WATER WORKS: CAPACITY AND COMMUNICATION FOR SOCIAL CHANGE IN PERUVIAN MUNICIPALITIES

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ABSTRACT

WATER WORKS: CAPACITY AND COMMUNICATION FOR SOCIAL CHANGE IN PERUVIAN MUNICIPALITIES

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This thesis is an exploratory study of the role that Communication for Social Change principles play in World University Service of Canada's (WUSC) project to strengthen the capacity of Peruvian municipalities in the area of water and sanitation. The research took place in two case study locations, one urban and one rural, and was conducted through stakeholder workshops, semi-structured interviews, participant observation and a review of project documents. The findings describe the communication, collaboration and perceived changes in individual and organizational capacity that have taken place based on WUSC's work with municipal governments, water companies, water user groups, and end users. In doing so, the research reveals that WUSC carries out many effective communication and capacity development activities based on their long-term engagement with their counterparts and their "learning by doing" approach. However, they do not have overall strategies in either of these areas, which has resulted in the exclusion of some stakeholders and difficulty in monitoring and evaluating these areas which may hamper the overall long-term impact of the project. Based on these findings, the paper suggests how Communication for Social Change principles could be applied to help improve other capacity development projects of this type. While this study does not directly address debates about water privatization, it does offer reflections for improving the effectiveness of local level water management.

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LIST OF ACCRONYMS

ACDI- *Agencia Canadiense para el Desarrollo Internacional* (see CIDA)

AUAS- *Asociación de Usuarios de Agua y Saneamiento* (Water Users' Association)

CIDA- Canadian International Development Agency

EMAPA- *Empresa Municipal de Agua Potable y Alcantarillado* (Municipal Drinking Water and Sewage Company)

EPS- *Entidad Prestadora de Servicios de Saneamiento* (Operating Company for Sewage Services)

FONCOMUN- *Fondo de Compensación Municipal* (Fund for Municipal Compensation)

INEI- *Instituto Nacional de Estadística e Informática* (National Institute for Information and Statistics)

JASS- *Junta Administradora de Servicios de Saneamiento* (Citizen's Administrative Group for Sanitation Services)

MINSA- *Ministerio de Salud* (National Ministry of Health)

NGO- Non Governmental Organization

PRONASAR- *Programa Nacional de Agua y Saneamiento Rural* (National Program for Rural Water and Sanitation)

RAAKS- Rapid Appraisal of Agricultural Knowledge Systems

SEDAPAL- *Servicio de Agua Potable y Alcantarillado de Lima* (Potable Water and Sewage Service of Lima)

SENAPA- *Servicio Nacional de Agua Potable y Alcantarillado* (National Service of Potable Water and Sewage)

SUM Canadá - *Servicio Universitario Mundial del Canadá* (see WUSC)

SUNASS- *Superintendencia Nacional de Servicios de Saneamiento* (National Superintendent of Sanitary Services)

UN- United Nations

UNDP- United Nation's Development Program

WUSC- World University Service of Canada (Canadian NGO)

CHAPTER ONE- Introduction

> Sustainable development is a major challenge for the next century. People are central to that task. The only way we can work for a common cause, for common interest, to improve our condition, is really through communication. Basically, it has to do with democracy, with participation, with spreading of knowledge and insight and ability to take care of our future.
>
> *-Gro Brundtland, Chair, World Commission on Environment and Development (quoted inside cover of Fraser & Villet, 1994)*

Introduction

This research examined World University Service of Canada's (WUSC) efforts to support the provision of potable water and sanitation services from a communication for development perspective. It documents and analyzes the experience of WUSC's municipal capacity development program in Peru by describing the communication and collaboration that has taken place between project stakeholders, identifying perceived changes in individual and organizational capacity, and identifying principles of Communication for Social Change that may be applicable to other water and sanitation projects in Peru.

This research took place between June and September 2005 in two case study locations in Peru. One site was an urban community located within commuting distance from the capital city, Lima and the other was a rural community in the province of Ancash. In both locations, I collected data with a wide variety of project stakeholders through participatory workshops, semi-structured interviews, participant observation and a review of project documentation. In the urban location, WUSC had embedded an Engineering Team and a Social Team within the municipal water company and I spent most of my time with the Social Team, which was in charge of the water user education program. In the second study location, three WUSC teams

in the areas of Engineering, Management and Sanitary Training worked directly with the municipality, and I worked most closely with the Management Team.

This research is intended to make a contribution towards the learning and reflection of current project staff in WUSC Peru as well as the planning and management of other Peruvian capacity development projects in water and sanitation. It is hoped that this study will play a role in enabling communication to be used more effectively for meeting the many challenges of sustainable development.

Background

Approximately 1.3 billion people in the developing world lack access to adequate supplies of clean water, and nearly 3 billion people are without sanitary means of disposing of their feces. Consequently, an estimated 10,000 people die every day from water- and sanitation-related diseases, and thousands more suffer from associated illnesses (Bosch *et al*. 2000). The United Nation's Millennium Development Goals highlight consistent access to water and sanitation as a basic human right. While progress has been made on the health and environmental fronts, the Human Development Report (UN 2005: 42) warns, "the target of halving the number of people without sustainable access to improved water sources will be missed by about 210 million people. Another 2 billion people will also lack access to an improved sanitation sources in 2015."

The spread of technical project planning approaches in the 1960s led to investments for improved water supplies and sanitation in developing countries (Long & van der Ploeg 1989). These projects tended to be supply driven, in that external agencies or national governments controlled most of the financing and the decision-making. Typically engineers

designed these systems with large-scale technologies that were beyond the abilities of local governments and water users to understand, operate, maintain, or manage. This, in turn, led to a large number of water supply systems that could not be maintained (van Wijk-Sijbesma 2001).

The provision of water and sanitation services has been traditionally seen as a technical concern that is the responsibility of the state. However, as central governments have increasingly come under criticism for their disconnection from local needs and it has become clear that a safe and sustainable water supply depends not just on technical factors, but also on the ability to plan for, manage and use the services properly, the idea of local capacity in water and sanitation has garnered attention (Trist 1981; van Wijk-Sijbesma 2001).

During the UN's International Drinking Water Supply and Sanitation Decade of the 1980s, community water management was identified as one of six prerequisites for sustainable water and sanitation services for the world's population. While access to improved water systems improved at this time, eight out of every ten dollars invested went to service affluent urban neighborhoods with high-cost technologies (van Wijk-Sijbesma 2001).

The New Delhi Statement in 1990 drew together the lessons from the previous decade and declared that communities should be involved, not only in the inception phase, but also should assume responsibility and ownership for the entire lifecycle of the system. The Dublin statement in 1992 called for the devolution of water management to the most local level possible and at the same time declared water to be an economic good, opening the way for large-scale water privatizations (Schouten & Moriarty 2003).

While a recent series of water program evaluations showed that many water supply systems are still unsustainable as they require further donor investments beyond the initial start up phase, many water managers are beginning to recognize that "a community water supply is a complex system of administrative, financial, socio-cultural, technical, health and environment-related activities… as such, a drinking water service is much more than a water supply technology" (van Wijk-Sijbesma 2001; 1).

Research Purpose and Objectives

Given the complexities of the sustainable provision of potable water and sanitation services, I was interested in exploring what municipal and community water management looked like in practice from a communication and capacity development perspective. The purpose of this research was: To document and analyze the experience of WUSC's capacity development program for water and sanitation as a case study of Communication for Social Change.

The specific objectives arising from this goal were these:

Objective 1: To describe the communication and collaboration between and among WUSC and municipal governments, water companies, water user groups, and end users that have been used to strengthen the capacity to plan, carry out and administer water and sanitation services.

Objective 2: To identify perceived changes in individual and organizational capacity since participation in the project began.

Objective 3: To identify the principles of Communication for Social Change that may be applicable in the design of other water and sanitation projects in Peru.

Significance and Limitations of the Study

The appraisal of 'principles of Communication for Social Change' should provide WUSC with a framework to understand and share the communication processes it has used to build capacity, and reveals ways in which the project might be improved to increase its value to stakeholder groups. This case study should also facilitate the distribution and sharing of the experience and lessons learned with others. This inquiry into patterns of organizational and individual learning may teach us how similar interventions can be more effectively designed and implemented (Engel 1997).

The main limitation of case study research is its lack of direct applicability to other situations. While case study research cannot be directly applied to different contexts, according to Yin (2003) *analytical* generalizations can be drawn from them that may be useful be applicable, especially in the case of other Peruvian municipalities and communities that are making efforts to improve their own water and sanitation provision.

This study explores the narratives that people tell themselves and others about their current communication and collaboration practices. It helps to explain individuals' perceptions of the role of WUSC's project within their communities. As with all social research, the details of these relationships are dynamic and will have changed since the research was conducted (Jarvis 1999). However, the lessons may still apply in the design and implementation of projects of a similar nature.

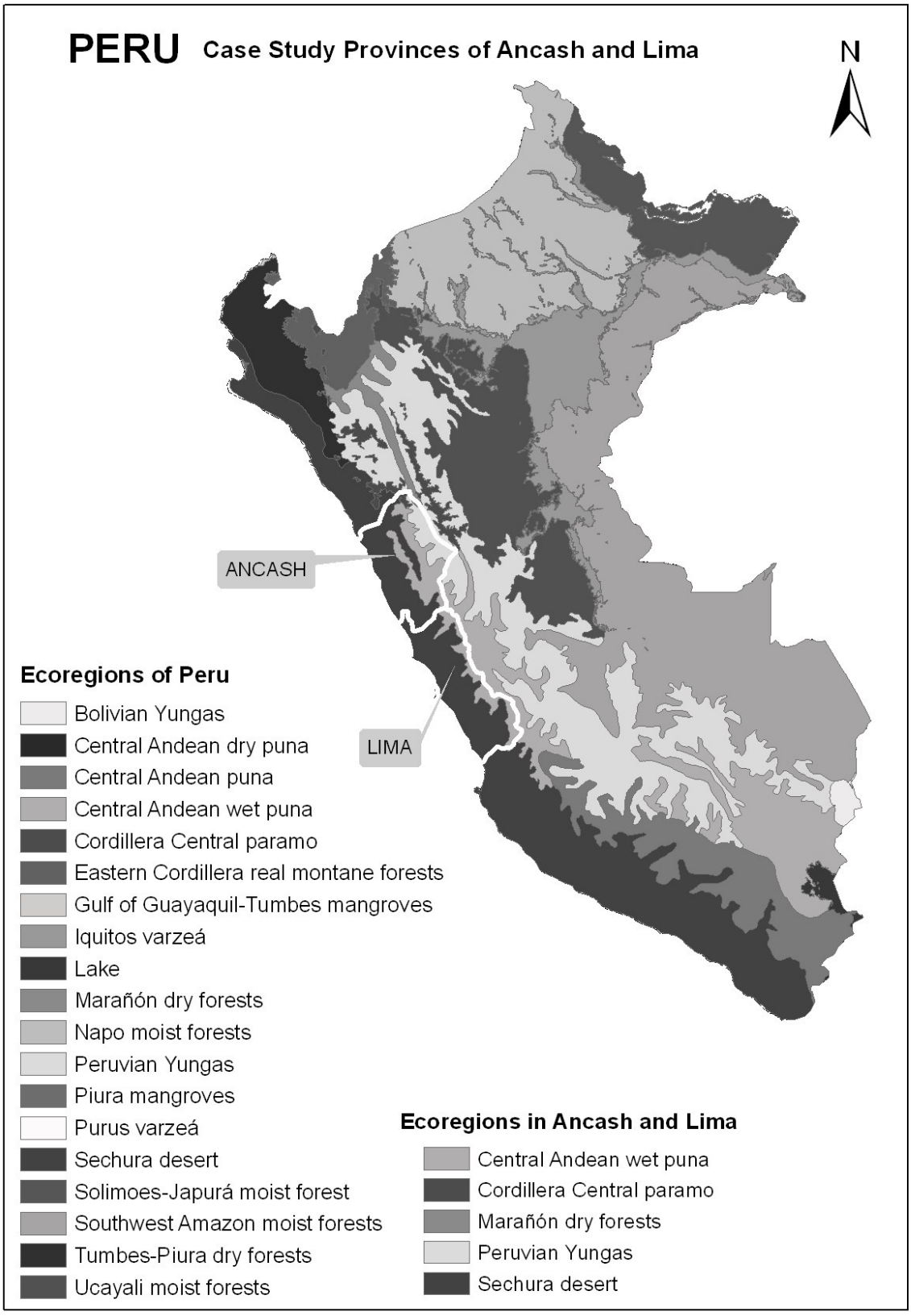
Constraints on time and cultural differences undoubtedly affected the depth of the relationships I formed, the amount of trust placed in me and therefore, the quality of the data I was able to collect. I also arrived without a lot of the background knowledge of the context

that someone from the local area would have had. In spite of these limitations, I did bring a different kind of knowledge on communication and capacity development that was for the most part new to project participants and I was able to gain an understanding of the WUSC's project through interviews, workshops, and daily interactions with project stakeholders.

Peruvian Research Context

Peru covers 1.29 million square kilometers, making it the fourth-largest country in Latin America (see Figure 1.1). Geographically, it can be divided into three main regions- the costal plain, the Andean highlands and the jungle. The coastal region is one of the driest areas in the world with annual precipitation of less than 100 mm; it comprises one-third of the total land of Peru and is home to 50 percent of the population (Sivertsen & Lundberg 1996). It is therefore highly dependant on water from the highlands for both its surface and groundwater supplies. One of the case study locations for this research was in an urban location in the province of Lima on the coast and the other was in a rural area in the Andean highlands in the province of Ancash.

Figure 1.1 Map of Peru



Source: ESRI Data and Maps (2003)

According to the 2005 Human Development Report, 74 percent of the Peruvian population had reliable access to improved water sources in 1990 and 81 percent did in 2002. Meanwhile the percentage of the population with access to improved sanitation was 52 percent in 1990 and 62 percent in 2002. According to the United Nation's Development Program (UNDP) office in Peru, people who lack potable water are twice as likely to live in rural areas as they are in urban areas, and up to 70 percent of the people without sanitation live in rural areas (UNDP 2004).

Since the early 1990s the responsibility for the provision of water and sanitation services has been at the local level either through municipally owned water companies or in rural areas with the municipality itself. In 2003, the national government's Vice-Ministry of Construction and Sanitation pointed out that the 53 municipal water companies in Peru had only rudimentary capacity to provide water and sanitation services to their communities. Their report showed that 46 percent of the water provided to the public was not paid for, only 19 percent of sewage was treated before being released into rivers and the ocean, and that all companies were facing a progressive deterioration in their water and sanitation infrastructure resulting in decreasing coverage in some areas. The report pointed to interference due to partisan politics, high managerial turn over rates, excessive over-staffing and pricing structures that did not cover operating costs, as the main sources of these problems (Vice Ministerio de Construcción y Saneamiento 2003).

WUSC

WUSC is a Canadian non-governmental organization (NGO) that was started in 1957; it has been implementing water and sanitation projects in Peru since 1982. Since 2000, WUSC

Peru has explicitly focused on strengthening municipal capacity. However, according to project staff in Lima, the program's international donor required the focus on municipal capacity because it was identified as a global priority area by the World Bank. There is speculation that the donor, CIDA (Canadian International Development Agency) may soon require the new focus of all of their projects to be on regional governments, one level up from the municipalities. This would add an additional layer of bureaucracy that could serve to increase the distance and decrease the accountability between the authorities who have the resources and the local populations they serve.

WUSC Peru's annual work plan (2005: 1) states that the overall goal of the project is to "improve the health and living conditions in selected urban and rural communities of Peru by strengthening the technical, managerial and administrative capacity of municipal providers of urban water and sanitation services…" WUSC also assists peri-urban and rural communities to plan, carry out and administer water and sanitation services through water user groups. Additionally, WUSC carries out technical and sanitary trainings with the end users of these systems.

During 2004, WUSC worked in five provinces around the country- Amazonas, Ancash, Ica, Lima, and Puno. WUSC Peru does not promote their work to potential beneficiaries; instead communities usually hear of them through word of mouth and then solicit their services through an application process. WUSC has been part of an unsolicited bidding process with their main donor agency for the past several years although they will be losing this funding in 2006. According to one staff member, "at the moment we are stretched thin and doing more diverse activities in more locations than ever before [in order to spend the money in the allotted time]."

With what they call a "learning by doing" approach, WUSC's Peru project supports the development of municipal capacity by embedding teams of professionals within municipal water companies or in the case of rural areas, in the municipalities themselves. These teams specialize in different areas. In the first case study site, the teams focused on engineering, user education and administration. In the second case study site, the teams concentrated on engineering, urban water management, rural water management groups, and sanitary education. As part of the agreement between WUSC and the municipality, the water company or municipality was required to provide counterpart personnel to work directly with the WUSC team members.

In the case of the education programs, workshops were held to discuss topics such as how to manage water users groups and the link between hygiene and health. Brochures on users' rights and responsibilities were distributed door to door, and educational talks were given in schools. However, the bulk of the capacity development that takes place between WUSC and the water companies or municipalities occurs through daily interaction and working together to complete projects. This means that much of the information that is being taught is transferred implicitly rather than through explicit training.

Introduction to Communication for Development

Communication has traditionally been thought of as a means of sharing information, but it is also a social process during which meaning is created for the participants. Gumucio Dagrón points out, "Etymologically the Latin *communio* relates to participation and sharing. Modern languages have given different meanings to the word *communication*, it is often considered synonymous with the word information. There is confusion… between communication- the

act or process of communicating and *communications* with an "s" – the means of sending messages, orders, etc" (2001a; 33 emphasis in original). The implications of these two ways of looking at communication for development will be explored in the context of water and sanitation throughout this thesis.

