation NGO is what has been named in the literature *unfair burdens* for the local community. After completion of the construction of facilities the implementation NGO will initiate another project in a different area, therefore the responsibilities for the facilities have been ceremonially handed over to the community. Capacity building efforts by the community, such as, training programmes, can be helpful but the community lacks the expertise in comparison to the professional NGO staff. Therefore, NGOs have been crucial in the effectiveness of the project but there is also the idea that the project would not become such a success if the project from experts in the field of WATSAN outside of the village. This could place unfair burdens on the community in O&M phase when the NGO has left.

Planning approach

The poverty mapping exercise has classified the households into four poverty categories, and was carried out to effectively locate and target the poor. The methodology is developed by UN-HABITAT and specifically customised to be used in periurban areas. Concluding it has been observed that the poverty mapping approach in Siddhipur and Lubhu has been invaluable for the project. The mapping made clear where the poor lived and what problems they encountered. But this study has also encountered issues regarding the poverty mapping. Points of critique are: first, a household survey may not always give an adequate view of the situation. Second, the method to classify the poor is too simple. While there are a lot of indicators these indicators don't incorporate some important aspects of a household's poverty situation, for instance, education level and income. As the method is designed to be used next to income indicators, people's classification can be adjusted but this takes a lot of work. Third, the method is not very users' friendly. People don't want to be named extremely poor or very poor. And fourth the method can be too technical for the local community or water users committee, and they have to use the mapping in the end. Though the projects management was very aware of the problems and tried to make the poverty mapping workable, these issues concerning the poverty mapping could have had an effect on the outcomes of the project. Suitable solutions should be considered for making the poverty mapping a better tool.

9.3 Community participation

It was hypothesised that an effective community based approach is depended upon the joint effort between government, NGOs and the community. These relevant institutions, in the context of the community based projects in Lubhu and Siddhipur, have been discussed except for the community. Whereas the community concerns, the conclusion will be elaborate because of hypotheses three and four (i.e., the project aimed at a community

based approach, therefore it can be hypothesized that the level of participation is very high and the poor have less participated in the project than better off in the community)

Community based?

The participation of the community in Siddhipur and Lubhu was medium-high and medium respectively. Especially the WSUC and PMC, the local WATSAN users committees, have had many responsibilities and have been crucial in the community based approach of the projects. The community and particularly the poor however were less involved. It can be concluded that it is doubtful if their voice have been heard and has been taken into account by the decision makers. Following the theory, a high level of participation can create ownership by the community and sustainable project facilities. Thus, the projects' community based approach could have supported the sustainability and ownership over the services, but carefulness is suited and a more detailed picture has come forward from this study. The aim of this study has been to contribute to the knowledge about community based projects, so that implementers can better plan these projects. According the aim, this study is critical towards the projects, for instance, about the participation of the poor.

Siddhipur: WSUC

An important part of the community based approach has been the initiation of a local WATSAN users committee. These committees have been set up to implement the projects and were granted many responsibilities. This has lead on the one hand to a very high participation level, in which they developed their own initiatives, over which they have full control. As a result, leadership and capacity building have developed very strong in Siddhipur and is shown by the acquisition of funds from the VDC and DDC, over which the committee had full control. Prokopy (2005) and Arnstein (1969) have hierarchically rated this form of participation very high. Regarding the effects of this high degree of participation benefits that have been favoured are a more effective, efficient and sustainable service.

Though some issues can be raised, about the accountability and responsiveness of the WSUC towards its users. Informing the community more would make the WSUC more accountable. Another way of expanding accountability by organising WSUC elections. According to the WSUC's rules and regulations, the WSUC should be re-elected every two years. At this moment, the WSUC is operating the system for more than two years and elections should have been held according to the rules. This has not been the case and no elections have been planned so far. There have furthermore not been any general assemblies about the project after completion of the project. According to regulations, these should also be held once a year. According to the WSUC, a general assembly has not been planned so far because everyone is very satisfied with the services. While – off course - not everyone can take part in decision-making the people in Siddhipur have been lacking information about the project and the activities of the WSUC. For instance, project decisions in the design phase, the WSUCs yearly budget and financial records are not shared with the community, while they have a right to be informed as users of the facilities.

Siddhipur: Community

On the other hand the community itself and the poor in particular have hardly been involved. Their main participation has occurred during the implementation phase, by contributing labour and money to the project. According to Prokopy (2005) this is a low form of participation. On the 'ladder of citizen participation' by Arnstein (1969) the community have participated through *informing*. The process of informing was a one-way flow of information from the project management to the community. The transparency index in chapter 7 showed the WSUC activities are unknown, which resulted in a low transparency. In regard of informing, Arnstein argues it is a first step towards legitimate citizen participation, but with no channel provided for feedback and no power for negotiation. For instance, yearly budgets, financial records and no-elections show the people do not have a channel to be heard. This could negatively affect the benefits of community participation, such as, the effectiveness and sustainability and the takeover of benefits by local elites.

Lubhu: PMC

During the planning phase, the implementation NGO made many of the key decisions; particular in relation to choice of technology and level of services. The PMC was involved by making decisions about predetermined questions; therefore the participation is lower than Siddhipur and represents a medium level in the hierarchy of Prokopy. This means, the community had not much power to really have influence on the direction of the project. The support of the community based approach towards the effectiveness and sustainability of the facilities is therefore questionable. There is a low awareness of the project and the PMC in the community. The community level social mobilizing structure is in place to make people aware about the project, but it has been proven to be very difficult to make people aware of the projects activities during the project. It was also brought up that it was difficult to mobilize the people for project awareness. As in Siddhipur, the people are often involved in several income generating activities, so they have to share their time between, for instance, office work and farming. With the lack of time that people have, it has been difficult to motivate them to participate in the project.

Lubhu: Community

The users and particularly the poor participated to the rung of consultation in Lubhu. The UC structure in Lubhu made more people informed about the project and therefore the rung is higher compared to Siddhipur. Participation was clearer, because of the social mobilizing structure of local user committees. The UCs was given responsibility to implement the project and mobilize the community under supervision of the PMC. The method has shown effective because the awareness of the project and PMC was higher in Lubhu in comparison the Siddhipur, though still it was low. The representation of the community at meetings was 50 percent and the community FGD showed the people felt involved in the project. Arnstein

(1969) classified the rung of consultation as part of tokenism. It means, consulting people is a step forward in comparison to informing but still it is no assurance that the citizen concerns and issues are taken into account.

9.4 Outcomes

System performance

Regarding system performance it was hypothesised the poor would have less access to WATSAN facilities from the project in comparison to better off in the community. In Lubhu it can be concluded that the project was aimed at the poor by pro-poor policies, such as, subsidizing according to the poverty status of the household. These policies prioritised the poor and they have access to the facilities of the projects. The overall participation of the community in Lubhu was lower than in Siddhipur. In Siddhipur the community participation was very high, though the participation of the poor was low. The access of the poor to private taps has been less in comparison to the better off. In the literature equal access is mentioned as an important indicator for system performance and the sustainability of the facilities (Prokopy, 2005; Dayal, Wijk, & Mukherjee, 2000). Therefore, in the long run it would be positive for the facilities that the households which have been classified as extremely poor or very poor become connected to the system.

Other indicators of system performance in this study have been satisfaction and tariff payment. These measures can be used to address whether the project has been a success (Prokopy, 2005). The satisfaction rates of project facilities are very high, but complaints have also been mentioned towards the water facilities in Lubhu. In general there were many complaints about the water sources in Lubhu, but these were not targeted by project. Tariff payment in Lubhu is universal and timeliness. Dayal, Wijk, & Mukherjee (2000) see this as an indicator of financial sustainability, though it is not an indicator to assess if all costs are covered by the payment of tariff by the users.

Impact

It was expected that the health situation of the households has improved. As the water and sanitary situation in the communities was worst before the project started, there was much to gain for these households. Chapter five has shown the situation before and after the project and the improvements in health are remarkable. Regarding the different poverty groups in Siddhipur and in Lubhu, it can be concluded that no significant difference occurred between the different groups. The poorest households in Siddhipur reported just over 50 percent health improvement. The other households, particularly from the least poor and non-poor categories reported in 60 percent of the households they were in better health. Linking this to the assessment of access it is shown that those better off households have gained more from the project in comparison to the poor. However, the differences in self

reported health are very small. In Lubhu the people also reported improvements in their health situation.

Through water supply at the home for the first time in Siddhipur, timesavings have been substantial. For the village as a whole the time to fetch water has decreased 18 minutes (to go to the source, fetch water and to come back). The largest decrease is witnessed for the better off in the community as these households have the most private taps. This means for the better off timesavings count up to 25 minutes to fetch water and for the poorest there is only a timesaving of 4 minutes for one trip to the source. The impact of the projects is therefore much higher for better off in the community compared to the poorest.

9.5 Final conclusion

An array of factors is of influence to a projects success or failure. UN-HABITAT and its partners have addressed the WTSAN issues in periurban Kathmandu. These areas are complex and have been neglected by development efforts so far. The goal of this study has been to get a broad overview of the project and supplement the present knowledge which is needed to better implement community based WATSAN services in periurban areas. The following final conclusions can be made up.