Overview of the Thesis

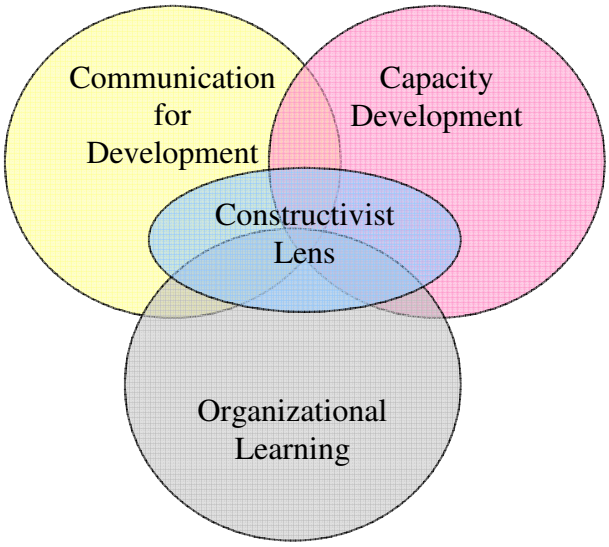
Chapter Two provides a review of the literature in three main areas: communication for development, capacity development and organizational learning. In it, I explore different communication functions and emphasize that two-way communication is a key component in both capacity development and learning. **Chapter Three** describes the context of water and sanitation in Peru, as well as, the two case study locations. In doing so, it explores the collaboration that has taken place between WUSC and the other stakeholders. **Chapter Four** is an overview of the processes and methodologies used to carry out the research. It describes the qualitative data collection methods including group workshops adapted from the book *From the Roots Up* (Gubbels & Koss 2000), the *Rapid Appraisal of Agricultural Knowledge Systems* (RAAKS) kit (Engel & Salomon 1994, 1997) and the PhotoVoice technique (Wang 1999) outlined in *Picturing Impact* (FIELD Foundation 2001). Data were also collected through participant observation, semi-structured interviews and a review of project documentation. **Chapter Five** reveals the findings from the workshops and interviews that were conducted. They are presented in four areas; flow and function of communication, quality of relationships, educational campaigns, and changes in individual and organizational capacity. **Chapter Six** provides an analysis of the findings and conclusions along with recommendations for policy makers, WUSC, and further research.

CHAPTER TWO- Literature Review

Introduction

Communication, capacity development, and organizational learning are the main themes in my research. Therefore the question that guides this chapter is: "how are these themes interrelated and what effect do they have on each other?" In answering the question, this chapter will use a constructivist lens, which highlights the role of social interaction in creating reality, to explore the literature and theories in three broad overlapping areas: communication for development, capacity development, and learning within organizations. These themes will then provide the context for the following chapters on the research itself.

Figure 2.1 Literature Review Themes



Theories, in general, try to express the relationships between variables in order to describe observations and predict future results. Theories are used to explain the causes and nature of a given situation; this diagnosis is then translated into strategies and specific recommended courses of action for interventions (Waisbord 2001). Generally, "theories shape the landscape

of facts by guiding thinking. They tell people what to expect, where to look, what to ignore, what actions are feasible, what values to hold" (Prange 1999; 24).

Efforts to use communication to create development are based both on theories about the nature and purpose of development as well as assumptions about how people acquire information, form ideas, beliefs and act on the basis of their knowledge (Díaz Bordenave 1977). Over the past fifty years, the concepts of "development" and "communication," as well as the philosophical thoughts underpinning them, have undergone major transformations that reflect changes in intellectual and political debates. Overlapping theories from a variety of disciplines including international development, health, education, management, agriculture, and communication have converged to create today's evolving field of communication for development.

This first section of this chapter explores the shift in thinking about communication for development that has revolved around a core difference between the meaning of communication: as a simple transfer of information or as a social process through which meaning is created and codified. These contrasting ways of conceiving of the meaning of communication have created two main branches of communication for development that can be differentiated by their core beliefs about the roots of development problems. On the one hand, behavior change communication generally focuses on the lack of information and the need for individual behavior changes while participatory or empowerment communication points to the need to change collective social processes and society wide power imbalances (Melkote 2003).

As they are closely connected, the second section in this chapter combines the two remaining themes: capacity development and learning. The first part looks at the theory and practice of capacity development. Although the phrase capacity development (or building or strengthening) is relatively new, the concept has been used in development efforts and expressed in words like institutional strengthening, organizational development, human resource development, non-formal education and training for quite some time. The purpose of capacity development is to foster an internal process of growth and development that attempts to increase an individual, group and/or organization's ability to perform, solve problems and manage current challenges in order to achieve desired results in the future.

The third and final theme of this chapter focuses on individual and workplace learning processes as they relate to capacity development. Theories of adult learning often focus on the individual. However, in this case situated learning theory (Lave & Wenger 1991) provides the basis for exploring how individual learning can be transferred into organization-wide learning and long-term changes that can improve organizational performance. During the learning process, the organizational hierarchy and the political dimensions of communication have the ability to constrain or enable individual access to knowledge and skills (Coopey & Burgoyne 1999; Keyton 2005), which in the long-term affect the quality of the overall pool of talent that the organization can draw from.

One of the key challenges to increasing the translation of individual learning into organizational learning is the sharing of tacit knowledge and mental models (Kim 1993). The learning that leads to capacity development is a social process that depends inextricably on the communication that takes place between different actors and the relationships that they build together (Keyton 2005; Stohl 1995).

Changing Perspectives on Communication and Development

According to Servaes (1999), it has only been in the past 15 years or so that culture and communication have been recognized as having a fundamental impact on the whole question of development. Now most experts agree that there is hardly a development challenge that can be met successfully without changes in the world-views, attitudes and behaviors of the people involved.

Communication is the basis for creating awareness, consensus building, making informed decisions, resolving conflicts, and generating participation in processes of change and development. When addressing any development context- population issues, violence, food security, use and conservation of natural resources, to name a few- it is large scale change in the way people live and work with each other that will make a difference (Fraser & Restrepo-Estrada 1998).

This communication occurs within and between formal and informal units of people. At the most simple level, communication takes place *intra*personally, that is within an individual as a stream of consciousness dialogue. Communication between two or more people referred to as *inter*personal. This interpersonal communication can take place between or among individuals and small groups; local, regional, national and international networks or coalitions; formal organizations; political units; or other groupings of people (Rosengren 2000).

Traditionally, communication efforts have tended to fulfill three main roles in development practice. First, to inform and persuade people to adopt certain behaviors and practices that are deemed beneficial to them; to enhance the image and credibility of the development

organizations involved in the efforts; and last, to enable community consultation on specific initiatives (Deane & Gray-Felder 1999). The focus in more recent years has shifted to providing a forum or platform for dialogue, debate, and participation for all sectors of society, especially those that have been underrepresented.

Overall, as theories of how development happens have moved away from top down donor driven approaches towards more participatory and community centered methodologies, so too has communication theory. Rogers and Hart (2001) now describe communication for development as social change brought about by communication research, theory and technology designed to increase people's social and material advancement.

Positivism, Modernization & Behavior Change Communication

Scientific research is traditionally based on values dating back to Aristotle and the Enlightenment, namely reasoning, rationality and objectivity (Melkote 2003). Such research is grounded in the positivist belief that there is a single truth, separate from any human observer, which can be uncovered through a rigorous application of the scientific method. Scientists from this background hold that experimental techniques yield results that can then be generalized into models and theories and applied to other situations. This way of looking at the world leads to the idea that the only factor necessary for development to occur in a given area is the simple transfer of new information and technologies to the intended end users (Jiggins & Röling 1997).

Dominant in academic circles between 1945 and 1965, the modernization theory of development, which has grown out of positivist thinking, is based on the idea that traditional cultures, often characterized by authoritarianism, in-fighting, low levels of individualism,

resistance to innovation, limited control over their environment, and a lack of formal institutions, are at the root of underdevelopment (Rogers 1969). The answer then, is the application of Western neoclassical economic development models to help post-colonial states to "catch up" with Western progress in their economic growth, political systems, education levels, and life expectancy (Rostow 1960; Huntington 1971).

Because of this context, communication for development interventions have their roots in post-World War II international aid programs as a way to get the necessary modern information to developing country populations in order to change their attitudes, ideas and values and therefore their behavior (Melkote 2003). Information was seen as the basis for development and crucial to creating the necessary social environment for development to succeed. At this time it was thought that a country's level of development could be measured not only through gross national product (GNP) but also in part through the depth of mass media penetration (Waisbord 2001).

This view of development has, in turn, informed several communication theories: diffusion of innovation (Rogers 1969, 1995), social marketing (Kotler & Roberto 1989, Walsh *et al.* 1993) and "edutainment" (Bandura 1977). In their early forms and in many cases into the present, these strategies are delivered as a mass one-way transfer of information from those who have it to those who do not. They are often delivered as organized communication campaigns directed at a selected audience for a period of time in order to reach a specific set goal (Snyder 2001). This "transmission" model assumes that unless there is something wrong with the channel (poor radio reception, bad printing, noise, etc) that the person receiving the message will get the exact information that the communicator intended them to have (Leeuwis 2004).

Towards a New Paradigm

As dominant development theories began to receive widespread criticism for their Western biases and top-down approaches (Dag Hammarskjöld Foundation 1975; Frank 1966; Haq 1976), in the mid-1970s several of the main thinkers from the modernization school of communication, such as Rogers (1976), began to publicly recognize the cultural biases that had shaped early thinking in diffusion of innovations, social marketing and edutainment theories (Huesca 2003). This shift in thinking was in large part due to the poor results and lack of change that both development in general and behavior change campaigns in particular were bringing about (Waisbord 2001). In particular, communication practitioners began to notice that even in cases where the message appeared to be received by the target populations without any problems, often the intended meanings were not conveyed and the expected changes in conduct did not occur (Leeuwis 2004).

Because of this, some of the basic guiding premises of the modernization theory began to be re-examined (Dube 1988; Spybey 1992). One idea that faced reexamination was that societies are fair in their distribution of resources to all individuals and groups and that all people, with just a little help and their own effort, can share in these resources. This assumption led to the idea that people who do not possess the resources or the proper attitudes to participate fully in society need to be helped and taught news skills. This "victim-blame hypothesis" fell apart as large sections of the world continued to experience a state of underdevelopment in spite of receiving much aid (Melkote 2003). Similarly, critics in Latin America noted that the outcomes of development projects often coincide with interests of the elites, indicating that development cannot be attained through simply helping the individual without addressing societal power structures (Huesca 2003).

Power imbalances were also linked to ownership of the communication channels. As mass media become more prevalent in most countries around the world, the impact of communication messages should be increasing. However, as Gumucio Dagrón points out, in Latin America, "the higher concentration of media houses in fewer hands has resulted in a loss of diversity and quality programming…local programming on social issues has disappeared from private television, leaving room for all kinds of low level and bad taste entertainment that sells well" (2003; 2). This results in a dearth of socially positive messages and an abundance of simplistic content that often contains violence, stereotyping, racism and sexually promiscuous behavior (Waisbord 2001).

Researchers such as Buchanan *et al.* (1994) and Röling (1988) began to advocate for a renewed focus on the process of communication and for using the specific local socio-cultural context as the basis for designing intervention strategies. Because of these shifts in thought, modernization theory-based communication models are slowly being adapted to become more compatible with communication theories that focus on participation, social change, learning and empowerment.

Constructivism, Sustainability and Empowerment Communication

In contrast to the positivist worldview, an alternative paradigm has evolved that recognizes that what we call truth is constructed through social interaction. This new paradigm is known as constructivism, and it holds that reality itself is made up of the stories we tell each other and ourselves and that communication and dialogue are the methods we use to bring our internal world and the external world into alignment. They are the means by which new ideas and versions of reality are jointly created, agreed upon, and transmitted to others (Jiggins &

Röling 1997). In this view communication serves to actively construct meaning rather than merely convey it.

Since there are multiple versions of reality depending on who is asking, observing and interpreting, people often have conflicting goals, attitudes, values, aspirations and standards, the negotiation of which can be observed in the interactions between people in any community, organization or household. Human contact and communication are therefore continuous opportunities for any combination of struggle, negotiation, accommodation or agreement (Röling 1994). Because of this, new theories of development and communication hold that there are no universal approaches to creating change that can work in all situations (Huesca 2003).

While both development and communication theories were undergoing changes before the constructivist paradigm became wide-spread, this paradigm has contributed to the shift in the goals of development that has occurred over the past thirty years. Dependency theories that emerged from Latin America in the mid 1960s, argued by authors such as Baran (1957), Frank (1966) and Escobar (1995), posit that the source of the problems lies in the very concept of development that uses the West as its *de facto* model, the history of global and local politics, colonial relationships, and the manner in which colonized countries were integrated into the world economy. Dependency theorists do not believe that lack of information is at the root of development problems, but rather that underdevelopment is a direct consequence of the level of development in the Western world (Hornik 1988).

In development theories in general, there is growing recognition that the focus must shift to meeting human needs and fostering environmental sustainability rather than securing rapid

economic growth or blindly following a Western model of development. According to Engel (1997), this type of development can only be achieved where people have worked out ways to live with each other; in fact, adequate social organization maybe a prerequisite for sustainable development. Many new road maps for development including the United Nations' Millennium Development Goals call for a restructuring of political and economic systems for a more equitable distribution of benefits, personal and communal freedom from oppression, and empowerment (Melkote 2003).

The new focus on learning and social and structural change began to evolve into a branch of development theory in the 1970s that called for participation of the people in defining, analyzing and coming up with tactics for addressing their problems. Development planning processes underwent a transition from a reliance on blue-prints designed in a central office or implemented in another part of the world to more process orientated situation-specific approaches (Korten 1980). Some development workers began to claim that participation in decision-making is a basic human right and one that can only be carried out through on-going communication (Melkote 2003).

Participation theorists such as Beltrán (1976), Díaz Bordenave (1977), and White *et al.* (1994) also criticized modernization approaches for confining local people to the role of passive receivers of messages telling them what to do rather than active participants capable of shaping their destinies using their own knowledge. This lack of participation is seen as the principal reason behind the failure of many communication interventions, which has led to some measure to the abandonment of communication for persuasion models.

Empowerment communication is another school of thought born of dependency development theory. It acknowledges that while knowledge is generated collectively, the knowledge of those with more power is often perceived as more legitimate than the knowledge of those with less power (Melkote 2003). The emphasis on media penetration as an indicator of development ignored questions about who owned the channels of information and controlled access to what could be said on them. These critiques imply that what is necessary in development is not more information but rather social and structural changes in order to redistribute access to power and resources (Waisbord 2001).

Paulo Freire (1921-1997), an educator who worked on literacy projects in slum areas of Brazil during the 1960s and 1970s, has been one of the most influential thinkers in the areas of popular, informal empowerment communication, with what he calls conscientization: the development of a critical consciousness that has the power to transform reality. Freire viewed most development projects as superficial, authoritarian and in opposition to the interpersonal communication processes that can help people to develop a critical perspective on their situation, resulting in a sense of ownership over their lives and collective responsibility for their own liberation from oppression. He believed that the distance between teacher and student, expert and community member, researcher and researched should be narrowed so that all parties can begin to reflect on their roles and co-learn (Huesca 2003).

According to Freire (1970), communication should be used to provide a space for dialogue; exchanging views, identifying common problems, exploring solutions, reflecting on community issues and mobilizing resources. The concept of dialogue is based on repeated and reciprocal information exchange between people; it involves not only the physical acts of speaking and listening but also is embodied in the relationship between the participants. And,

unlike mass-mediated dissemination messages, dialogue is generally oral, live, immediate and bound to a physical context (Peters 1999).

Several studies have shown that members of marginal groups in society actually prefer face-to-face or small group dialogue rather than mass or one-way communication (Waisbord 2001). These ideas have led to a surge in small community-based projects using theater, music, storytelling, video, photography, and radio to share ideas among local people without the need for external experts (Gumucio Dagrón 2001a).

While communication proponents have become aware of the importance of planning and implementing well-designed communication interventions to support development goals, often there has not been a corresponding increase in support from funders, project planners and other development workers. So in an effort to garner support, as well as to reflect the shifts in thinking from behavior change to empowerment theories of communication, a plethora of names for communication efforts have appeared, from media advocacy, to strategic communication, development support communication, communication for human development, participatory communication, and communication for sustainable agriculture (Bessette 2004; Waisbord 2005). While the field is broadly known as communication for development now, there is a new movement towards communication that fosters social change (Riaño 1994; Servaes *et al.* 1996; Wilkins 2000).

Communication for Social (and Environmental) Change, while clearly based on participatory and empowerment communication theories, is a "distinct way of doing communications- and one of the few that can be sustained…largely due to the fact that ownership of both the message and the medium- the content and the process- resides with the individuals or

communities affected" (Deane & Gray-Felder 1999; 4). This model prioritizes local content and media ownership so that the voices of those previously unheard can be amplified and channeled into existing public and political debates, thereby allowing them to set their own agendas and make them known in regard to political, economic and social development; Table 2.1 provides an overview of the approach.

Table 2.1 What is Communication for Social Change?

Communication for Social Change is a process of public and private dialogue in which people define who they are, what they want, and how they can get it. Social change is defined as change in people's lives as they themselves define such change. This work seeks to improve the lives of the politically and economically marginalized, and is informed by principles of tolerance, self-determination, equity, social justice and active participation for all. This approach attempts to rebalance approaches to communication and change by shifting the emphasis…
1. Away from people as objects of change… and towards people and communities as agents of their own change.
2. Away from designing, testing and delivering message… and towards supporting dialogue and debate.
3. Away from the conveying of information by technical experts… and towards sensitively placing new information into the dialogue and debate.
4. Away from a focus on individual behaviors… and towards an emphasis on social norms, policies, culture and a supportive environment.
5. Away from persuading others to do something… and towards negotiating the best way forward in a partnership process.
6. Away from outside technical and communication experts dominating the process… and towards the people most affected by the issues playing a central role.

Adapted from Deane & Gray-Felder (1999).

The complexities of modern development problems have heightened the awareness of how disease and poor health are linked not only to poverty and inadequate nutrition levels but also to prejudice, social dislocation and political, social and economic inequalities. This awareness is leading to broader calls for social and political change, which can only emerge from vigorous public debate within and between societies. Such debates depend on communication: within families, within communities, through public discourse, in short "the

capacity of people to communicate is intimately bound up with their capacity to effect change" (Deane & Gray-Felder 1999; 14).