Summarizing the conclusions made above, it can be said that participation of local people in projects like those researched does not bring successful or sustainable projects in itself. This study has assessed poor people's participation in the projects. The assessment has formulated a contradiction between high and medium community participation and a low level of involvement of poor people. Dayal, Wijk, & Mukherjee, (2000) approach towards this issues has been: *"it is not the question if participation contributes to sustainability. The crux of the matter is now seems to be whose demand and sustainability for whom?"* To make the assessment the poverty mapping and the subsequent groups derived from it gave the opportunity for this study to do so in a relatively short period of time. The question is: who participates in the projects? As shown, the poverty mapping exercise has given insight into the needs and well being of the project communities. Making use of other than only economic indicators for classifying this method is a way forward in approaching development projects and in line with contemporary cultural wave in development thinking: people are not only poor if they do not have money. The poverty mapping method has even more significance because of the possibility to use it in periurban areas, which have often been neglected by development interventions in Nepal. The information extracted from the poverty mapping can and should be used to target the poorest segments of communities involved.

This study found however that the local committees that were in control of the projects did not have the pro-poor focus that UN-HABITAT and the other NGOs involved in the project

had. The above has shown that the participatory element in the projects is both a strong and a weak point. The local communities are committed to the projects and feel ownership over it. But it did sidetrack the pro-poor targets of the projects. It cannot be expected from local communities that they put an equal focus on reaching the poorest, but this does have consequences for what can be expected from development projects. For an organisation such as UN-HABITAT, it means that a trade-off must be made between letting the local communities have more power and thereby losing some of their objectives, or taking more control of the project to assure that their (other) objectives are reached

The projects have been effective but can be made more effective by institutionalising the participation of the poor. The system is performing in an operational matter and has satisfied users. The health implications have also been substantial as with the time savings, particularly in Siddhipur, which allows people to enrol in income generating activities. A critical point is the equal access of facilities and participation of the poor in decision making and O&M. To improve these issues, the poverty mapping approach should be adjusted so that the WSUC can have an effective instrument. When giving a lot of power to the WSUC, without proper instruments the pro-poor approach could be lost. In this case NGOs are important as they have to make a trade off between giving a lot of power to the community and reaching their objectives. Government structures are very weak in Nepal and a joint effort is not always possible but, particularly the project in Siddhipur has included the VDC and DDC. Community wide projects help in developing a joint effort. Further, the periurban context and its related institutional setup are important to assess and build upon them to create capacity in the community to increase the effectiveness of the community based approach.

General statement

The community based approach became known in a time of alternative development and later even became popular development discourse. Through the years there has been a lively debate about the possible benefits and also its disadvantages. This study, contributes to this body in a very modest, but constructive way. In the context of Nepal, in which the government structures are weak, NGOs are stimulated to work in service delivery. The community based approach is also stimulated by the government through their enabling policy.

The periurban dwellers in Siddhipur and Lubhu are clearly an example of the argument put forward by Allen, Davila, & Hofmann (2006) that periurban dwellers are both citizens with a basic human right and consumers of economic goods. The people in Siddhipur and Lubhu have the right to clean water and basic sanitation because it is a crucial factor in the fight against poverty. But their demand cannot be met by public and private actors and the right to WATSAN services includes the responsibility to be actively involved. The active involvement is ideally in collaboration with the water authority. Next to this, they are also

consumers of economic goods. The projects have shown that water is an economic good. The costs implicit in the production of water is recovered by the people. The people of Siddhipur have shown the ability to pay for water by the universality and timeliness of payments. Towards cost recovering and the financial sustainable service this is a great effort.

Allen *et al.* (2006) see the solution to the WATSAN situation of periurban dwellers in the collaborative action between citizens, poor and non poor, and the water authorities. The past has shown that the public or the private sector alone cannot meet the demand of the communities in periurban areas. Currently the authorities are still not able as they have inadequate capacity. The solution, in agreement with Allen *et al.*, lies in the active collaboration. The projects have shown the ability of the communities to be actively involved. Problematic in the agreement with Allen *et al.* is the participation of the poor however, they have only been marginally involved.

9.6 Recommendations

It is recommended that elections are held to uphold the Siddhipur WSUC's democratic status and to acknowledge the rules and regulations that have been set. This would enhance the democratic and openness of the WSUC towards the users in the community. An argument could be made to not have changes in the occupancy of the WSUC for reasons of keeping experience and skills. The current members have gained a lot of knowledge over the last years and this is important for the committee's efficiency and effectiveness. More importantly however, the rules and regulations of the WSUC state that elections are to be held every two years, and these regulations should be kept in high standing. If the WSUC does not keep up its own regulations they will lose not only their accountability towards the users, but also stand to lose their credibility as a democratic organ.

The poverty mapping exercise should be created with the community and the users committee in particular. To make sure the community will take a pro-poor approach the indicators of the poverty mapping should be under scribed by the users. If the users of the poverty mapping results (the users committees) do not believe in the validity of the poverty mapping, the chance exist it will not be used. The poverty mapping should also be user friendly as the local people do not have the expertise and knowledge, for instance, about the use of computers. It is recommended to create the indicators for the poverty mapping in cooperation with the community but also in a participatory way. Not only the people who are in the users committees or other powerful people should decide, but decisions should be negotiated with the poor themselves.

It has been argued throughout this thesis that in both Siddhipur and Lubhu community participation in the project has been medium to high. It was also recognised however that community people were not involved or taking part in decision-making. This paradox lies in

the control of the UCs that has been set up to implement and manage the project. These representing bodies have been incorporated in decision making in name of the communities. To make these committees more accountable to its users, institutionalisation of a method to involve and inform the community about activities and decisions undertaken is necessary. It would also be favourable to let users have a voice in the decisions made by the committee. Off course, this recommendation involves specifically the more important decisions, as a community consultation for each and every decision is very time-consuming and therefore constraining the efficiency of the project.

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Appendixes

Appendix 1: Institutional context by periurban type

Characteristics of institutional contexts by periurban type (Iaquinta & Drescher, 2000)

INSTITUTIONAL- CONTEXT CHARACTERISTIC	PERIURBAN TYPE				
	LINKED ACROSS SPACE		LINKED ACROSS SPACE AND/OR OVER TIME*	LINKED OVER TIME	
	Village PU	Diffuse PU		In-Place PU	Absorbed PU
Name of Institutional-Context "Type"	<i>Network Induced</i> (tradition oriented)	<i>Amalgamated</i>	<i>Reconstituted</i>	<i>Traditional</i>	<i>Residual</i> (<i>Traditionalism</i>)
Creation Process	Out-migration with networking; Circulation	Diffuse migration	Chain (point source) migration	Annexation; In-migration	Succession-displacement
Proximity to Urban Center	Non-proximate	Proximate	Proximate	Proximate	Absorbed**
Organizing Principle	Integrative maintenance of traditional links	Survival and collective formation	Defensive reconstruction of cultural identity	Defensive maintenance of tradition	Maladaptive adherence to tradition
Primary stimulus for change	Emigrant influences (remittances, circulation, participation)	Compositional heterogeneity; Interface with urban formal structures;	Interface with urban formal institutions	Urban in-migrants; Interface with urban formal institutions	Interface with urban formal institutions; Loss of traditionalist legitimacy
Primary mechanism limiting or effecting change	Traditional (i.e., existing) structures	Negotiation among residents; Emergent/novel structures	Reconstituted structures organized along traditional lines	Traditional (i.e., existing) structures	Ritualized structures
Need for Change	Low	High	High	Moderate	High
Resistance to Change	High	Low	Moderate	High	High
Pace of Adaptation	Slow	Fast	Moderate	Slow	Very slow
Likelihood for Disruptive Conflict	Low	Moderate	Moderate	High	High
Characteristics of Change	Existential and tradition oriented (maintenance of ideal culture via redefinition of adaptation)	Experimental; democratic or consensus based; function oriented	Tradition oriented incorporating some urban components	Polarized between traditional and modern sectors	At best external compliance only
Most Likely Types of Adaptations	Novel solutions which maintain the appearance of tradition and meet modern sector needs	Novel solutions which meet modern sector needs and create a new basis for legitimacy	Solutions which make inefficient use of the formal sector	Solutions which make inefficient use of the formal sector due to slow pace of change in high need situation	Solutions imposed from the outside formal sector
Impact on Stratification Systems	Greater individual access with formal maintenance of system	More opportunity for egalitarianism; Erosion of system	Maintenance of system, possibly in new forms	Heightened conflict over system; Increased oppression	Strong support for maintenance of system

Appendix 2: Nepali words

Chapakharka	River, used as a source for 'drinking' water in Lubhu. The source is located 16 kilometers from Lubhu settlement from which water is distributed to 46 stand posts.
Dalits	A self-designation for a group of people traditionally regarded as low caste or untouchables (outcastes). Dalits are a mixed population of numerous caste groups all over South Asia, and speak various languages.
Dovan	River, from which water is distributed to 44 stand post in Lubhu VDC. The water quality of this source is very poor.
Guthis	Traditional, in Newari culture, <i>Guthis</i> are established for management of cultural and community activities or infrastructures.
Newar	Newars are a linguistic community with Tibeto-Burman and Indo ethnictiy/race, bound together by a common language. One of the many ethnicities in Nepal.
Tole	Like a square and is traditionally used to mark a part of the village, such as, a neighborhood.
Ward	A ward in Nepal is a political division. Nine wards make up a Village Development Committee (VDC); VDCs make districts; districts makes zones; and zones (regions) make up the country.