Models and Functions of Communication

Two models for visualizing the flow of communication have been developed based on participation and empowerment theories. The original modernization-based one-way flow of information from sender to receiver model was later modified to include the pre-existing knowledge that both the sender and receiver possess from their personal histories and life contexts. Because of this, the sender should study the receivers' frame of reference in order to anticipate how to attune the messages to them. While this "subjective" model is an improvement over the one-way linear model it still does not explain why receivers may still ignore or refuse to accept the meanings conveyed in the messages (Leeuwis 2004).

The "social network" model on the other hand, tries to capture the myriad of prior and simultaneous communication that is occurring for both the sender and the receiver. Meaning, therefore, is not just constructed between the sender and the receiver but also in dialogue with the broader social context. The social network model also takes power into account by acknowledging how political interests, personal aspirations, social status and interpersonal relationships influence the construction of meaning. In practice all three models (one-way flow, subjective and social network) are implicitly or explicitly still in use to some extent in communication for development interventions (Leeuwis 2004).

Several authors (Calvelo Ríos 2003; Díaz Bordenave 1977; Leeuwis 2004; Ramírez & Quarry 2004; Rosengren 2000) have explored the "function" or intention that underlie communication action. This reason for communicating is different from the actual content of

any single message (see Table 2.2). Communication functions that seek to persuade, control or simply transmit information may have their roots in the behavior change paradigm. On the other hand, efforts to explore views, facilitate social bonds or raise consciousness may be based on empowerment communication models. Often one or two functions tend to dominate the thinking or overall motive behind a communication effort.

Table 2.2 Communication Functions

	Calvelo Ríos (2003)	Díaz Bordenave (1977)	Ramírez & Quarry (2004)	Rosengren (2000)
Communication function	Manipulation	Communication as persuasion	Policy communication	Control function
	Information	Transmission of information	Time-sensitive communication	Informative function
	Self-expression	Personal expression, social interaction and relationships	Social or facilitative communication: participation and debate	Expressive function
	Communication	Instrument of social and political change associated with authentic development	Educational communication: making things known, sharing knowledge	Social function
	Education		Communication for learning: feedback	
	Training			
	Recreation			

Criticisms of Participation and Emerging Approaches

Overall, participation, empowerment and social change theories hold that effective communication takes place on the interpersonal (rather than mass media) level as a two-way exchange of knowledge and learning. Rogers (1995) describes communication as a process through which participants create and share information with one another in order to reach a mutual understanding. This definition implies that communication is a process of convergence (or divergence) as two or more individuals exchange information in order to move toward each other (or apart) in the meanings they ascribe to certain events.

However, critics of participatory models such as Cooke & Kothari (2001) contend that there is no universal definition for participation, nor do the expected outcomes of empowerment, equity and social change have operational definitions (Morris 2003). Additionally, opportunities for participation can be co-opted by local elites thereby maintaining or even deepening power inequities.

Additionally, there are different ways in which people can participate in a project (see Table 2.3 for an example of different levels of community participation in water management) and some are more participatory than others (Arnstein 1969; Pretty 1994). Participation is more relevant at some stages of development projects than at others. Furthermore, some people maintain that the concept of participation itself comes from outside of local cultures and can therefore be seen as a top-down approach that pushes for certain goals that the community itself did not define and prioritize (Waisbord 2001).

Table 2.3 Levels of Community Participation in Water Management

Low level of community control  High level of community control	The community is asked to contribute labor, or locally available materials, community pays for water service
	The agency delegates certain management or operation and maintenance tasks to the community and provides training for these tasks
	The community is involved in discussing various options during the planning phase of the project, but final decision making power remains with the agency
	Options are discussed and decisions are jointly made. Compromises help to adjust the project to the community and agency realities.
	Final decision making and authorization rests with the community. The agency provides technical support and advice upon request from the community.

Adapted from IRC (1988).

Critics argue that participatory methods can be too slow; if development requires a redistribution of power then it will necessarily require longer term interventions then those needed to change individual behavior. Since almost all communication campaigns are subject

to funding agency procedures, pressure from donors for quick results often leads to the claim that empowerment and structural changes are impractical and that results are not easily evaluated (Huesca 2003; Leeuwis 2004). Furthermore, the most important indicators are often not quantifiable. For example, the number of people participating in a social network is relatively unimportant compared to the quality of relationships and dialogue within that network (Byrne *et al.* 2005).

However, the problem of measuring results is not unique to participatory communication strategies. Regardless of the type of intervention, it is often difficult to gauge the long-term impact of development interventions and to determine causality in a complex web of diverse influences. This persistent problem of measuring impact also reflects the lack of a common consensus on what the 'right results' are and what 'development' should look like. There continues to be tension between approaches that measure results in terms of behavior change and those that prioritize the long-term building of community capacity (Waisbord 2001).

Communication for Social Change proponents suggest that factors such as increased public and private dialogue and debate, increased accuracy in the information that people share with each other, access to the means for people to feed their voices into the debate, as well as increased leadership and agenda setting by disadvantaged people are all ways in which long-term goals may be measured incrementally. The creation of networks between people who would not otherwise be in contact is another important indicator (Deane & Gray-Felder 1999).

Waisbord (2005) indicates several key ideas that have emerged from communication studies over the years. First, power relations play a central role in communication- from who has

information to who owns the means of accessing it to who initiates the conversations. Communication should help people to negotiate complex power relations and increasingly make decisions for themselves. Communication interventions should integrate both top-down and bottom-up approaches so that the increasing focus on community empowerment does not lead to a misunderstanding about the role of governments and other centralized institutions in shaping an external context in which local empowerment can take place.

Third, several authors (Waisbord 2001; FAO 2002) are advocating a "took-kit" approach that strategically combines different communication approaches, from the interpersonal to the multimedia, from the local level to the national, depending on the context, the needs of the community, and the priorities of the funder. For example, there may be critical health or emergency situations in which a large number of people need to be reached quickly in which case a social marketing approach might be appropriate. On the other hand, to address deeper structural problems, other longer-term approaches would be required. McKee (1992) has argued that the most successful communication strategies have merged together various approaches by using media to stimulate interpersonal communication with peers around certain topics so that the messages have the opportunity to enter everyday discourse.

Capacity Development and Workplace Learning

This section explores the intersection of capacity development with learning, power and mental models within the context of organizations. Modernization-based development assistance generally focused on investments in physical and financial resources linked to technical training. It was assumed that the transfer of technology and the investments would automatically lead to development. Occasionally this did occur, but more often resources were not invested appropriately and countries became dependent on aid money.

In the current context of decentralization and shrinking aid budgets, more development initiatives are focusing on building local capacity to design, manage and maintain development efforts for the long term, after external agencies have pulled out. Unfortunately, the success of many capacity development efforts has been hampered by a continued focus on resolving technical factors to the exclusion of facilitating social and political processes that also affect the ability of people and organizations to achieved desired goals (Horton 2002, Trist 1981).

Capacity Development

Despite the concept of capacity development holding a central place in many development projects, "people everywhere struggle to explain exactly what capacity is or what it comprises. Virtually all discussions about the subject begin with an effort to agree on a definition" (Morgan *et al.* 2005: 8). However, as Gumucio Dagrón points out, "it is better to use wide definitions that enable [us] to add experiences, rather than tricky straight and narrow concepts that only contribute to exclud[ing] many interesting… processes" (2001b; 4).

In that spirit, the common features among several definitions of capacity development that have been identified by Horton *et al.* (2003) will be used as a guide for this discussion; that it is an on-going process; that its goal is to increase an organization's ability to perform its functions and achieve its objectives; that it increases the ability of an organization to learn and solve problems; and that it aims to create the ability to manage current challenges and perform well into the future. Since capacity development involves changes in roles, power,

access to resources and shifts in relationships at all levels from the individual to the societal, it is not surprising that politics often feature prominently.

Capacity development can be viewed as a means, a process and an end in itself. As a means it serves to strengthen the ability of an organization to carry out specific activities related to its mission. As a process it enables the organization to continually reflect and adapt its purpose in response to change and learning. And finally as an end it strengthens an organization's ability to become self-sustaining, survive and fulfill its purpose (Gubbels & Koss 2000; Morgan *et al.* 2005).

Horton *et al.* (2003), identify four main areas that determine an organization's overall capacity: organizational performance, internal capacity, internal operating environment and the external operating environment. Organizational performance is related to how effective and efficient the organization is at delivering programming, how relevant the activities they choose to do are to the mission and stated goals, and the degree of financial stability experienced by the organization. Organizational capacity is made up of the resources, knowledge, and processes used by the organization. The internal operating environment is composed of incentives and rewards, organizational culture, history and traditions, leadership and management styles, acceptance of organizational mission by all stakeholders, and the organizational structure. And finally, the external environment is made up of the administrative and legal system, national and local policies and political systems, economic trends, and the overall social and cultural milieu.

Many authors have broken down the idea of capacity into different areas. For example there are hard capacities that are more physically tangible such as resources, infrastructure,

technology, finances, and staff; and soft capacities that are less concrete such as management styles, planning abilities, goal setting, delegation of responsibilities, allocation of resources, transference of core values over time, strategic leadership, process management, and motivations. (Morgan *et al.* 2005; Horton *et al.* 2003).

Capacity can be visualized as a collection of specific abilities distributed among various levels of the organization from the personal abilities and competencies of individuals, to the overall capabilities of the organization, to the connection of individual and organizational attributes with the external operating environment (Fukuda-Parr *et al.* 2002; Horton *et al.* 2003; Morgan *et al.* 2005). This view of capacity leads us into an inquiry into how competencies are transferred and codified in the various levels.

The Nature of Organizations

Bolman & Deal (2003), Morgan (1997) and Morgan (2005) have each identified metaphors that can be used to conceptualize and understand organizations. Metaphors provide insight into certain areas of an organization. However, they can also distort and limit what is perceived, and because of this the metaphors are not mutually exclusive and there is no 'correct' metaphor for an organization. Those highlighted here and woven through out the rest of this chapter conceive of organizations as structures, as systems, as human resources, and as political arenas; their characteristics are summarized in Table 2.4.

Table 2.4 Metaphors for Understanding Organizations

Metaphor	Characteristics
Organizations as structure	Rules, policies, procedures, and hierarchies are what shape diverse interests into a single unified strategy
Organizations as systems	The organizational system is made up of interconnections between and among all parts and their environment
Organizations as human resources	Organizations are made up of individuals with needs, feelings, skills, memories, prejudices and limitations
Organizations as political arenas	Competing individuals and groups have enduring differences in perspectives, needs, and goals such that conflict, bargaining, negotiation, coercion and compromise are everyday activities

Adapted from Bolman & Deal (2003), Morgan (1997), Morgan (2005).

While organizations are traditionally thought of as monolithic and unified actors, with a single uncomplicated interest in self-preservation and development, from a human resource perspective, Taylor & Van Every (2000) contend that they are instead social constructions shaped by the ongoing and overlapping conversations of their members. Indeed, an organization can change its physical location and lose its physical assets without dissolving, because in large part it is essentially a patterned set of discourses that were created by the members and codified into norms and practices that are later inherited, accepted and adapted by newcomers (Keyton 2005).

As indicated in the metaphor of organizations as political arenas, one way of looking at organizations is as a composite of individuals and smaller and larger interest groups. The actors that make up organizations have different and evolving relationships both with each other and to the different dynamics and influences outside of the organization. Therefore, their relationships with each other can be conflictive or cooperative depending on each actor's needs and their perceptions of each other in each evolving situation; this cultural universe is complex and permanently evolving (Gumucio Dagrón 2001b).

Using a structural perspective, organizations attempt to maintain stability with mission statements, performance benchmarks, defined roles and structures that are maintained with policy and procedures. The people who work within an organization do not act randomly; each person has a defined role, which leads to expectations regarding their behavior. Rosengren in fact describes organizations as "a social structure defined in terms of the relations between a number of …positions, the individual incumbents of which have to play social roles…defined by the position in question" (2000: 105).

In almost all organizations, these defined individual roles are codified into some type of hierarchy through which rights, responsibilities and power are distributed throughout the organization. Each position in a hierarchy embodies rules that constrain or empower how, what, when, where and with whom communication can and should happen (Stohl 1995). Hierarchies serve to make behavior more predictable yet at the same time can limit the degree to which employees can be innovative, flexible and responsive to changing situations (Keyton 2005).

The actual hierarchical structure may or may not resemble the organization's formal organizational chart, often found in official documents. However, the structure in use serves as the route through which employee participation flows and therefore an examination of the messages and flow of information between levels can help to identify the responsibility, power and level of participation that employees feel they possess (Keyton 2005). As Stohl points out, "communication is simultaneously the source, the process, and the outcome of hierarchical position" (1995; 114). The patterns of organized activity and the communication that supports it create direct and indirect links among organizational members and the broader environment.

Keyton (2005) defines an organization is a system of members, and external stakeholders, working interdependently. These different actors communicate and collaborate with each other in order to achieve organizational goals, which in turn serve as a vehicle for obtaining the resources required to continue further activities to reach additional goals in the future. Organizations and the individuals within them also interface with the historical and current institutional contexts, such as the legal, economic, and political systems that inform things like property rights, codes of conduct, and customs. These are the rules of the game that shape expectations about behavior, performance, rights and obligations (Wilson *et al.* 2003).

Individual Learning

Since organizations are made up of individuals, the manner in which people learn to create and adapt to change in an organizational context is important. For most managers throughout the nineteenth and twentieth centuries, the key to effective organizations lay in bureaucracy, hierarchy and a strict division of labor (Weber 1958). At this time, employers focused only on training workers what they needed to know in order to accomplish the specific tasks set out for them and only a relatively small number of people in skilled positions were given more training (Jarvis *et al*. 1998).

In the 1960s the idea of what an organization should look like began to break down as it became more and more difficult to control external conditions and to foresee what skills would be needed to react appropriately to them. The clear dividing line between managers who have all the answers and give orders, and workers who do as they are told also started to blur as training for workers shifted to 'human resource development.' This change reflected

the amount of knowledge and autonomy employees need in order to make quick decisions in the best interest of the organization (Jarvis *et al*. 1998).

Merriam and Caffarella (1991) outline four main orientations to adult learning theories- behaviorist, cognitivist, humanist and social learning. Behaviorists (e.g. Thorndike 1913; Pavlov 1927; Watson 1998; Guthrie 1956; Hull 1943; Skinner 1974) view learning as producing more or less permanent behavior change in a desired direction. Cognitivists (e.g. Köhler,1959; Lewin 1948; Kohlberg 1986; Gagne 1985; Mezirow 1991) view learning as an internal mental process that relies on individual memory and perception to create meaning and insight. Humanists (e.g. Maslow 1954; Rogers 1961; Knowles 1978) regard learning as an individual act to fulfill personal potentials for growth. Social learning theorists (e.g. Bandura 2001; Rotter 1973; Jarvis 1987) believe that learning occurs through interaction with, observation of and feedback from others in a social context.

Workplace learning is now seen more holistically as many of these theories have been integrated. Kim defines learning as "increasing one's capacity to take effective action" (1993; 38). This definition encompasses two meanings: the acquisition of skills and know-how which include the physical ability to take certain actions, and the acquisition of know-why which includes the mental ability to conceptualize an experience and know how and when to apply lessons from it. Both of these processes are affected by personal and collective memory, which determines what will be retained and remain available for recall in new situations.

A new way of looking at adult learning that is now a common perspective in work place learning is situated learning theory. Lave & Wenger explain, "It concerns the process by

which newcomers become part of a community of practice. A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a socio-cultural practice. This social process includes, indeed it subsumes, the learning of knowledgeable skills" (1991; 29). Because of this, situated learning theory blurs the line between individual and collective learning (Sun 2003).

Situated learning theory holds that learning is located within everyday work practices that coincide with processes of identity formation, both of which are embedded in individual and group power dynamics. These power relations are what constrain and enable access to positions of potential mastery of the knowledge and skills necessary within each context (Contu & Willmott 2003). Since information and knowledge are acquired, maintained, and transformed through social interaction, within this framework, the acquisition of skills is not what is most valued, but rather it is the ability to read the context and act in a way that is recognized and valued by other organizational members that is crucial.

Power, Knowledge and Mental Models

Giddens looked at power from two perspectives; one of domination and the other of transformative capacity. The common view of power is as the ability to influence or control the actions of others. The second type of power, known as "human agency," is the capability of a person "to intervene in a series of events so as to alter their course" (1976; 111). The power of domination therefore, involves influencing other people to use their personal agency to achieve outcomes. A person with power can do this by imposing his or her definition of a situation on other people and making them act based on a certain viewpoint about it (Leewuis 2004).

O'Dell *et al.* describe knowledge as "information in action" (1998; 5), and distinguish it from data as raw sensory input; information which is interpreted data; and knowledge which according to Leewis is, "the body of mental inferences and conclusions that people build from different elements of information, which allows them to take action in a given context" (2004; 95).

Access to relevant and timely information and knowledge influences the ability of each person to make informed choices about how to exercise their personal agency. So, in this sense, access to information is empowering while inadequate information is disempowering. Therefore, the flow and distribution of information within an organizational system can be seen as the evidence of myriad political acts involving the exertion of power (Stohl 1995).

While the word politics often has unpleasant connotations, Coopey and Burgoyne (1999) argue that because of the tacit and implicit nature of social learning, the political *status quo* within an organization is often shaped in ways that are difficult to discuss and that prohibit higher levels of learning. In that sense, publicly sanctioned and open political activity could serve to open up space for creative dialogue, learning, and analysis of alternative courses of action within organizations. It could allow individuals to question and resist the pressures placed on them by other people's perceptions of their identities by making their own self-knowledge explicit. It could also offer scope for constructive airing of conflicts and disagreements that would bring problematic relationships to light so that those involved could manage them rather than allowing them to influence future activities in unforeseen ways.

Coopey and Burgoyne describe the process this way:

> Sensemaking…requires us to make moral judgments about our experience, involving distinctions between what is worth doing and what is not. In this search for a full and meaningful life we are also guided by respect for, and obligations to others, and our sense of dignity, which is itself dependent on the respect accorded to us by others. Thus our human agency is constituted, enabling us to respond both to our own questioning- of where we are in our lives and whether the direction taken is the right one- and to others questioning 'who we are' or perhaps more important, telling us who they think we are or should become (1999; 7).