Appendix 3: Survey

1.1.1	Household number	1.1.5	Survey number
1.1.2	Interviewer	1.1.6	Processor
1.1.3	Date of interview	1.1.7	Date processed
1.1.4	Time of interview	1.1.8	

Namaskar,

My name is and I am taking household surveys here on behalf of two students from the Netherlands. They are doing research for their master thesis on the water and sanitation project that was Implemented in Siddhipur / Lubhu by UN-HABITAT and ENPHO / CIUD. I would like to ask you some questions about the water and sanitation situation of your household, about participation in the project, and the impact of the project in your household.

The information you give will be used to evaluate this project, and for the theses of the students. The information can furthermore be used to make future projects better. We are not interested in receiving any particular answers, only answers that represent your opinion. We hope that you will answer these questions as honest and complete as possible.

I would like to emphasize that any information you give will be processed anonymously and no personalised data will be handed over to local authorities – or other authorities. We guarantee that your privacy will be protected.

1.2.1	Name of the respondent
1.2.2	Sex of the respondent	1 <input type="radio"/> Male 2 <input type="radio"/> Female
1.2.3	How many years has your family lived in this house?	...
1.2.4	Does your family own or rent this house?	1 <input type="radio"/> Own 2 <input type="radio"/> Rent
1.2.5	What is the type of construction of the house?	1 <input type="radio"/> Permanent 2 <input type="radio"/> Semi permanent 3 <input type="radio"/> Temporary

Poverty analysis

3.1 How many rooms are used by your family (excluding storeroom, kitchen, toilet)?

.....

3.2 Do you have a separate kitchen? 1 O Yes
2 O No

3.3 What is the place for washing dishes? 1 O Full plumbed kitchen
2 O Tap at shorter height (for washing dishes inside kitchen)
3 O No tap for washing dishes
4 O Place for washing dishes with tap outside kitchen
5 O Place for washing dish without tap outside kitchen
6 O No place for washing dish (bucket used).

3.4 Which type of fuel do you use for cooking? 1 O Gas
2 O Electricity
3 O Kerosine
4 O Woods
5 O Straw
6 O Other, please specify

3.5 Which of the following facilities are available in your house (used only by your family)?
Mention the number. M/F means make a distinction between male and female.

Facilities Number Facilities Number

M F M F

1. Solar heater/ geyser
2. Washing machine
3. Refrigerator
4. Electric oven
5. Telephone
6. Mobile phone (M/F)
7. Computer
8. Internet access
9. Bicycle (M/F)
10. Motor cycle (M/F)
11. Car (M/F)
12. TV
13. Radio
14. other, specify.....

Access to water

4.1 What are the different sources of drinking water that your household uses?

Please list all sources used for drinking water and sources used for other purposes.

A private tap is a tap connection on the plot of the house that is connected to the central system.

Before project After project

Purpose Purpose

Source

Drinking other Drinking Other

- 1 Private tap
- 2 Neighbour's tap
- 3 Private dug well
- 4 Community Dug well
- 5 Community stand

post

6 Spring water

7 River/stream

8 Tube well

9 Pond

10 Stone spout

11 Rain water

12 Tanker

13 Bottler

14 Other, specify

4.2 Is the [main source of drinking water] available every day of the year?

1 Yes

2 No

4.3 How many hours a day is water available at your [main source of drinking water]

.....

4.4 If household has a private tap

Was your private tap installed under the UN-HABITAT project scheme?

1 Yes

2 No – go to 4.10

4.5 Why did your household choose to install a private tap?

.....
.....

4.6 In your opinion who has had final voice in the decision about installing the private tap?

1 Me/my household – go to 4.10

2 WSUC – go to 4.10

3 ENPHO – go to 4.10

4 Village Development Committee (VDC) – go to 4.10

5 UN-HABITAT – go to 4.10

6 Other(s) from outside the village, specify..... – go to 4.10

7 Don't know/no answer – go to 4.10

4.7 If household has no private tap

Was your household asked to install a private tap under the scheme?

1 Yes

2 No – go to 4.9

3 Don't know / no answer – go to 4.10

4.8 Why did your household choose not to install a private tap under the scheme?

1 Main water source good enough – go to 4.10

2 Too expensive – go to 4.10

3 Not interested – go to 4.10

4 Other, specify..... – go to 4.10

5 Don't know / no answer – go to 4.10

4.9 Do you know why your household was not asked to install a private tap under the scheme?

.....
.....

Before project After project

4.10 How much time did your family spend to collect water (for drinking and other purposes) before the project, and after the project.

Please give a daily average in minutes (time to get to source, get water, and come back). If household gets all water on premise, write: PREMISE.

4.11 If household spends less time collecting water since the project

How does your household spend the time that is saved in collecting water?

1 Other household tasks

2 Income generating work (weaving mats and weaving clothes etc)

3 School/study

4 Leisure

5 Other, specify....

6 Don't know / no answer

Before project After project

4.12 What is your opinion about the water quality [main source of drinking water] outside of rain season

1 Very good

2 Good

3 Not good, not bad

4 Bad

5 Very bad

6 Don't know/ no answer

1 Very good

2 Good

3 Not good, not bad

4 Bad

5 Very bad

6 Don't know/ no answer

4.13 What is your opinion about the water quality [main source of drinking water] during rain season

1 Very good

2 Good

3 Not good, not bad

4 Bad

5 Very bad

6 Don't know/ no answer

1 Very good

2 Good

3 Not good, not bad

4 Bad

5 Very bad

6 Don't know/ no answer

4.14 Does your household treat your drinking water in any way to make it safer to drink (quality)?

1 Always

2 Often

3 Sometimes

4 Hardly ever

1 Always

2 Often

3 Sometimes

4 Hardly ever

5 Never – go to 4.16 5 Never – go to 4.16

4.15 What do you usually do to the water to make it safer to drink? 1 Boiling

2 Chlorination

3 SODIS

4 Filter

5 Hankerchief

6 Other, specify...

1 Boiling

2 Chlorination

3 SODIS

4 Filter

5 Hankerchief

6 Other, specify...

4.16 How much water does your household use compared to before the project?

1 Much more

2 Little more

3 The same

4 Little less

5 Much less

6 Don't know / no answer

Before project After project

4.17 Is the amount of water your household uses enough for your household?

1 Mostly enough

2 sometimes enough,
sometimes not enough

3 Mostly not enough

4 Don't know / no answer

1 Mostly enough

2 sometimes enough, sometimes
not enough

3 Mostly not enough

4 Don't know / no answer

4.18 Do you know how the tariff is set for water supply? 1 Yes

2 No

4.19 Do you know whether other households pay tariff for water supply?

1 Yes

2 No

Before project After project

4.20 How much money did/does your household spend on water every month (estimate in Rupees)

4.21 What is your opinion about the current price of water? 1 Very high

2 High

3 Fair

4 Low

5 Very low

6 Don't know / no answer

4.22 This is the end of the section on water. Lastly, I would like to know how satisfied you are with the water services that were brought by the project.

1 Very satisfied – go to 5.1

2 Satisfied – go to 5.1

3 Not satisfied, not unsatisfied

4 Unsatisfied

5 Very unsatisfied

6 Don't know / no answer

4.23 Can you explain why you are not satisfied with the scheme?

.....
.....

Access to sanitation

Before project After project

5.1 Where did your household go for toilet before the project?

And after the project?

If household currently doesn't use private toilet: go to

5.10

1 Private toilet

2 Shared toilet with neighbours / family

3 Community toilet

4 Open field/ river

5 Other, specify....

1 Private toilet

2 Shared toilet with neighbours / family

3 Community toilet

4 Open field/ river

5 Other, specify....

5.2 If private toilet - Which type of toilet did your family use

before the project? And after the project?

- 1 ECOSAN
- 2 Pit latrine
- 3 Double pit latrine
- 4 Private septic tank
- 5 Community septic tank
- 6 Cistern flush toilet
- 7 Pour flush toilet
- 8 Other, specify....

- 1 ECOSAN
- 2 Pit latrine
- 3 Double pit latrine
- 4 Private septic tank
- 5 Community septic tank
- 6 Cistern flush toilet
- 7 Pour flush toilet
- 8 Other, specify....

5.3 If private toilet

Was your toilet installed under the UN-HABITAT project scheme?

- 1 Yes
- 2 No – go to 6.1

5.4 Why did your household choose to install a toilet?

.....
.....

5.5 Do you feel you had an influence on what kind of toilet was installed in your home?

- 1 Very much influence
- 2 Much influence
- 3 Not much, not little influence
- 4 Little influence
- 5 Very little influence
- 6 Don't know / no opinion

5.6 In your opinion who has had final voice in the decision about the type of toilet?

- 1 Me/my household
- 2 WSUC / project
- 3 ENPHO
- 4 Village Development Committee (VDC)
- 5 UN-HABITAT
- 6 Other(s) from outside the village, specify.....
- 7 Don't know/no answer

5.7 Is the type toilet that was installed in your home also the type of toilet that your household preferred?

- 1 Yes

2 No, specify preferred toilet.....

5.8 This is the end of the section on sanitation. Lastly, I would like to know how satisfied you are with the sanitation services that were brought by the project.