Factors that influence communication and relationships are often unconscious even to individuals themselves. Leeuwis (2004) makes the distinction between discursive knowledge and tacit knowledge. Discursive or explicit knowledge is that which the individual is consciously aware of, has reflected upon and can be easily conveyed as information in common language to other people or codified in documents and databases. On the other hand, tacit or implicit knowledge is often embedded in contextual experience, specific social situations, memory, judgments, emotions, perceptions and motives so that while this type of knowledge can be made explicit and transferred to others, it takes considerable effort and self-reflection (Jarvis 1999).

Though both discursive and tacit knowledge serve as lenses through which each of us interprets and assigns meaning to experiences, Leeuwis notes that, "explicit knowledge can be seen as only the 'tip of the iceberg'. In sociological terms, this 'iceberg' can be called an actor's life-world" (2005; 97). Each person possesses a life-world or mental model of how and why the world works as it does.

Senge (1990) describes mental models as deeply held internal images of how the world works. They include implicit and explicit understandings, and also provide the context in

which to view and interpret new data and determine how stored information is relevant in each given situation. The mental models in people's heads are where the vast bulk of an organization's knowledge (both know-how and why-why) lies. Mental models are composed of past experiences and personal and shared understandings, as such they are not fixed but rather are continually changing and being reshaped by new experiences. Access to information then actually shapes how reality itself and any future information will be interpreted.

The hidden nature of much knowledge means that there is often a gap between what someone thinks or how they perceive themselves and what their behavior actually demonstrates. Argyris and Schön (1974) hold that people usually act according to their mental maps or theories-in-use, rather than the reasons they tell others or their espoused-theories when required to explicitly explain their actions. This gap can be narrowed through consistent feedback and self-reflection (Jarvis 1999).

Argyris and Schön (1978) also talk about two different levels at which learning can take place. Single-loop learning tends to involve learning how to do the same general thing better and usually encourages only small changes in procedure to make existing techniques more efficient rather than shifting the foundation that behavior is based on. Double loop learning, on the other hand, involves actively questioning the paradigms upon which action is based and calls for a change in the way strategies, policies, objectives and consequences are framed. In the context of an organization, it can involve making explicit deeply held assumptions and norms that were previously inaccessible because they were unknown or known but not open for discussion.

Organizational Learning and Learning Organizations

The main idea of strengthening capacity, then, is to help people through processes in which the capacity for individuals to learn, as well as the overall capacities of the organization are increased. So just how does individual learning translate into increased organizational effectiveness?

According to Easterby-Smith and Araujo the concept of *organizational learning* (e.g. Argyris & Schon 1996; Weick 2001) was developed by academic authors from diverse fields and is concentrated around the "detached observation and analysis of the processes involved in individual and collective learning inside [and between] organizations" (1999; 2). Learning processes occur inside all organizations, although variables include the speed, degree and content of what people learn (Sun 2003).

On the other hand, the literature on *learning organizations* (e.g. Kim 1995; Senge 1990) tends to be written by managers and consultants in order to create methodologies for improved learning processes and an increased ability to survive and adapt to an evermore unpredictable future. As such, it is action oriented and "geared toward using specific diagnostic and evaluative methodological tools which can help to identify, promote and evaluate the quality of learning processes inside organizations" (Easterby-Smith & Araujo 1999; 2).

Within each of these two communities of thought, a distinction between a technical and a social orientation can be made. Easterby-Smith and Araujo state that, "the technical view assumes that organizational learning is about the effective processing, interpretation of and response to, information inside and outside the organization. This information may be

qualitative or quantitative but it is generally explicit and in the public domain" (1999; 3). The social perspective highlights the manner in which people make sense of their experiences at work and views learning as a natural process that occurs during social interaction. As the social perspective fits with a constructivist lens and workplace situated learning theory, it will be the basis for the rest of this discussion.

Just as each person has their own mental model of how the world works, organizations themselves can develop their own life-worlds based on collective memory and experience. "Individuals come and go, but organizations preserve knowledge, behaviors, mental maps, norms and values over time" (Weick 2001; 243). This process of creating and codifying organizational memory, leads to what O'Dell *et al.* describe as organizational culture or "the shared history, expectations, unwritten rules and social mores that affects the behavior of everyone… It's the set of underlying beliefs that while never exactly articulated, are always there to color the perceptions of action and communications" (1998; 71). Servaes (1999) similarly defines organizational culture as the social settings in which a certain reference framework has taken concrete form and been institutionalized.

When information is shared and captured or codified, it can be passed from employee to employee creating an organizational level interpretation that can be passed on and acted on by others (Keyton 2005). These shared models that members of an organization develop together over time defines which actions are given priority, how an organization chooses to act, and what it chooses to remember from its experiences. They also serve to orient the interaction and communication of people within a specific historical context.

These models may be explicit or implicit, tacit or widely acknowledged, but just the same they affect the way an individual or organization views the world and takes action (Kim 1993). In other words, mental models are not merely a repository of data, instead they actively serve to build shared theories about experiences.

Jones (2001) identified many factors as crucial to the organizational learning process; an organizational culture that actively encourages questioning by employees at all levels; the development of skills for critical reflection in all employees throughout the organization. Also, regular and varied opportunities for acquiring new information and sharing questions, reflections and learning; the development of spaces where active inquiry and experimentation with mental models is encouraged; the continuous search for learning opportunities in the organization's on-going activities; encouragement and recognition for taking new actions based on the outcomes of learning and critically reflecting on the outcomes of those actions are important so that a shared understanding of key assumptions and interrelationships can emerge (Kim 1993).

Learning often takes place during a specific situation like crisis managing or problem-solving a certain task and the result is not reflected on, codified or shared later on (Kim 1993). However, for organizational learning to occur, the discoveries and outcomes of individual learning must become embedded in organizational memory. If they are not encoded in the images that individuals have and the mental maps they collectively construct, then the individual will have learned but the organization will not (Horton *et al.* 2003).

There are many barriers, both individual and structural, that can hinder the sharing and transference of learning from the individual to the group or from the group to the

organizational level or between horizontal levels. While information sharing may appear natural and spontaneous, it is conditional upon a sense of trust in one another rather than suspicion, hostility or reservations about how the information will be used (Contu & Willmott 2003).

Many times individual learning cannot affect the actions of others because of constraints inherent in the learner's position within the organizational hierarchy, although Schultz (2001) contends that hierarchy can play an important role in distributing new knowledge to a wider range of groups within the organization to facilitate an assessment of its relevance. The link between organizational culture and sharing of learning is explored in Table 2.5.

Table 2.5 Organizational Culture and Sharing

Pro-Sharing Culture	Anti-Sharing Culture
Learning through teaching and sharing	Negative incentives and sanctions work against the sharing of information and insights
Communal understanding through story telling	Little time and attention is devoted to learning from experiences
Continuous exchange and creation of new knowledge- as experimentation occurs, people share and learn	Assumptions about projects and activities are not challenged
Areas of interest and expertise overlap	Individuals have specialized technical expertise that do not overlap
Willingness to acknowledge and learn from error	Management and/or staff deny errors or assign blame to others
Development of personal relationships	Different groups within organization develop different cultures that prohibit the transfer of knowledge

Adapted from O'Dell *et al.* (1998).

Other obstacles to knowledge sharing include situations where people focus on the differences between them or the tendency for each individual or group to horde information in order to try to maximize its own accomplishments and rewards in comparison to others. Other factors that prevent capacity development and learning efforts from becoming part of the organizational culture include a lack of a common worldview within the organization that

would create a basis for effective communication, the use of a single coherent vocabulary to describe processes and practices, and a strict focus on explicit knowledge that undervalues the importance of tacit knowledge (O'Dell *et al.* 1998). The challenge is for individuals and organizations to overcome these barriers and learn to transfer specific insights into more general maps that can then guide future action both for themselves and others.

Chapter Summary

Two core paradigms, positivism and constructivism have shaped the way we think about development, communication, capacity development, organizations, and learning. All of these themes seen from the positivist perspective are technical concerns that involve the transfer of information from the group that possesses it to those that do not in order to reach established goals. On the other hand, the constructivist perspective emphasizes the process of creating dialogue and relationships that allow for the formation of shared mental models and common approaches to reach negotiated aims.

In response to behavior change communication, Communication for Social Change principles advocate a shift in focus from individual behavioral changes to broader change at the political and societal levels. However, all capacity development efforts whether intended for the individual, an organization, or society as a whole, and whether they focus on hard or soft capacities, necessarily enter through individual mental models.

Overall organizational capacity development then depends on what the individual has learned, how well they are able to express and share it with others, and the receptivity of the team or organizational culture to new ideas. The manner in which individual capacity becomes organizational capacity is through personal agency exercised through

communication. The type of communication that is used will in turn affect the individuals' future perceptions of their position in the workplace community of practice and the future functions of the communication that occur in that environment.

Through an exploration of how communication, capacity development, and organizational learning are interrelated in this chapter we have seen that they are inseparable in many ways, which are summarized in the conceptual approach in Figure 4.14. Principles of Communication for Social Change point to the need for the ownership of communication, learning and changes processes by those who are most affected by them. Additionally, the success of capacity development efforts depend a great deal both on the capability of individuals to learn and modify their own mental maps to encompass new ways of working, and on their ability to communicate their learning to others in a way that helps to change the collective mental models that are held within organizations.

CHAPTER THREE- Research Context

Introduction

This chapter describes the national context for WUSC's work in Peru by focusing on the history of the devolution of the provision of water services to a local level and the history of water management in Peru. Additionally, it examines how the relationships between WUSC and the other stakeholders have developed and how collaboration has taken place in the two case study locations.

Peruvian Water and Sanitation Services

Until 1990 urban water and sanitation services in Peru were administered by the central government through the regional offices of National Service of Potable Water and Sewage (SENAPA). In rural areas, the national government's Health Ministry (MINSA) was responsible for water and sanitation services. Between 1990 and 1993, responsibility for water and sanitation services was devolved to the level of municipal governments. At this point, the municipalities became the only entities that were legally responsible for water and sanitation services.

Most commonly, they managed these services indirectly through Municipal Drinking Water and Sewage Companies (abbreviated in Spanish as EMAPA or EPS). In rural areas, water service providers were embedded within the municipal structure in an office called the Municipal Unit, or managed by the users themselves in water groups, committees or users associations. However, training was not provided to the municipalities or water users on how to effectively manage these services and the public's role was generally to simply pay for the

service rather than having more control over the management of the system (Bodero 2003; also see Table 2.3).

In 1992, SENAPA was dissolved and replaced with the National Superintendent of Sanitary Services (SUNASS) in order to regulate the municipal water companies, provide a forum for the protection of users' rights, and environmental protection. In 1994, MINSA was given the responsibility of verifying and regulating water quality around the country. Parallel to this devolution process, a privatization program was started to transfer all state owned companies to the private sector by 1995.

Between 1991 and 1997, over 100 state-owned enterprises were sold to private investors (Manzetti 1999). Privatization of the water sector was also scheduled and though bids were collected, plans for privatization were postponed indefinitely in 1997. In 1992, 63 percent of the public polled were in favor of privatization of the water sector but by 1997, 78 percent were opposed because of their disappointing experiences with other privatized industries, combined with a lack of confidence in Peru's Fujimori government (Shirley 2000). As Arce (2005) and Schamis (1999) point out, the impacts of privatization are not politically neutral; as most gains are concentrated in the elite classes with business interests and the losses are born by the poorer classes. By 1998, almost all plans for additional privatization had stalled.

Since 2003, the National Program for Rural Water and Sanitation (PRONASAR) has been charged with coordinating rural water service. During this same period, a third level of government, the regional has become more prominent and there has been a new wave of decentralization policies that have sought to make urban service providers independent of local municipalities. The reason for decoupling the service providers from the municipalities

is that in practice, “municipal operators have not demonstrated, in the majority of cases, their ability to successfully manage services nor to directly finance necessary investments” (Bordero 2003; 9). More than half of municipal water companies are facing severe economic crises that compromise their ability to guarantee adequate water quality and service coverage. In 2001 it was estimated that 41 municipal water companies collectively owed US $770 million in debts and that they would need at least 44 years to repay this sum (Bordero 2003).

The National Registry of Municipalities has documented the limited capacity of Peruvian municipalities to plan and manage local development processes. In 2001, 1,620 provincial and district municipalities had 62,000 employees on payroll of which 23 percent were female. Over 40 percent of municipalities surveyed did not gather basic data on their populations nor did they have any type of municipal planning processes. Additionally, the Registry showed that just 26 percent of municipal workers knew how to operate computers and that only 10 percent of municipal offices had Internet access (INEI 2004).

Because the municipalities own the local water companies, I was often told in interviews that water is managed as a political good, with improved service promised to those neighborhoods that vote for the winning party and jobs in the water company given to supporters. The mayors and town council members of the towns that own the company, appoint a board of directors to govern it. The criteria for joining the board are that members have some experience running any type of company and retain good standing with the mayor. These directors select the general manager and many of the other water company employees as well. One WUSC staff person stated that, “in Peru there is no stable civil service. Since all jobs are given as political favors, there really is no such thing as local government capacity.” In light of the political nature of local water management, the two

study locations remain unnamed in this thesis in order to protect the confidentiality of all participants.

One interesting case study (Castillo & Ruiz 2005) asked the question: why do municipally owned water companies seem to be so unsustainable while other municipal enterprises, such as the municipal savings and loan banks, seem to be thriving? The study points to the fact when the municipal banks were formed in the 1980s; they were created as independent municipal companies with autonomy over their administrative and financial matters. The Supreme Court ruling that governs the municipal banks expressly prohibits the participation of the mayor and council members in the board of directors of the bank and also establishes a term period of two years that cannot be truncated by changes in the local government.

The municipal bank highlighted in the study had seven members on its board of directors; three of them were municipal agents, while the other members were representatives from the chamber of commerce, the workers union, the National Bank and the Catholic Church. The bank employees were selected based on demonstrated competence in their respective areas and the Ministry of Economy and Finance provided incentive funds for municipal banks that met or exceeded their yearly targets. This legal and regulatory structure seems to have made all the difference between municipal companies like the savings and loan banks that thrive and those like the water companies that struggle.

In light of the current politically charged governance regime in municipal water companies, many people have placed their hopes on increased technification of management and a greater participation of the private sector through concessions or privatization. During 2005, several newspapers published articles criticizing SEDAPAL, the state-owned water company

of Lima. This was seen by many people as a thinly veiled attempt to renew the push for privatization. Proponents of privatization compared the number of people without sustainable water service in the peri-urban areas of Lima with low levels of telephone coverage before the privatization of the national phone company.

However, opponents of privatization argue that the private companies are most interested in the core of Lima, which is highly profitable, and that the investments private companies would make to the peri-urban areas would be minimal. Additionally, access to clean water is usually considered a basic human right and cannot be treated like a technical concern such as telephone coverage. To compound the problems, the government bodies that have been charged with regulating private participation are weak and inexperienced with this type of complexity (Bordero 2001).

Peru has signed and ratified almost all of the international treaties designed to promote sustainable natural resource use and avoid negative environmental impacts. The national government has put in place a series of mechanisms and programs in order to implement the agreements such as institutional strengthening, the participation of citizen groups, the incorporation of environmental indicators into national accounting procedures, and the transfer of technology to areas with strong natural resources bases. However, the capacity to implement these programs and concrete mechanisms to control actual behaviors remain limited (UNDP 2004).

In 2005 the Peruvian water sector consisted of a complex system involving the national government, municipal governments, user groups, technical assistance providers, the private sector, and national and international financial institutions. Unfortunately, there has been

poor coordination and little information sharing between these actors. This means that it is difficult for any one actor to know what is actually occurring in practice; there is a weak political will to carry out government policies; little space for effective support from technical experts; limited action protecting water quality and the environment; poor accountability for the quality of services provided; and limited protection of users rights (Agencia Canadiense Para el Desarrollo 2003). In light of this, Bordero (2001: 29) states:

> It's erroneous to think that only the water service providers need to change. What is needed is to organize the sector with a vision, mission, rules, policies, and strategies…therefore, local and regional governments as well as users have to be recognized as important actors in this change process.

First Case Study Site: Urban Location

This case study took place in a town of about 110,000 inhabitants on the coast of Peru in the province of Lima. According to the most recent 1993 census, 88 percent of the population in the province had completed elementary school, and only four percent of the population over 15 years of age was considered illiterate. Seventy-one percent of the population was employed in the service sector and twice as many women were employed as men (INEI 1993).

Sixty-six percent of the urban population in the province had access to piped water for indoor household use, while in the rural areas more than 50 percent of the population used untreated river, spring or irrigation water. Sixty percent of the total population of the province had indoor toilets and 13 percent had no waste disposal system at all. The province of Lima is divided into ten counties and in the county where the case study was conducted, 44 percent of the population had indoor household water connections, while 40 percent had indoor toilets and 35 percent had no waste disposal system at all (INEI 1993)

The municipality's water and sanitation company serves one main town and two smaller nearby satellite towns; this study focuses on the main town. The company is structured hierarchically with a board of directors, a general manger, and eight main departments. Of those departments, the ones that have the most direct contact with the public are the Commercial Office, described by one manager as, "the nexus between the public and the company" and the Institutional Image Office, which performs public relations duties through the press. The first "general shared responsibility" for all employees listed in the company's Organizational Manual (EPS 2003, 9) is to "recognize that our clients are the focus of our organization, they are our reason for being and are at the core of all of our attention and effort."

Figure 3.1 View of the City

In December of 2002, water was distributed by the municipal water company to the general population of the city through 18,084 water connections for an average of eight hours a day. At this time about 57 percent of the water that was pumped into the pipes for distribution was unaccounted for. It was estimated that almost half was lost because of the poor state of the water pipes, while in other cases the end users simply did not pay for their water service or

the water was unknowingly distributed through clandestine connections that could not be billed (SUM 2005a).

The income that the company received at this time only covered operating costs; therefore there were no plans for investments in the system to repair leaks or to encourage water conservation on the part of the general public. Additionally, demand for water was rising as the population of the city continued to grow and new immigrants from rural areas used an increasing amount of water as they became accustomed to having it in their homes. Because of the large percentage of water that was unaccounted for, the water company made the decision to install household water meters in order to charge people for the amount of water they used rather than the flat rate that had been in place up to this time.