1 Very satisfied – go to 6.1

2 Satisfied – go to 6.1

3 Not satisfied, not unsatisfied

4 Unsatisfied

5 Very unsatisfied

6 Don't know / no answer

5.9 Can you explain why you are not satisfied with the scheme? Go to 6.1

.....

5.10 If no private toilet

Did your household have the possibility to install a private toilet under the UN-HABITAT scheme?

1 Yes

2 No – go to 5.12

3 Don't know / no answer – go to 6.1

5.11 Why did your household choose not to install a private toilet under the scheme?

1 Have another toilet available – go to 6.1

2 Too expensive – go to 6.1

3 Not interested – go to 6.1

4 Other, specify..... – go to 6.1

5 Don't know / no answer – go to 6.1

5.12 Do you know why your household did not have the possibility to install a private toilet under the scheme?

.....

.....

Health

6.1 Has there been a change in the general health of your family since the project?

1 Much better health

2 Little better health

3 Not better, not worse

4 Little worse health

5 Much worse health

6 Don't know / no answer

6.2 Has there been a change in the incidence in the following diseases in your household since the project?

Please write the letter from the list on the right

Disease Incidence

Diarrhoea

Eye and Skin infection

Typhoid

Dysentery

1 Much more often

2 Little more often

3 Not more, not less often

4 Little less often

5 Much less often

6.3 Do you have any further remarks on changes of the health of members in your household due to the project?

.....
.....

Water and Sanitation Users Committee

7.1 Do you know about the WSUC 1 O Yes

2 O No – go to 8.1

7.2 Do you know someone personally, like a relative, friend or neighbour, who is a member of the WSUC?

1 O Yes

2 O No

7.3 Are you informed about what happens at committee meeting?

1 O Yes

2 O No

7.4 Before construction, were you asked to choose who would be responsible for operation and management of the water system?

1 O Yes, I was asked

2 O No, I wasn't asked

3 O No answer / I don't know

7.5 If household has private tap or private toilet - How much does the WSUC/project take care of the problems in water and sanitation?

1 O Very much

2 O Much

3 O Not much, not little

4 O Little

5 O Very little

6 O Don't know / no answer

7.6 Do you think the WSUC is able to maintain and operate the water system?

1 O Very much – go to 8.1

2 O Much – go to 8.1

3 O Not much, not little

4 O Little

5 O Very little

6 Don't know / no answer

7.7 Can you please explain why you think the WSUC is not able of maintaining and operating the system?

.....
.....

Project decision making

8.1 Did you or any members of your household attend any meeting about the water and sanitation project?

1 Yes

2 No – go to 8.5

3 Don't know / no answer – go to 8.5

8.2 How often?

8.3 Was it mostly male or mostly female members of your household that went to the meetings?

1 Only male

2 Mostly male

3 Male and female evenly

4 Mostly female

5 Only female

6 Don't know / no answer

8.4 Why did you or your family member(s) attend these meetings? 1 I/we were interested

2 Were asked to attend

3 Were obliged to attend

4 Other, specify.....

5 Don't know / no answer

8.5 Did you take part in decisions that were made about the water and sanitation project in your village?

1 Very much

2 Much

3 Not much, not little

4 Little – go to 8.8

5 Very little – go to 8.8

6 Don't know / no opinion – go to 8.8

8.6 Before construction, on which aspect did you have the most influence? 1 Project management (WSUC)

2 Type of toilets

3 Private taps

4 Household contribution

5 Prices for water

6 Prices for sanitation

7 Other, specify.....

8 Don't know/no answer

8.7 In your opinion, do feel your voice has been respected by the project? 1 Very much

2 Much

3 Not much, not little

4 Little

5 Very little

6 Don't know / no opinion

Following are some changes that have been going on in your village, which have a close link with the water and sanitation project. Could

you please tell me if you think that these changes are coming from the community, from the WSUC/project or not from the project (outside the village)?

8.8 Type of toilets use 1 Community 2 WSUC 3 Not from project 4 Don't know

8.9 Pavements 1 Community 2 WSUC 3 Not from project 4 Don't know

8.10 Private water taps 1 Community 2 WSUC 3 Not from project 4 Don't know

8.11 Drains (rainwater) 1 Community 2 WSUC 3 Not from project 4 Don't know

Project contribution

9.1 Have any members of your household been in any of the user (sub) committees or community groups?

1 Yes

2 No – go to 9.3

3 Don't know / no answer – go to 9.3

9.2 please fill in table

Instructions for filling in table:

Who: number from household scheme

How long: in years

Ongoing: Yes / No

Who? Name of committee/group How long? Ongoing?

1

2

3

4

5

9.3 If private tap from project

How much money did your household spend for installation of the private tap?

.....