The mass media reported that the some of the household water meters that had been installed in Lima came from an unreliable manufacturer and had to be replaced. Many people had heard rumors that the local water company had bought these meters cheaply from Lima and that they were faulty and measured air passing through the pipes resulting in elevated water bills. One water company manager said, "People did not want the meters because they thought they would pay more. They asked themselves, 'why would the water company want us to pay less?'"

The press helped to fuel fears of increased rates and some neighborhoods began to organize themselves to meet the meter installation teams with rocks and machetes. At this time, the main source of communication between the water users and the water company was the company's Institutional Image Office. Their strategy was to monitor the press on a daily basis and to respond to each incident individually.

Within this context, in November 2000, WUSC began to work with the water company with three teams: engineering, social and administrative. The Engineering Team was led by an engineer, the Social Team by a trainer and the Management Team by an economist. The teams began by carrying out a series of diagnostics and surveys to determine the state of the water pipes, the administrative system and the attitude of the general public towards the water company. One staff member in Lima commented that, "municipalities do not know what their costs are, they just pump as much water into the system as they can." Based on the studies, WUSC made the decision to divide the city into sectors and work intensively in one sector at a time.

In the first phase, the Engineering Team made plans to assign one well exclusively to supply water the first sector alone and to close any pipes that connected the first sector with the others. This would create the technical conditions necessary for the reliable functioning of the water meters. Meanwhile, the Management Team began updating each users' information in the company database, made an inventory of clandestine connections and then began a campaign to have users pay old debts and legalize their water connections. Later the Management Team ensured compliance with the laws regarding public notification prior to the installation of water meters and the phasing in of the new billing structure based on the meters.

The Social Team found that in December 2002, the approval rating for the water company in the first sector was 11 percent (SUM 2005a). Project documents reported, "the users' resistance to changing their attitudes and accepting some of the projects promoted by the water company [were] due mostly to distrust and skepticism that the water company [would]

follow through and achieve any improvement in the service" (SUM 2003). The Social Team began an intensive user education campaign focused on neighborhood groups, school and the general public around the issues of the rights and responsibilities of the water company and the users, the water meters, and water conservation (see Figure 3.2).

Figure 3.2 Member of Social Team Speaking to a Water User

Based on a user satisfaction survey, a series of brochures were designed with a communication consultant in Lima. Once drafted, there was no consultation with users as to the content or design. The brochures were delivered as support to face-to-face meetings with neighborhood groups, through house-to-house visits, and attached to monthly water bills. Some of the educational materials were presented on the radio and the public was also kept up to date on the progress of construction over the radio. This program ran for three months in 2003 in the first sector of the city and for one year in a smaller nearby city that was served by the same water company (SUM 2003).

The Social Team also began to accompany members from other teams into the field when they had contact with the public, especially when the efforts to install water meters were renewed. Members of the Social Team also accompanied a plumber to people's homes before

their water meters were installed in order to check over their connections for any problems that could result in elevated meter readings. If leaks were found, the person was told which parts to purchase and the plumber would arrange to come at another time and install the new parts at no cost.

The Social Team also worked with the 1,185 students of the four schools in the first sector in 2003 and 2004. The sciences and environment teachers attended educational presentations about the state of fresh water globally and were given coloring books and other educational materials they could integrate into their curriculum. The schools were invited to participate in a series of events and contests leading up to a parade for InterAmerican Water Day, celebrated in October 2004. Additionally, some teachers arranged fieldtrips for their students to visit the water company and see it in operation.

By the end of 2004, following the implementation of these activities, 76 percent of the users in the first sector stated they were satisfied with the water service. They received increased water pressure and number of hours of service, to 20 hours per day. The percentage of connections with water meters has gone from 40 to 85 percent and 200 clandestine connections were eliminated. Prior to WUSC's intervention in the sector, 64 percent of water was not paid for, while by in December 2004 that had decreased to 54 percent. In the city as a whole, 29 percent of the connections had water meters in late 2002 and by December 2004, 35 percent had water meters. The overall amount of unaccounted for water in the city decreased slightly from 57 to 56 percent (SUM 2005a).

At the time of this research in 2005,the Social Team was headed up by the prior water company counterpart and two new water company counterparts had been assigned to work

on the team to educate water users and the schools in the next sector. The Social Team was in the process of filming and editing a socio-drama about the water meters and water conservation that would be shown to parents groups at the schools in the second sector.

Second Case Study Site: Rural Location

This case study took place at 2,964 meters above sea level in a rural district in the province of Ancash. According to the 1993 national census, 60 percent of people in the province have finished elementary school and 21 percent are illiterate. Three times as many women work as men and 44 percent of employment occurs in the agricultural sector and 37 percent in the service sector (INEI 1993).

The district where this case study took place is located between two major mountain ranges and has a population of 12,565 people, with 2,974 people in the district capital and 9,591 people in surrounding rural communities. In the district, only 39 percent of the population has completed elementary school and 36 percent of the population is illiterate. Further more, only seven percent of women have finished elementary school and 51 percent of women are illiterate. The majority of the populations speak both Spanish and Quechua, but the language used most frequently in the rural areas is Quechua. Sixty-nine percent of employment occurs in the agricultural sector. However, seemingly contradictorily, 77 percent of children in first grade suffer from chronic malnutrition. In addition, 86 percent of homes in the area do not have sanitation service (INEI 1993).

Figure 3.3 District Capital and Surrounding Countryside

Cities between 2,000 and 30,000 inhabitants have recently been redefined by the Peruvian Government as "small cities," in recognition of the fact that they have traditionally been under-funded in favor of larger urban centers or remote rural areas with populations under 2,000 people that benefit from PRONASAR projects. At the national level the water systems of small cities are characterized by direct municipal ownership that is overly influenced by local politics and interest groups. They tend to have a poor quality service due to deteriorating infrastructure and limited administrative, financial, and technical capacity (Bordero 2003; SUM 2004c).

Rural Communities

In 2001, WUSC began working first directly with five rural communities in the jurisdiction of the district capital and by 2004 they were working in 14 of the 28 rural communities in the area. An international mining company working in the area first invited WUSC to work in the district as part of its efforts to "improve the living conditions in communities near its mining operations" especially in the areas of basic health and economic activities (SUM 2005b; 14).

After a series of talks with the municipality, WUSC provided information to local authorities and leaders of rural communities, members of rural water groups explaining what their project "Improvement of Potable Water and Sewage in Rural Areas" would offer. The purpose of the project in the rural areas was to improve consistent maintenance and operation of water services through sound administration practices, and also to improve hygiene practices and water conservation behavior on the part of the public.

Members of the rural communities then talked over the project and decided if they would submit a proposal to the municipality to participate. Later a representative of WUSC visited each of the communities that had applied and interviewed community leaders to assess their commitment to working together. Each community was given a rating based on the interviews and ten different selection criteria; those that received the most points were selected.

WUSC began working first with five rural communities in 2001, an additional five in 2003 and four more in 2004. WUSC assigned three teams to work with the chosen communities: administration, technical, and sanitary training. The same economist who had worked previously in the first study site led the Management Team, an engineer headed the Engineering Team, and a sociologist led the Sanitary Training Team. As in the first case study, they began their work with a series of diagnostic and training workshops in different areas before beginning any infrastructure work.

Out of the fourteen communities that worked with WUSC, two of them had their own municipal delegates, and public transportation. Of these two communities one had 24-hour electricity service and one had telephone service. Of the other communities, only one had

electricity occasionally and one other community had a phone. All of the communities were located on foot paths various distances from the main roads, and it took between thirty minutes to three hours by foot to reach the district capital from the communities. The majority of rural communities in the area had water systems that had been built up to 30 years earlier for them by a government program or by international NGOs. In many cases, the pipes and catchment systems had deteriorated since they were first installed.

In the past, a condition for the construction of infrastructure was often the creation of a traditional water user group known as JASS (Administrative Group for Sanitation Services). These groups were governed by several laws and government resolutions, but nevertheless were largely seen as informal, since they were usually organized only to gain access to water service, and not intended to provide long-term management of the service. The members of the JASS were often not elected, were given minimal training, and directors did not know how to perform their roles, keep records of meetings, or work with bylaws. Each time a new board of directors came into power, they essentially had to begin from zero.

As a consequence of their lack of management capacity and limited ability to fix the pipes when something went wrong, the JASS had limited public legitimacy. Between 40-60 percent of users did not pay monthly service fees, which averaged 50 centimos (approximately US$ 0.15) per house as there were no receipts given and little record keeping in general so they did not know where their money was being spent. Additionally, the water group had no policies or sanctions at their disposal to encourage people to look after the water system or to pay their fees.

Members of the JASS often went to the municipality to ask for chlorine for disinfection and money to repair their systems even though they were supposed to be collecting money from their users. By law, the municipality was responsible for supervising and assisting the rural water groups. However, it did not have any employees dedicated to water and always gave priority to urban water needs. This explains why the municipality wanted WUSC to help improve their administration and improve coordination with the population in order to improve rural water services. However, there was a large measure of distrust and fear on the part of the population that this project was a ploy to privatize the water services.

Many people in both rural and urban areas believed that improvements in water and sanitation could only happen through more infrastructure projects. They believed that water was scarce because some areas had a few as four hours of service per day. There were disputes between people who were closer to the source and used more water and those at the end of the line who frequently did without. However, the diagnostics done by the Engineering Team revealed that up to 94 percent of the water in some communities was lost through infrastructure problems, watering gardens, and leaving household taps open. In some communities, only a little more than half of the homes had water connections and in some cases there was not a single washroom or outhouse.

The district has five Ministry of Health clinics, with the main one in the district capital and four in surrounding rural communities. Additional rural communities have trained health promoters who make house visits to pregnant women, check on children's growth and give talks on family planning and preventative medicine. The Ministry of Health reported that the main illnesses they treated in the district were diarrhea, respiratory infections and skin problems, all of which can be linked to sanitation issues. However, community members

often treated themselves with local herbs before going to the health post, making record keeping difficult.

During the diagnostics, it was found that the general population did not know of the connection between hygiene and health and many people believed that diarrhea was caused by cold winds. Community members said that since their ancestors had always gone to the bathroom outdoors and kept animals in or near their homes and they had been healthy, that there was no need to change their behaviors. Women were somewhat more concerned about where to go to the washroom since they stayed closer to the house while the men usually went when they were out working in the fields.

The Sanitary Training Team first selected and trained women to be voluntary health promoters in each community. Then, based on the World Health Organization's PHAST (participatory hygiene and sanitation transformation) methodology, they began to train the population on hygiene issues such as the proper disposal of human waste, hand washing, water storage, and household water chlorination. They also organized community workdays to clean up garbage. After the trainings they did household visits to observe actual behavior and verify any changes, as depicted in Figure 3.4.

Figure 3.4 Member of Sanitary Training Team Completing Follow-up Survey

The washrooms in rural schools were in poor condition or non-existent, so both the Engineering Team and the Sanitary Education Teams worked with them. The Sanitary Team held trainings for students, teachers, parent associations and the schools' cleaning staff. They also undertook a series of studies on causes of parasite infections in children and provided anti-parasite medication.

The Engineering Team began to train the community members who served as volunteer technical operators in chlorination, disinfection, and basic repairs of the system. Training also took place for health officials to assume their roles of monitoring water quality and to ensuring that chlorination was kept within accepted levels with a simple testing unit and supervising regular maintenance activities. The Engineering Team planned and oversaw community labor to improve the water infrastructure by protecting the springs, covering the storage tanks, repairing tubes and installing chlorination systems. Improved water service at

residences and schools was provided through the installation of connections and sanitary outhouses.

In 2003, the Engineering Team noticed that the chlorination system in use required powdered chlorine that not only had to be purchased out of town but that when the monthly dose was added to the reservoir, it did not dissolve slowly as it was designed to. On several occasions, the chlorine levels in the water supply made it undrinkable and tests carried out on subsequent days revealed that there was almost no chlorine in the water at all. Based on this data, the Engineering Team designed a new chlorination system that took advantage of locally available liquid chlorine bleach and designed a low cost bucket and intravenous drip system to administer the chlorine in a more uniform manner over the course of a month. This system is now in wide spread use in both the rural and urban areas of the district and is consistently cited as being more effective and easier to use than the powder chlorine method.

The Management Team worked with the JASS and the communities in a series of workshops that explained the legal basis for community water management, different models for management organizations, how to develop work plans, and budgeting. Based on these workshops, all of the communities where WUSC worked decided to switch from JASS water groups to water users' associations (AUAS). These associations were based on an organizational model that is formally registered with the national government and has the ability to be both self-sufficient and independent from the municipal government; it is an appropriate form of organization for long-term management responsibilities (SUM 2005b).

Once the model of users' associations had been decided upon, the Management Team assisted new board members in formalizing their legal status, drawing up by-laws, and

establishing monthly rates for the service. The associations' new status and by-laws gave them the legitimacy to establish an official a system of fines for those users who did not use the water service judiciously. The Management Team also helped the new associations to plan for and carry out fundraising activities as well as report transparently on the financial situation to the rest of the population (see Figure 3.5).

Figure 3.5 Treasurer of Rural Association Learning Accounting Skills

Project data from 2002 and 2004 showed that 45 percent of women participating in the project from rural communities had never been to school, 31 percent had some elementary school education and only 12 percent had completed elementary school. Initial diagnostics revealed that women did not play a very large role in public life or neighborhood groups but by 2004 in some communities they had analyzed their social roles and taken on health promoter or board of director roles. Almost all of the rural associations had at least one woman in their board in 2004 (SUM 2005b).

By mid-2004 the rate of payment in the rural areas had gone from 20 percent to 75 percent. Most communities went from as low as 50 percent household water coverage to almost 100, and because water lost in the infrastructure went from up to 90 percent to as low as eight

percent loss, the number of hours of service went from as few as four hours of service a day to 24 hours. Additionally, between 2001 and 2005 the number of cases of diarrhea that have been reported to the health posts has decreased (SUM 2005b).

District Capital

In 2001 the Engineering and Management Teams also carried out diagnostics of the water management and infrastructure systems in the district capital but it was not until the municipality began to see the results to the work in the rural area in 2002 that they provided counterparts to work with WUSC in the urban area. The diagnostic studies that revealed that no one person in the municipal office was exclusively assigned to water and sanitation; rather there were five different areas of the municipality that managed the water service (SUM 2004a).

The mayor was assisted by council members who were put in charge of various aspects of the management of the town. One such post was assigned to the Commission of Potable Water, Health, Gardens and Parks. This council member was charged with supervising the operation and maintenance of the system, authorizing new household connections, and bringing any problems to the mayor's attention. At some points in time this person worked directly as a counterpart on WUSC's Management Team (SUM 2005b).

The municipality's Office of Potable Water and Sewage Services had also hired a Technical Operator, who was assigned to physically check the system daily and to carry out regular maintenance activities. In the streets, he was verbally told of water shortages, broken pipes, and sewage back-ups and served as the main point of interaction between the municipality

and the water users. There were no campaigns to formalize the water service or to educate users about their rights and responsibilities or about water conservation.

The municipality did not keep records on the volume of water produced, distributed or consumed nor the number of connections, their type or location. In 2001, WUSC found that 48 percent of the city had household water that was provided by 319 home connections and sewage was discharged in 34 different places into two rivers. Most of the city's water infrastructure was aging, as it was installed in 1973 and 1993. In 2001 it was estimated that 79 percent of the water in the system was lost through broken pipes, leaky household appliances and the watering of gardens that should instead use unchlorinated water from the city's irrigation system. Additionally WUSC's diagnostics found that the municipality did not have a preventative maintenance program nor the tools or personnel to carry out preventative maintenance activities (SUM 2001).

The general population had never paid for the installation or use of their water service. The funds that the municipality received from the federal government through the Fund for Municipal Compensation (FONCOMUN) that were intended for repairs and upkeep instead went to pay for the running of the service in general. Other government programs also donated some of their budget to helping the municipality to cover its expenses.

Furthermore, the municipality did not keep separate accounts for the water service and therefore did not know how much they were spending on it. WUSC estimated an operating budget for the minimal service provided by the municipality of approximately 2,397 soles (approximately US $750) per month in 2003. It was estimated that water users would need to

pay approximately 8 soles (approximately US $2.50) per month to maintain an adequate water and sanitation service (SUM 2004a).

A survey of urban water users revealed that 52 percent were dissatisfied with the water service due to irregular hours of service. The degree to which people felt unhappy with the service was highest in the neighborhoods that underwent water rationing in the dry season between August and November. Sixty-nine percent of users thought that the public should be involved in the administration or supervision of the water service through neighborhood groups (SUM 2004a).

Sixty-five percent of users indicated that they would be willing to pay up to 5 soles (approximately US $1.50) a month on the condition that the number of hours and quality of service improve. However, 14 percent of the population indicated that they would not be willing to pay anything at all. People commented that treating water is not expensive; that the municipality has lots of resources from the federal government, and that the people who live in towns in Peru's mountains are poor and should not have to pay (SUM 2004a). One staff member in Lima pointed out "since water is used politically to reward votes, people do not have the concept of it as a regular service with a price that will cover the costs."

In early 2004, the Management Team held a meeting with representatives from the municipality, the neighborhood groups, and other authorities to present different options for the management of the city's water system. Between March and May 2004, the leaders of the town's neighborhood groups attended six workshops that taught them about the state of their water system. WUSC also sponsored them on a trip to visit a water users' association they had supported in the department of Nasca (WUSC 2004).

From June to December the Management Team carried out workshops with end users in each neighborhood, with schools, and with municipal authorities on the state of the current water system and different management options. The workshops were supplemented with educational brochures detailing the current infrastructure, participation of the water users, the formation of a water users' association, and the rights and obligations of water users' associations.

Making use of the Municipal Radio Station facilities, the Urban Administration Team began to produce a weekly radio show that was broadcast in Spanish and Quechua on three local stations in October 2004 (see Figure 3.6). They broadcasted three times a week from 6 to 7 am and later began to share the time with the other teams in an effort to create a "water-conscious culture" among the population. In October, the first celebration of InterAmerican Water Day was held in both rural and urban areas.

Figure 3.6 Member of Management Team on Weekly Radio Show

The efforts of the Management Team paid off in December 2004, when in a public assembly, the town decided to form an urban water users' association to administer their services. The association's bylaws were approved in a general assembly a few months later and the

association was formally registered with the government in June 2005. After that they held a contest for the design of their logo and a large fundraising activity in order to set up an office. The final step of the municipality officially handing over management of the services to them had not yet taken place at the time of this research. In the meantime, the association must begin to learn how to use the users' database that the Management Team recently completed and begin a campaign to have the population approve a tariff rate that will cover their costs.

At the same time, in May 2005, the municipality approved an agreement to create a Municipal Unit that would be dedicated to providing assistance and supervision to both rural and urban water groups. A few months later, a workshop was organized by all of the WUSC teams to present, to both the associations and the municipal authorities, the work that they had done up to this point and to highlight the responsibilities that the Municipal Unit will be taking on. WUSC's plan is to transfer the components that they have been working on over to the employees of the new Municipal Unit during 2006. The municipality should hire their counterparts who have been working with WUSC to staff the new Municipal Unit, although there is some fear that these staff will find higher paying jobs now that they have the experience of working with WUSC.

In order to help the Municipal Unit with its new responsibilities, both the Administrative and Engineering teams designed several procedures and worksheets including a protocol on how to officially register water user groups, and how to evaluate the state of their management procedures and the operation and maintenance of their water system. These simple worksheets were useful to help both the associations and the municipality to understand what kind of associations and maintenance they were working towards. WUSC is expected to

suspend their work in the area in mid-2006, to concentrate on documenting their experiences working with water and sanitation in Peru before their funding runs out by the end of the year.

Chapter Summary

This chapter has examined the local context of WUSC's water and sanitation project in Peru. In doing so, it has responded, in part, to the first research objective of this thesis: to describe the communication and collaboration between and among WUSC, municipal governments, water companies, water user groups and end users that have been used to strengthen the capacity to plan carry out and administer water and sanitation services.

CHAPTER FOUR- Methodology

Introduction

This chapter outlines the details of the research undertaken to address the questions posed in Chapter One. It describes the processes of setting up the research, selecting the case study locations, the data collection process including the tools and methodologies used and finally, data analysis. This research was designed to generate qualitative data by exploring people's perceptions of communication, the way they worked with others and the changes they had seen in themselves, others and the community as a whole through WUSC's strengthening municipal capacity in water and sanitation project.

The roots of this research were in a presentation that my advisor attended at the University of Guelph given by WUSC Peru engineers who had collaborated with the university. They mentioned many aspects of their project that seemed positive from a communication and capacity development perspective, yet due to their field of specialization, they lacked the conceptual frameworks and terminology to explain the social processes they had facilitated. I began to speak with WUSC's Latin America officer in Ottawa and wrote a research proposal for him and the Peru director. After a couple of revisions, we signed a MOU for me to carry out research in the context of WUSC's "Strengthening of Municipal Capacity in Water and Sanitation Services in Peru" project.

This research is an exploratory case study of WUSC's capacity development program for water and sanitation. According to Yin, "the distinctive need for case studies arises out of the desire to understand complex social phenomena" and a case study investigates a "contemporary phenomenon within some real-life context" (2003: 1).

Selection of Case Study Communities

Two case study locations were selected in consultation with the management of the project in Lima. The locations are not named in this thesis to protect the confidentiality of the research participants. The sites were chosen to present both urban and rural contexts, work with water companies, municipalities and water user groups, as well as locations where WUSC had had significant engagement over a length of time. They were not selected to be representative of WUSC's work in Peru in general. The project's 2005 work plan showed that they planned to work in four provinces of Peru, with four municipal water companies and five municipal or regional governments (WUSC 2005).

Prior to my arrival in Peru in June 2005, I sent a one-page sheet to the main WUSC office in Lima and subsequently to WUSC staff in the two study locations to explain the nature of my research and ask for the participation and support of the teams (see Appendix 6 for an example in English). I was in Peru from June until September 2005, and during this period I visited each of the two study locations twice as well as spending some time at the main WUSC office in Lima. The first visit was focused on data collection through workshops and interviews, while the second was aimed at collecting any missing information that was identified during the reflection and learning that took place during the break from the research context at the other location. Both the workshops and the interviews are explained in detail in the data collection section of this chapter.

The first case study site was a municipal water company in an urban location (see Chapter Three for a complete description). It was selected partly because WUSC felt they had had some impact there, and also because of the proximity of two distinct towns that WUSC had worked with- one where the water company was located and another smaller satellite town

served by the same company. While I spent most of my time in the main town, and most of the data collection took place there, WUSC team members from one of the smaller town did participate in semi-structured interviews and two of the workshops. While there were many similarities in the experiences between the team members located in the two towns, a few differences are highlighted in Chapter Five. This first study location only had two WUSC teams, engineering and social, working there at the time of the research.

The second location was a rural municipality in which WUSC had worked in both the small district capital and the surrounding rural communities (see Chapter Three for a complete description). The site was selected because WUSC was in the process of supporting the creation of a water user association to manage the water system in the district capital. They had also supported the transition from informal water user groups to more formal associations in fourteen smaller surrounding rural communities. This was a unique experience for WUSC as they generally worked with municipal water companies in urban areas or water user groups in peri-urban areas. Another contributing reason was that four teams in the areas of engineering, urban water management, rural water management and sanitary training were working there, so I could observe all of WUSC's work in action.

Selection of Methodological Approach

As described in Chapter Two communication, capacity development and learning process are often based on implicit mental models and can therefore be difficult to express and capture. This research employs a participatory qualitative and phenomenological case study approach that is grounded in the constructivist worldview described in Chapter Two. It seeks to explore stakeholders' every day experience with WUSC's water and sanitation project by understanding the many truths of each person's point of view and their relationships with

other perspectives. According to Palys, "Qualitative researchers view the data-gathering process itself as informative, maintaining that one must be open to any new directions that emerge in the context of the [research] because of the unique perspective of the participant(s)" (2003; 160). Additionally, Jarvis (1999) points out that the practice of development is subjective, personal and transitory so qualitative research is the most appropriate way to take a snapshot of the events that are occurring at the time of the research.

The selected approach was also draws on *conceptual* elements from participatory evaluation methodologies (such as Davies & Dart 2005; Earl *et al.* 2001; Jackson 1997). These evaluation approaches are designed to empower the participants with critical thinking and reflection skills that will help them to gain more from the projects that they participate in as well as taking ownership over their own development processes.

Data Collection

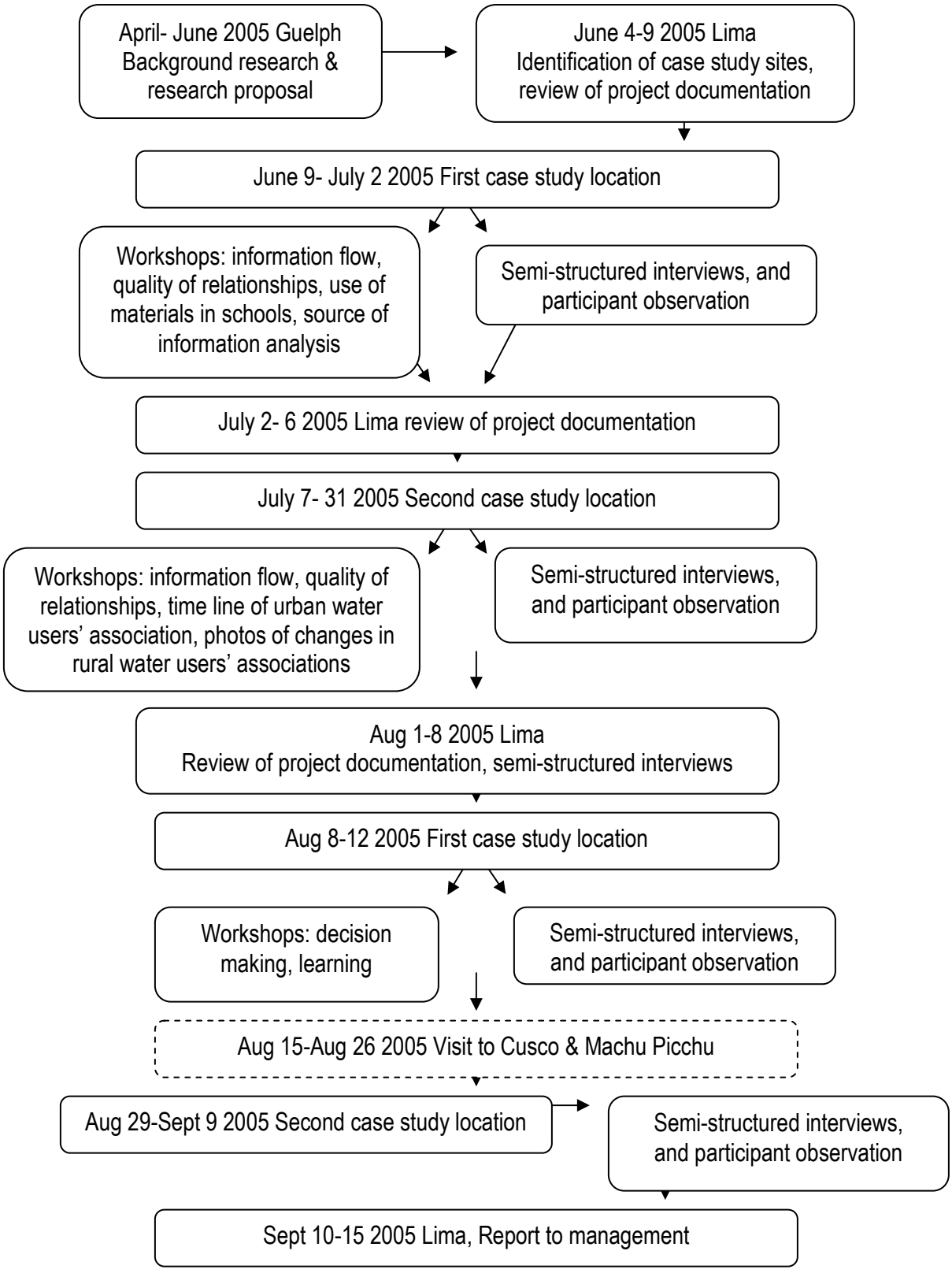
The data collection methods for this research included participatory social mapping workshops, individual and group semi-structured interviews, participant observation in everyway work activities and a review of related secondary data. The field component of this research was conducted in Spanish except for two interviews with Canadian project staff in Lima, which were in English and one workshop, and several interviews in the second study site, which were conducted in Quechua with the assistance of local project staff who translated conversations into Spanish for me. These research activities taken together aimed to build up a composite picture of the existing context and content of WUSC's capacity development activities that no one individual narrative would hold.

Table 4.1 provides a summary of the research objectives, guiding questions and data collection activities and sources. Each of the data collection tools is explained in detail in the following sections. Figure 4.1 summarizes the research activities in chronological order.

Table 4.1 Overview of Research Objectives and Methodologies

Objective	Guiding Questions	Activity/ Method	Data Source
To describe the communication and collaboration between and among WUSC and municipal governments, water companies, rural water user groups, and end users that have been used to strengthen the capacity to plan, carry out and administer water and sanitation services.	How have the relationships built during the project developed? What is the quality of those relationships? How has the quality affected collaboration?	Semi-structured interviews Workshop themes: Quality of relationships Timeline	All stakeholders WUSC teams Urban water user association
	What has been the pattern of information follows and what communication functions characterize them? How has this affected collaboration?	Semi-structured interviews Workshop themes: Information flow	All stakeholders WUSC teams
	How have WUSC's educational campaigns for end users and schools been understood? What have been their perceived effects?	Semi-structured interviews Workshop themes: Source of information analysis Use of materials on schools	All stakeholders End users Schools WUSC materials
To identify perceived changes in individual and organizational capacity since participation in the project began.	What changes have occurred at the organizational level in terms of autonomy, leadership, and systems of learning and problem solving?	Semi-structured interviews Workshop themes: Decision making Learning Photography of perceived changes	All stakeholders Water company managers Managers and WUSC teams Rural water associations
	What changes have occurred at the individual level in terms of involvement in decision-making, knowledge and skills, and confidence and self-concept?	Semi-structured interviews Workshop themes: Learning	All stakeholders Water company managers and WUSC teams
To identify the principles of Communication for Social Change that may be applicable in the design of other water and sanitation projects in Peru.	Which principles of Communication for Social Change have been used and how have they been applied?	Literature review Participant observation	Research data and existing literature

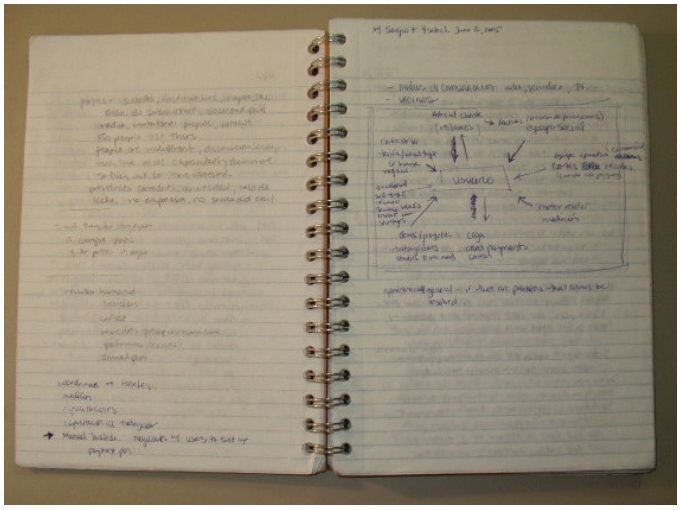
Figure 4.1 Flow Chart of Research Process



Participant Observation

During the research I kept notes on my personal impressions of each interview and how my overall thoughts were evolving. The notebook also included thoughts generated while planning for workshops and from readings that seemed relevant.

Figure 4.2 Field Notebook



In the first study location I was able to participate in the everyday day activities of the project's Social Team which at this time mostly involved organizing talks at the schools and preparing materials to begin the door-to-door work with water users in the second sector of the city. In addition, several significant events took place during my stay. I was able to participate in the design and editing of a video socio-drama about water meters and water conservation. A local youth theater group was collaborating with the Social Team to create this video for the parents' groups who met monthly with the schools. I observed an educational presentation that the Social Team gave to a school in the second sector of the city. Additionally, a new head of the board of directors of the water company was selected in this time period, causing significant worry on the parts of some employees about their job security. Finally, the employment contract of one counterpart member of the Social Team

was not renewed and she was no longer working for the water company during my second site visit. However, since I had already completed the bulk of the research and had conducted two workshops with the WUSC teams during my first visit, these changes did not unduly affect my data collection.

In the second location, significant events included a trip to several communities with the WUSC communication specialist from Lima, who was conducting interviews and collecting data for two articles he was writing on the project. I also traveled with the Rural Management Team to a remote community where they helped the board of directors of the local water association to balance their books after a recent fundraising event (see Figure 3.5). The Sanitary Team facilitated a workshop in a rural community where they presented the results of an evaluation they had done on behavior change in that community. I also accompanied them on home visits to follow up on how people were using the water storage containers they had been given (see Figure 3.4). Finally, during my second visit all four WUSC teams convened a workshop for the community authorities, urban and rural water association members and other key stakeholders to present the legal basis for the creation of a Municipal Unit water office and the role that it would play.

Workshops & Social Mapping

The data collection workshops that I conducted were adapted from two main sources: the book *From the Roots Up* (Gubbels & Koss 2000) and the *Rapid Appraisal of Agricultural Knowledge Systems* (RAAKS) kit (Engel & Salomon 1994 1997). The workshop with the rural water associations in the second study site was based on the PhotoVoice technique (Wang 1999) outlined in *Picturing Impact* (FIELD Foundation 2001). All of the workshops

had groups of participants discussing and collectively mapping out social processes with the intent of making their implicit knowledge explicit by talking about themes I provided and displaying the results of their inquiries onto large sheets of paper. Each group then presented their map to the other participants in order to jointly discuss their findings. In most cases I kept the maps that were created and tape-recorded the discussions.

I planned the workshop themes and activities during the research proposal writing process based on my research questions before I went to Peru. Originally, I had planned to do more workshop activities than what turned out to be feasible for the time frame. I therefore adapted and redesigned the workshops during the research process as a clearer picture of the situation emerged from talking with people.

Prior to holding each workshop, I ran the content by a WUSC team member to obtain their feedback and to verify my translations. This was a useful process for me to explain to the team member why I wanted to do the workshop, the reasons for the approach, and to explore and make explicit why I had phrased things the way I had. During the workshop itself I checked how the groups had understood the tasks, listened to their conversations and considered and if the next section needed adjustments. Although I did tape record the workshops, it would have been useful to have someone who was not participating in the workshop taking notes and recording themes that emerged from the workshop for later reflection.

One and half hours were allotted for each workshop and they were all conducted on different days. Tables 4.2 and 4.3 outline the six workshops that I conducted in the first study location

and the five from the second study site, so that they can be discussed in more detail in the next section.

Table 4.2 Data Collection Workshops in First Study Site

Workshop number	Workshop Name	Participants	Location	Tools & Focus
1	Information flow	11 members of WUSC's engineering and social teams + counterparts	Classroom in school next door to water company	Social map of information flow and the use of communication functions
2	Quality of relationships	10 members of WUSC's engineering and social teams + counterparts	Classroom in school next door to water company	Ranking of qualities that affect working relationships and assigning scores to relationships based on qualities
3	Use of materials in schools	5 teachers, 1 school director	Their school	Discussion of use of social team materials
4	Source of information analysis	7 end users	Local restaurant in neighborhood	Discussion of sources and reliability of information
5	Decision making	10 water company managers	Classroom in school next door to water company	Ranking of important decisions and discussion of how they had been made
6	Learning	6 water company managers and 3 members of WUSC's engineering and social teams + counterparts	Classroom in school next door to water company	Ranking of changes they had seen since they started working with WUSC, discussion of change and lessons

Table 4.3 Data Collection Workshops in Second Study Site

Workshop number	Workshop Name	Participants	Location	Tools & Focus
1	Information flow	13 WUSC team members + counterparts	Open-air room behind WUSC office	Social map of information flow and the use of communication functions
2	Quality of relationships	14 WUSC team members + counterparts	Open-air room behind WUSC office	Ranking of qualities that affect working relationships and assigning scores to relationships based on qualities
3	Time line	6 Board of directors of urban water users' association	Open-air room behind WUSC office	Social map of key events, successes and challenges in creation of association
4	Changes in rural communities	9 Board of directors of rural water users' associations	Community center in rural community	Identification and ranking of changes in rural communities, practice taking photographs
5	Analysis of photos	7 Board of directors of rural water users' associations	Open-air room behind WUSC office	Analysis of own photographs of changes

This following section describes in detail the workshops that were used to generate data about the communication, collaboration and capacity development that participants perceived as a result of their participation in WUSC's project.