9.4 How do you feel about the money that your household gave to install the tap?

1 Too high

2 High

3 Fair

4 Low

5 Too low

6 Don't know / no answer

9.5 Was it difficult for your household to obtain the money to install the private tap?

1 Very difficult

2 Difficult

3 Not difficult/ not easy

4 Easy

5 Very easy

6 Don't know / no answer

9.6 Did your household have to take out a loan to pay for the private tap? 1 Yes

2 No

3 Don't know / no answer

9.7 If private toilet from project

How much money did your household spend for installation of the private toilet?

.....

9.8 How do you feel about the contribution that your household gave to install the toilet?

1 Very high

2 High

3 Fair

4 Low

5 Very low

6 Don't know / no answer

9.9 Was it difficult for your household to obtain the money to install the toilet?

1 Very difficult

2 Difficult

3 Not difficult/ not easy

4 Easy

5 Very easy

6 Don't know / no answer

9.10 Did your household have to take out a loan to pay for the private toilet?

1 Yes

2 No

3 Don't know / no answer

9.11 How much did your household contribute to the community part of the project (not about private connections), for instance paving the road, construction work, etc... Specify money paid, days of labour, and materials supplied.

If no contribution: write 'NO'

In money In days of labour In Material, specify

9.12 When you were contributing to the project, did you make any suggestions to making the taps, pavement, drains or toilets (for instance about locations or alignments or laying of pipes) ?

1 Yes

2 No – go to 10.1

3 Don't know / no answer – go to 10.1

9.13 Do you feel that these suggestions have had an influence on the construction?

1 Very Much

2 Much influence

3 Not much, not little influence

4 Little influence

- 5 Very little influence
- 6 Don't know / no opinion

Income

Remittances

11.1 Have any members of your household been abroad for an extended period of time, or is there anyone abroad at this moment?

- 1 Yes
- 2 No – go to 12.1

11.2 What is/was the purpose of the stay abroad? More answers possible

- 1 Work
- 2 Study
- 3 Marriage
- 4 Other, specify...

11.3 Did your household receive any remittances in the past? 1 Yes
2 No

11.4 Does your household receive any remittances at this moment? 1 Yes
2 No – go to 11.6

11.5 How much remittance does/ did your family receive? in total / per month / per year (circle what applies)

11.6 If remittances now or past

For what purpose do or did you use the remittances?

- 1 For school/children study
- 2 Making constructions at current house
- 3 Building a new house
- 4 Invest in business
- 5 Save

10.1 Has the value of your house changed since the project?

- 1 Risen a lot
- 2 Risen a little
- 3 Not risen, not fallen
- 4 Fallen a little
- 5 Fallen a lot
- 6 Don't know / no answer

10.2 Do you own land outside the land that your house is built on?

- 1 Yes
- 2 No – go to 10.7

10.3 Specify how much land

10.4 Do you feel that the price of your land has risen due to the project?

- 1 Risen a lot
- 2 Risen a little
- 3 Not risen, not fallen
- 4 Fallen a little
- 5 Fallen a lot
- 6 Don't know / no answer

10.5 Did you buy any land since the project?

- 1 Yes
- 2 No – go to 10.7

10.6 How do you (intend to) use the land you bought?

- 1 Agriculture
- 2 Building a house for the family
- 3 Building a house for to rent out
- 4 Business
- 5 other, specify.....
- 6 Don't know, no answer

10.7 Did you sell any land since the project? 1 Yes

- 2 No – go to 11.1

10.8 What did you do with the money you earned from selling the land?

- 1 For school/children study
- 2 Making constructions at current house
- 3 Building a new house
- 4 Invest in business
- 5 Save
- 6 Daily expenses
- 7 5 Repay loans
- 8 Other, specify.....
- 9 Don't know / no answer
- 6 Daily expenses
- 7 5 Repay loans
- 8 Other, specify.....
- 9 Don't know / no answer

11.7 Did any members of your family return from working abroad in the last 6 months? If so, how many?

- 1 Yes – how many?
- 2 No – go to 12.1

11.8 Why did they return?

.....
.....

Before we end this questionnaire, I would like to ask you about the income of the members of your household. We would like to emphasize once more that everything you say will be kept strictly private. Please enter in the household scheme.

End

12.1 To what extent do you feel that your family has benefitted from the project compared to other families?

- 1 My family benefitted more than other families
- 2 My family benefitted equally as other families
- 3 My family benefitted less than other families
- 4 Don't know / no answer

12.2 Can you explain why you feel this way?

.....

.....
12.3 This is the end of the questionnaire. For our research however we will be doing some interviews and focus group discussions to look deeper into some of the issues that we discussed in t his survey. Would you be interested in taking part in any of these discussions/interviews?

1 Yes

2 No

12.4 Do you have anything else that you would like to add, or that you feel has been left out of this survey? Feel free to make any remarks or comments.

.....
.....
.....