Descriptions of Workshops in First Study Site

During the first workshop in the first study location, participants were presented with the following list of communication functions adapted and expanded from those presented in Table 2.2. I provided examples for each one and they brainstormed others.

1- Reinforce group identity
2- Establish rules, norms, policies
3- Share information, knowledge
4- Get feedback, learn
5- Influence others or control self
6- Gain advantages over others, compete
7- Exchange ideas, explore diversity
8- Share talents, enjoy life
9- Transmit time-sensitive information

The participants were divided into two groups that mixed Social and Engineering Team members together based on the idea that a richer discussion would emerge during the groups' work. I asked them to brainstorm the main people or groups they communicated with on sheets of colored paper. These sheets were then taped to flip chart paper showing the WUSC teams in the middle and those with the closest relationships placed nearest to them on the page. Group members then drew lines between the different actors and coded them with the number of the communication function(s) that best corresponded to the reasons behind the information flow (see Figure 4.3). When the groups had finished, they presented their maps to each other.

Figure 4.3 Mapping Communication Flows and Functions in First Study Site

While the participants seemed to enjoy the workshop, at the end some of them were unclear as to what it meant and one person asked me if I had obtained what I had wanted out of it. Another person said that no one had ever asked these questions before and that he was now able to see some of the areas in which communication could be improved. Someone else said that he had had many thoughts about things like this but had never been able to put them into words and that the workshop had been helpful in that respect.

In the second workshop, we started as a whole group by brainstorming the qualities that make for good working relationships onto colored paper. The group selected the five most important factors and as a group they ranked them in order of importance. Two or three people shifted the pieces of paper around while the others commented and gave their opinions on which order they should be placed in. The same process was repeated to get the five factors that make for poor working relationships. The participants were again divided into two groups, each with a mix of both Engineering and Social Team members. Those who had been with WUSC longer were asked to form a group that could look at the quality of the relationships in 2003 while the other group focused on the current quality of relationships in 2005.

Participants were provided with a grid that included the two WUSC teams across the top and the other stakeholders they had identified in the first workshop along the side. Each relationship was then given a score between one and five for each of the "good relationship" and "poor relationship" indicators (see Figure 4.4). One meant very little of this quality was present in the relationship while five indicated that a lot of the quality was present. The points were added up and the "poor relationship" score was subtracted from the "good relationship" score to come up with a total between +20 indicating a relationship with many "good relationship" qualities and few "poor relationship" qualities and -20, which indicated the reverse.

Figure 4.4 Mapping the Quality of Relationships in First Study Site

The group that focused on 2003 presented their map to the group as a whole first and then the 2005 group presented. I provided some questions for reflecting on the scores that were given as well as the communication maps from the first workshop, including: how could the changes in the quality of relationships between 2003 and 2005 be explained? Was there a link between the type of communication that was used and the quality of the communication? How could the communication and the relationships between the different areas be improved? And, what were some of the barriers to improving work relationships?

At this time people started to see the link between the first and second workshops and there was a lot of discussion, some defensiveness and a growing recognition that everyone needs to help support the relationships that received low scores. One participant said, "we knew there were problems but did not know how much or what to do about them, so this was really useful."

When I attended an educational presentation that the Social Team did with a school in the second sector, I observed that they use a powerpoint-based lecture style and many of the professors who were present fell asleep as the sun went down and the room got darker. The Social Team provided a lot of material on the global state of the fresh water supply and information about the water supply in the city, but did not present the teachers with any ideas for how to use the materials in the classroom. So when I designed the workshop for the teachers at a different school, who had been given the same presentation and materials by the Social Team at earlier date, I was wondering what they had done with the materials they had been given, how they had been used with the students, and if they had seen an evidence that the students had learned from them.

The teachers sat around a table with a pile of colored paper in the middle. They were asked to respond to a series of questions, they wrote their responses on the paper and we posted it on a sheet of flipchart paper where everyone could see it for the discussion. The questions used to generate discussion included where they kept the materials, how many times they had looked at them since they had received them, who they had shared them with and in what format, how they knew if the students had learned from them, and how much impact the learning had had on the students beliefs and behaviors around water. I then divided them into groups, with the primary school teachers in one group and the secondary school teacher and the director in another group, to design a curriculum based on the materials they had been given (see Figure 4.5).

Figure 4.5 Use of Educational Materials in Schools

The workshop with the neighborhood group was done as one large group throughout. It started with a discussion of all of the ways in which they receive information and the similarities and differences between them. They then selected the five that they used most often and we discussed each one in turn. They named the different sources, when they used each one, what they liked and disliked about it, and how trustworthy the information it provided was on a scale of one to five, with five being the most trustworthy.

At the suggestion of the neighborhood group leader, this workshop was conducted on a Sunday afternoon when people would have time off from work. However, the majority of the people who attended worked as roaming street vendors and they were exhausted during their one day off so the energy level was very low. Also, many of the people who attended this workshop were confused about its purpose and several of them had come to bring their complaints about the water company to the meeting. Additionally, several of the attendees were illiterate and a couple belonged to an evangelical religion that did not allow them to watch TV or listen to the radio at all, which combined to make this a challenging meeting. This is the only workshop in which I did not take photos of the process.

The first workshop with the water company managers was based on the four-part decision making chart in presented in Table 4.4 and a list of potential areas of decision-making to consider. The managers were divided into groups to brainstorm important decisions that had been made in the past five years; the five most important decisions were selected and ranked by each group. They then analyzed each decision in terms of who had made the decision and why it was made in that manner (see Figure 4.6). Each group then presented their flip chart to the rest of the participants. At the end, each group was asked to brainstorm about the meaning of teamwork and to present their thoughts to the group as a whole.

Table 4.4 Types of Decision Making Processes

A- Single person or group Decision maker(s) act alone and inform others of the decisions taken	B- Consent Decision maker(s) ask for approval after taking the decision
C- Consultation Decision maker(s) ask for information and opinions of other before making decision	D- Consensus The decision is analyzed and taken by the group(s) that will be affected by it

Adapted from: Gubbels & Koss (2000).

Figure 4.6 Describing Decision Making Processes

During this workshop the cell phones of several managers rang multiple times and there were personal interruptions from staff as well. I requested part way through that people turn off

their cell phones but they continued to take calls. Consequently, there were lots of disruptions and the managers' full attention was not on the workshop process.

During the final workshop in the first study location, the WUSC team was in one group and the managers were divided into two additional groups. Each group was asked to review two pages of WUSC project documentation describing the work they had done in the city and to select the most important changes they had seen in different areas as a result of the water company and WUSC working together (see Figure 4.7). They were given a list of reasons that changes could occur and were asked to identify why the change had happened. The most important change was selected and the group drew out lessons for the future from it.

Possible reasons for changes:

1. To imitate
2. To benefit the company
3. New information that was not know before
4. Changes in the situation or conditions
5. Political reasons
6. Presence or example of others
7. To improve the company
8. To improve working relationships
9. Based on reflection on past experiences
10. What was done before did not work
11. There were resources available to do so

Figure 4.7 Identifying Changes in First Study Site

Descriptions of Workshops in Second Study Site

The first workshop on communication functions mostly took place as described in the first study site except that the number of participants warranted three working groups. Additionally, three codes were added to indicate the timeliness and quantity of the information received. “A” indicated that there was not very much information flow and that it often arrived too late, “B” indicated that it was a normal quantity of information that it usually arrived when it was needed, while “C” indicated that it was a lot of information and that it arrived early or when it was needed (see Figure 4.8). Each group presented the map they had made to the others.

Figure 4.8 Mapping Communication Flows and Functions in Second Study Site

During the workshop on the quality of relationships, as in the first study site, the whole group selected and ranked qualities of "good relationships" and "poor relationships." One group assessed the relationships from 2002 to 2003, while the other two groups focused on 2005 (see Figure 4.9). As in the first study location, there was some defensiveness on the part of the teams who received low scores but overall people commented that it was good to have the scores out in the open where they could be talked about.

Figure 4.9 Mapping the Quality of Relationships in Second Study Site

During the workshop with the newly elected urban water association, participants were presented with a list of potential key events. They were divided into two groups and asked to draw a time-line of the formation of their association listing both the positive and negative occurrences that had affected them. Participants were also asked to write down the other actors they interacted with and tape them in order of importance to the wall (see Figure 4.10).

Figure 4.10 Creating Time Line of Formation of Urban Water Association

The members of the board of directors realized during this process, that they had not been as transparent and communicative with the general public during the process of forming the association as they could have been, which was beginning to fuel some gossip around town, and so they took one of the timelines with the plan to tell the public about their experiences over the municipal radio station.

The workshop with the two rural water users associations began with each of the groups listing changes they had seen in water and sanitation in their communities over the past five years. They were then asked to select the five most important changes and place them on flipchart paper in order of importance (see Figure 4.11). For each change, they gave it a number between zero and ten (ten being perfect) for the state of the item in question five

years ago and another number for its state at the present time. They were then asked to explain the reason for each change.

Figure 4.11 Identifying Change in Water and Sanitation in Rural Communities

The second part of the workshop focused around how to take photographs of these changes (see Figure 4.12). Participants were divided into three groups, and each was given a digital camera and instructions to experiment with taking photos under various conditions- outside, inside a building, with the sun behind the camera, from far away, with the subject moving, etc.

Figure 4.12 Practicing Taking Photographs

The groups then brought their cameras back inside and we looked at each photo on my laptop and evaluated them based on the following technical criteria:

- Can the main subject of the photo be easily determined?
- Is the subject of the photo towards the center?
- Is there minimal empty space?
- Is the entire main subject in the photo?
- Is the main subject close enough, but not so close to be blurry?
- Is the position of the camera appropriate- photo taken from above or below?
- Was the camera held still so that the photo is crisp and clear?

We reviewed the possible content of the photos they would take and the types of changes that could be documented (see below) and each participant was then sent home with a disposable camera to take photos in their communities.

- Illustrating the importance of water
- Changes in yourself
- Changes in water distribution
- Changes in water management
- Changes in the water users association
- Changes in sanitary habits
- Other changes in the community

The second half of this workshop was held the following week after I had taken the photos to be developed. Participants went through their photos and selected the five that were the best

photos according to the criteria above and that best represented the changes they had seen in their communities (see Figure 4.13). The selected photos were made into booklets with one photo on each page and a caption explaining the significance of the photo underneath. The last page of the booklet was used for each participant to reflect on what they had learned from the process of taking photos. Each participant took their booklets and the remaining photos home with them.

Figure 4.13 Selecting Photographs of Change

Semi-structured Interviews

Semi-structured interview were conducted to gain a more in-depth understanding of how the project worked and to explore things that I became aware of during the workshops. People were selected based on their past or present involvement with the project as well as the recommendations of the WUSC teams as to whom they had worked with most closely. The interview questions were mostly open-ended and conversational in style (see Appendix 7 for an example of the interview guide I loosely followed). They lasted from fifteen minutes to an hour and a half depending on how much the interviewee had to say and how much time they

had. In almost all cases, the interviews were tape-recorded. Four interviews were conducted in Lima, fourteen in the first study location, and twenty-seven in the second study location (see Table 4.5), although the ten interviews with the water users were shorter and more informal than the others.

Table 4.5 Categories and Number of People Interviewed

Semi-structured interviews conducted in Lima

Category	Number of People Interviewed
Lima office team	4

Semi-structured interviews conducted in first study site

Category	Number of People Interviewed
WUSC teams + counterparts	4
Water company managers + directors	8
Municipal and community institutions	2

Semi-structured interviews conducted in second study site

Category	Number of People Interviewed
WUSC teams + counterparts	8
Government and municipal representatives	5
Community institutions	4
Water users from 4 neighborhoods	10

In all cases interviews were requested in person before hand, sometimes up to a week in advance, and took they took place in the office of the person being interviewed. The only exception to this were the water user interviews in the second location, which were conducted by informally asking people who were working or talking with neighbors outside on the street if they would spend a few minutes speaking with me.

In the first study location I was not accompanied by a WUSC team member during the majority of the interviews except for one with a municipal official and one with a member of the water company's board of directors. In the second location, five members of the Management Team were interviewed together in a focus group format, and two members of the Sanitary Training Team were also interviewed together. A team member accompanied

me on four of the interviews with community institutions and government and municipal representatives. This unexpectedly served to begin to open up communication channels with some groups that had previously been collaborating only to a limited extent with the project. Additionally, a counterpart team member who served as a translator from Quechua to Spanish accompanied me to speak with the water users.

Secondary Data

The secondary data used to supplement my research included WUSC project documentation in the form of yearly work plans, annual reports, articles written for the water sector journals, commissioned publications, and educational materials intended for water companies, user groups, schools and the general public. Additionally, a thorough review of relevant literature on the role of communication in individual learning and capacity development within organizations was conducted.

Reflections on my Role

Prior to doing my thesis research, I had spent about four years at different points in my life studying and working in several Latin American countries including those surrounding Peru- Ecuador, Bolivia and Chile. When I arrived in Peru I felt very much at home and was able to start my research almost with out an adjustment period. Additionally, WUSC regularly receives Canadian interns and professional engineers for semester-long or two-year placements, so the people who I spoke with during my research process were more or less used to working with foreigners. I was, however, the first person who had interacted with them regarding social and communication processes and in some cases it took a little while for them to understand what I was doing there. By the end of the research period most people

had stopped referring to me by the title of engineer and since I was not easily definable by a career title, they just called me “Señorita” instead.

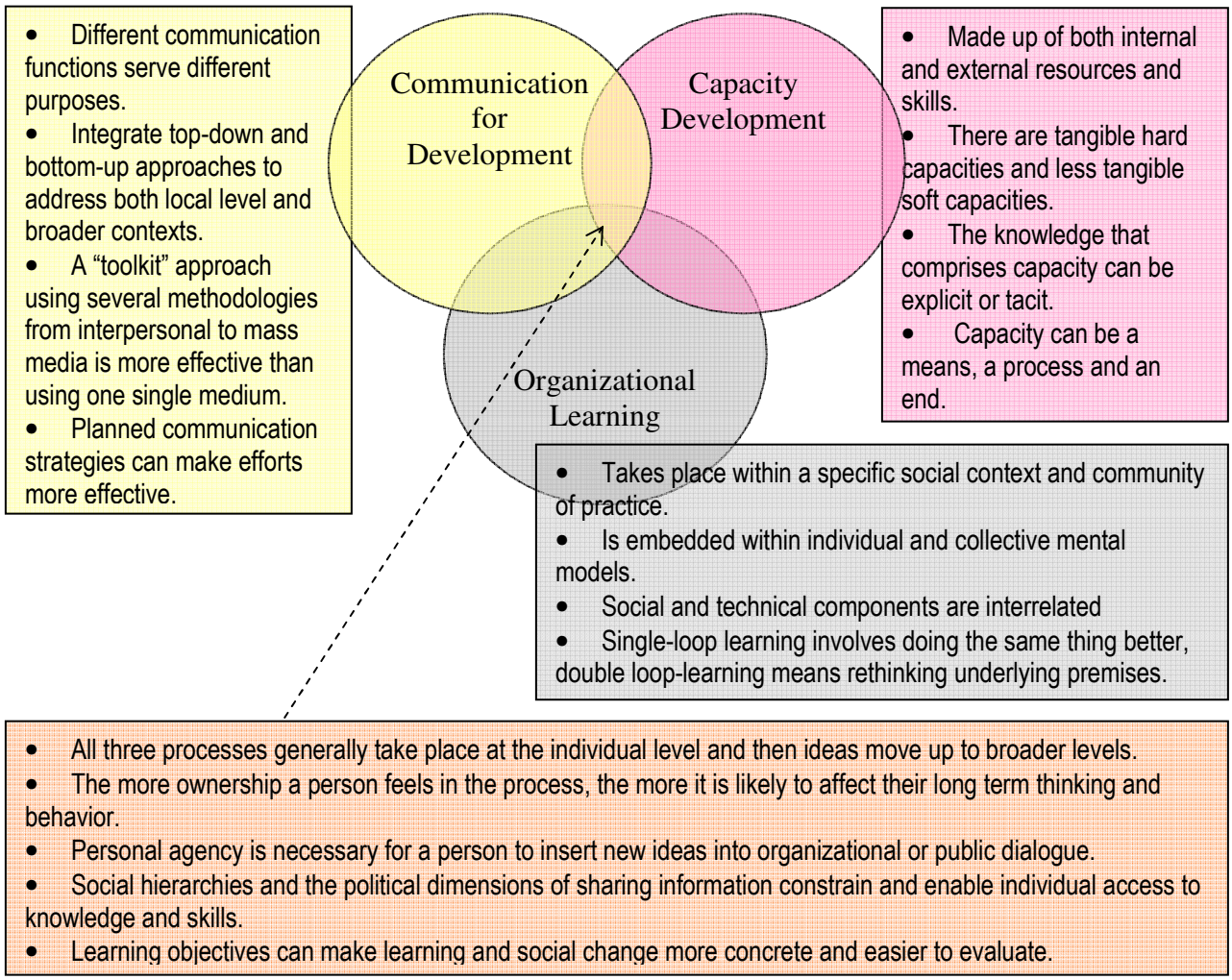
Data Analysis

Since so many of the data were collected during workshops that employed methods to engage the participants in analysis, my role in the data analysis was to compare and contrast the social maps produced by each group with what was said during the workshop activity, the semi-structured interviews and what I observed in daily interactions. The semi-structured interviews were analyzed using a concept mapping approach; I listened to each interview and mapped it out onto a large sheet of flip chart paper. I then grouped relevant quotes from all of the interviews into themes. I selected quotes for Chapter Five that best responded to the research objectives in the areas of communication, collaboration, and changes in capacity from as many diverse stakeholders as possible.

Conceptual Approach

The following chapters of this thesis, especially the data analysis in Chapter Six will draw on key ideas from themes that were explored in the literature review in Chapter Two (see Figure 4.14).

Figure 4.14 Conceptual Approach



Chapter Summary

This chapter reviewed the methodologies used to collect and analyze data in order to describe the communication and collaboration between WUSC and water and sanitation stakeholders, to identify perceived changes in individual and organizational capacity and to identify principles of Communication for Social Change that may be applicable in the design of similar projects. Data was collected through participant observation; semi-structured interviews with key stakeholders and workshops based on PRA, RAAKS, and Photovoice

methodologies. It was analyzed by comparing and contrasting the social maps produced in the workshops with interviews and other secondary data sources including literature on communication for development, capacity development and organizational learning.

CHAPTER FIVE- Findings

Introduction

This chapter presents the main findings from the workshops and semi-structured interviews conducted in each of the two case study locations. Each case study is divided into four sections following the guiding questions in Chapter Four Table 4.1 including flow and function of communication, quality of relationships, educational campaigns, and changes in individual and organizational capacity.

In each workshop, participants were divided into groups with mixed membership from all of the teams present in the workshop. The only exception to this is the workshop with the rural water user associations in the second study location. In that case, participants were separated into two groups based on their community. To distinguish between the findings of the different groups at the same workshop, I have assigned a letter of the alphabet to each group.

First Case Study Site: Urban Location

As described in Chapter Four, six workshops and fourteen semi-structured interviews were carried out in the first study location (see Tables 4.2 and 4.5). This section discusses the findings from those activities.

Flow and Function of Communication

As depicted in Figure 4.3, the first workshop with the WUSC team members and counterparts involved mapping out the flow of information between their teams and other stakeholders based on the communication functions listed in Table 5.1. Both groups indicated the main direction of the information flow on their maps and coded them with the number(s)

corresponding to the communication function that best represented the reasons for the communication. Members of Group A concentrated more on the information flows between the WUSC teams and the rest of the water company, mentioning six areas of the company and only WUSC Lima and the water users as external stakeholders. Group B focused more on external relationships, showing three references to the company, three references to WUSC Lima and their donor agency, and also the schools, social institutions, and water users. One stakeholder group that was not included in either map was the mass media.

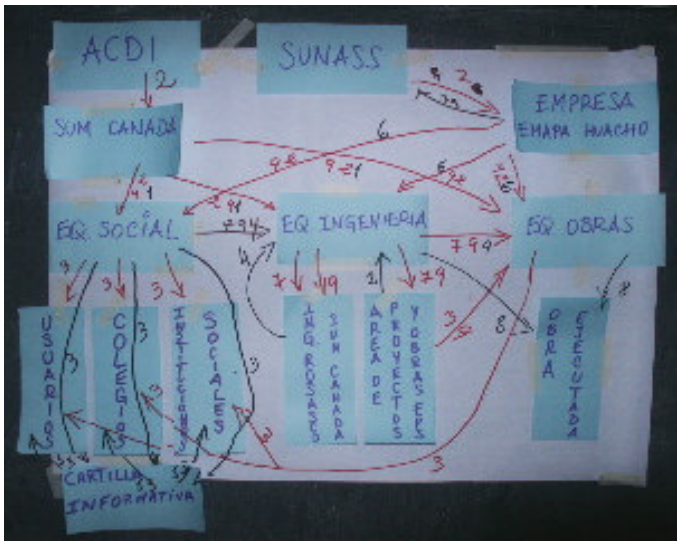
Table 5.1 Number of Times Communication Functions Were Indicated

Communication Function	Group A	Group B	Totals
1 Reinforce group identity	10	2	12
2 Establish rules, norms, policies	2	9	11
3 Share information, knowledge	24	14	38
4 Get feedback, learn	20	3	23
5 Influence others or control self	11	3	14
6 Gain advantages over others, compete	6	3	9
7 Exchange ideas, explore diversity	22	3	25
8 Share talents, enjoy life	12	2	14
9 Transmit time-sensitive information	30	12	42

Workshop findings showed that for both WSUC teams, communication most often takes places in order to transmit time-sensitive information, to share information and knowledge, and to exchange ideas (see Figures 5.1 and 5.2). The functions that were mentioned least often were to gain advantages over others and compete, to establish rules, norms and policies, and to reinforce group identity. Overall, there was more information flow and use of more functions between the Engineering Team and the other actors than between the Social Team and the other actors.

Figure 5.1 Function and Flow of Information- WUSC Team Members and Counterparts- Group A

Figure 5.2 Function and Flow of Information- WUSC Team Members and Counterparts- Group B



One member of the Engineering Team stated that their office is a place where "any person in the company can come and we will share information with them." A manager corroborated by saying that "with [the Engineering Team] we talk almost daily and explore why things are the way they are; it's easy to come to agreements because we know what is happening."

On the other hand, communication with the Social Team is not perceived to flow as smoothly. This is due in part to their physical location in another building, which means that

communication often does not take place face-to-face but rather through the telephone or written documents. The manager quoted above continued, "…with the social team it's different, things always come as a surprise." Another manager said:

> We have always complained about the lack of dialogue and coordination, it's not very fluid. We find out about things when they have already taken place. With [the first head of the Social Team] the communication was excellent, we were very happy with the work she did. We are trying to correct the new team, to get them to coordinate more. It's ok that they are in the other office but they have to be in touch more regularly and participate more. They often communicate too late. We talked about having more communication at the last meeting, we have complained about it but there has not been a solution yet.

Quality of Relationships

The second workshop with the WUSC team members and counterparts on the quality of their relationships, built upon the results of the information flow workshop. As described in Chapter Four, the factors listed in Table 5.2 were selected and ranked by workshop participants as those that most affect the quality of working relationships. In two groups, the workshop participants then used these factors to award points to each of the relationships identified in the information flow workshop (see Figure 4.4). One group was made up of participants who had been with the project longer and they focused on the quality of the relationships in 2003 and the other group focused on 2005.

Table 5.2 Factors that Influence the Quality of Working Relationships

Factors that make for good working relationships	Factors that make for difficult working relationships
Trust	Authoritarianism
Responsibility	False information and gossip
Communication	Lack of trust
Honesty	Egotism
Respect	Irresponsibility

The relationships that were given high points with both WUSC teams include those with WUSC Lima and with the schools and institutions. The relationship that received low points

for both groups was with the Projects Manager, which is unfortunate since he was the one who oversaw both groups work on a day-to-day basis (see Tables 5.3 and 5.4).

Table 5.3 Quality of Working Relationships 2005- WUSC Team Members and Counterparts- Group D

	Social Team	Engineering Team
Construction Workers	-	20
Projects Manager	-14	4
Operational Manager	13	9
General Manager	-16	14
Administrative Manager	-1	10
Commercial Manager	-11	10
WUSC Lima	20	18
Water Users	-3	12
Schools & other institutions	15	15

Table 5.4 Quality of Working Relationships 2003- WUSC Team Members and Counterparts- Group C

	Social Team	Engineering Team
Construction Workers	19	20
Projects Manager	10	12
Operational Manager	-6	-3
General Manager	9	18
Administrative Manager	17	17
Commercial Manager	19	11
WUSC Lima	20	20
Water Users	-7 / 16[1]	-8 / 20
Schools & other institutions	20 / 20	20 / 20

The factors that most often contributed to high scores in good working relationship category were "respect" and "trust," while "communication" rarely received many points. The factors that most often contributed to high scores in the difficult relationship categories were "false information and gossip" and "lack of trust," while "egotism" was rarely given points. The high level of importance placed to communication as a "poor relationship" indicator but not a

[1] The second number in the last two rows indicates that members of the team that works in a nearby satellite town were present and their experience with the last two stakeholders groups differed. Residents of the satellite town had not had the same experience with the installation of water meters that had occurred in the main city as the water company had never tried to install meters there. Once WUSC began to work there, educational campaigns were done with all of the users and schools at the same time and therefore any resistance to the water meters on the part of the public was avoided.

"good relationship" indicator may show that respect and trust are key components of good communication, so when they are present it serves as a proxy indicator for good communication.

In general, based on the two workshops that explored the function of the information flows that take place and the quality of the relationships between the two WSUC teams and other stakeholders, a couple of observations can be made. First, the communication flows that involved few functions generally tended to include only sharing information, transmitting time-sensitive information, and sometimes exchanging ideas. However, the more functions of communication that were used, the more points the relationship was given in the second workshop. Additionally, relationships that had a more equal flow of communication functions from both parties in the first workshop received more points in the second workshop than those relationships where one party used many more functions than the other.

Beginning with the highest, the relationships with the most points for WUSC's Engineering Team and their counterparts were with the construction workers, the main WUSC office in Lima, schools and institutions, and the General Manager. Starting with the lowest, the relationships with the fewest points were with the Projects Manager, the Operations Manager, the Commercial Manager, and the Administrative Manager. Between 2003 and 2005, the relationships with the users and the Operations manager had improved. While during that same time the number of points that the relationships with the Administrative Manager and the General Manager received decreased.

Members of the Engineering Team felt that they worked well with the other teams in the water company especially the Projects, Commercial, and Operations Managers who they

coordinated most closely with. One Engineering Team member said he felt that "they always support me." A water company manager commented that:

> Our coordination with the Engineering Team has always been direct, we observe what they are doing and how much progress they have made. We come to an agreement with them about which projects are a priority based on how much impact they will have and if they will help the public image of our company. We do not look too much at the economic side of WUSC's projects, we just really want to improve the hours of service and the company overall.

For WUSC's Social Team and their counterparts, the relationships with the highest number of points were with WUSC headquarters in Lima, the schools and institutions, and the Operations Manager. The relationships with the fewest points were with the General Manager, the Projects Manager, the Commercial Manager, and the users (see Table 5.4). Between 2003 (see Table 5.3) and 2005, the relationships with the Operations Manager and the users increased in points. During that same time period the relationships with the Commercial Manager, General Manager, Administrative Manager and the schools and institutions decreased in points.

In contrast to the Engineering Team, the Social Team is perceived as being disconnected from the rest of the water company. One manager commented that:

> We have our own scheme [for communicating with the public] with the Institutional Image office. The social team we have now is a bit divorced from us for political reasons. The team we have now is too polarized, they respond to a certain political faction, which means they are divorced from the people we have in the Institutional Image office and the other managers…. We've found that they are sharing lots of information with a council member. They denounce everything that happens to him, but that is not loyalty, when you work for someone you should respect them… We do not want to move or change them because of the respect we have for the agreement [with WUSC], they are already working so we let them but sometimes we cannot reach understandings with them. We support them but with sadness that they are not the same team that we started working with.

In spite of that, both members of the public and employees at the water company felt that the educational work the Social Team did with the water users and the schools was important. One water company employee stated that:

> Attitudes towards the water meters have changed, now people pay less and they are happy to have meters…. The water company wins when people conserve water and the users' education program has played a very big role in that.

Educational Campaigns

I conducted workshops with both end users and a school in order to get their perspective on the communication and collaboration that had taken place with them through WUSC's Social Team and the water company in general.

The majority of workshop participants from a neighborhood group agreed that they preferred face-to-face interpersonal communication with the water company over any other form of communication. They expressed the desire for someone to come and speak with them in person rather than to have things communicated by radio, newspaper or TV. They also saw the educational brochures provided by the Social Team as being free from some of the problems that other forms of communication suffer from, namely sensationalism, corruption and inaccurate information (see Appendix 1).

In the sectors of the city where WUSC did not work with the water company, the majority of the communication with the general public took place through the company's Institutional Image Office. The person who headed the office was trained in journalism and his main strategy was to use the mass media to communicate with the general public:

> I always have to listen to the radio to see what people are saying. I listen, watch TV and read the papers everyday. That's how I know how people are

> feeling about the company. If we come out looking bad in the media, we know there are problems and that's when we get worried.

One manager described the water company's process of working with the public like this:

> We do not do consciousness-raising work, but when we do construction in a neighborhood we meet with the community leaders, tell them our concerns about the project and ask for their support with the manual labor. Sometimes we tell people about the progress we're making with the construction on the radio. We do not have educational materials. In a few cases we have gone house to house and asked for people's forgiveness for the construction.

However, at the time of the research, some of the mangers felt that this was not sufficient:

> We do not have our own Social Team, and we do not invest money in WUSC's social team either. So you can see that our concept of the importance of their work is wrong. We should be spending more time with the users and to do that you need a Social Team. What we have here is an Institutional Image office but it has only one employee with a camera and microphone. He just does image work…but he does not explain things to the public or do educational campaigns to talk with them about water use. He does not have any resources, or a budget to do social work, nor has he been told to do it in his job description.

As mentioned by the water users in Appendix 1, several water company managers also acknowledged the problem of using the mass media as their main link with the public:

> It's hard to do serious work with the media we have… If we do not have contracts with the media, they blackmail us and publish false stories. At one point, we decided not to sign a contract with anyone and they published stories about the quality of the pipes and the water. We sought them out and asked them what they wanted. They said a contract with us, and when they got it, everything changed [showing me a newspaper with a headline denouncing the water company and a couple months later the same paper with a headline announcing the newspaper's best business awards with the top prize going to the water company].

The other main point of contact between the public and the water company is through the Commercial Office, which handles billing and customer complaints. One manager described this contact with the water users:

> We have a small blue sheet of paper to give to the users that explains the procedure for complaints, the rest of the outreach materials we have are part of WUSC's user education program… The users were not very informed before, but now because the law tells us to, we've put up information boards downstairs [in the customer waiting area], we've told people how to complain, and what their rights are. But now they complain a lot, they are very well informed and the company has to be more careful about customer service.

One manager highlighted the importance of the Social Team's work this way:

> We did not know much about the families in [the city], each one has its own internal hierarchies, opinions and ways of doing things. The municipal government does not take this technical information into account much; instead it works based political issues, and so work is done quickly without any regard to quality. Because of this, the public gets a distorted view of the water company and how we work. So the Social Team goes in and helps people understand how we really work, what we plan to do and to open up the path. If the engineers go in first, they will achieve very little. This kind of social work is very important for organizations, not just for potable water but also for other community projects.

As mentioned above, the relationships that both the Social Team and the Engineering Team had with the users increased in points between 2003 and 2005. This change was due to the work of the two teams both in communicating with the users about their rights and responsibilities and to improvements in the number of hours of water service and pressure as described in Chapter Three.

A workshop was conducted with a group of six teachers who had participated in a series of educational presentations given by the Social Team (see Figure 4.5). Overall, they indicated that they had found the materials useful and were positive about the experience. This feedback reflects the high number of points that the WUSC teams received in their relationships with the schools in the second workshop (Tables 5.3 and 5.4).

I attended a training given by the Social Team at a second school and asked them to complete a short feedback exercise. The teachers there indicated that they too had liked that concrete facts and figures were presented (see Appendix 2).

Findings from the workshop with the teachers showed that while the secondary school teacher had looked over the materials slightly more than the other teachers, the primary school teachers had made more of an effort to educate the students' families. The primary school teachers thought that the content had had more impact on changing their students' water conservation habits than the secondary school teacher did (See Appendix 2).

During this workshop the teachers were also asked to design a lesson plan that would incorporate the materials they had been given by the WUSC team. The group made up of primary school teachers was extremely creative and designed a musical theater production about a drop of water that becomes homeless when someone leaves the tap open. The activities they designed for the children to subsequently present to the class revolved around drawing a new home for the drop of water and making up a story about how it got there.

One teacher who had participated with WUSC in the first sector of the city said this about the materials:

> WUSC gave us educational materials but there were not enough for 1000 students, so we made copies of the 100 brochures that they did give us so that there was one copy for every two students. The materials they gave us were beautiful; they were very colorful and attractive to the kids…We pasted the original color materials on the walls so that the children could look at them during recess. If the kids do not understand the materials, we explain, we ask them questions and get them to have conversations about the content and to think.

The repairs of the facilities done at the schools also helped contribute to the growing water consciousness among the children, one teacher commented that:

> We used to have broken pipes and excessive water consumption in the school, 80 percent of the water was wasted. Then the water company did some repairs. Sometimes we still go into the washroom and find the taps on. But now when we ask what happened, the students are aware and say 'oh excuse me.' Today we organize educational campaigns and tomorrow people's habits will change, it's a process. Cultural change does not happen overnight from one day to the next.

The celebration of InterAmerican Water Day was also highly regarded by a teacher who had participated in it:

> We planned activities to do over fifteen days: contests, parades, and talks for all the participating schools. We made it very broad; up until now there has not been another event like it… For the first time in our town the winners of the contests where not just from the private schools and the prizes were not really cheap. WUSC sent us interactive games and other prizes that would be too expensive for us to have given away… If we take the events outside of the school to the community they will learn too, we want them to learn that the environment is important too and that natural resources need to be valued… People saw so many kids in the streets and their own children participating dressed up as water drops. How could they not realize that each drop of water is precious?

Changes in Individual and Organizational Capacity

In order to respond to the guiding questions about what changes have occurred at the organizational level (in terms of autonomy, leadership, and systems of learning and problem solving) and what changes have occurred at the individual level (in terms of involvement in decision-making, knowledge and skills, and confidence and self-concept), two workshops were conducted around the themes of decision making and learning.

A workshop was conducted with water company managers on decision making processes, as described in Chapter Four (see Figure 4.6). They indicated that nine of the 15 most important

decisions they identified had been made by the board of directors and the managers using type A decision making (see Table 4.4). Where WUSC has been involved, the decisions were seen to have been taken in a more participatory manner (see Table 5.5 and Appendix 3 for the results from other groups)

Table 5.5 Decision Making Processes- Water Company Managers- Group E

Decision	Who made it and how it was made
Renovations of the water and sewage system	A- The board of directors and managers Because there is no way to communicate with the clients to make decisions together
Decision to place more importance on investments	A- Board of directors
Increased pay for managers and team leaders	B- The board of directors and mangers Because of the hierarchy and power over decision making
System to save electricity	C- General manager made the decision based on budgets from the managers
Technical modernization in several areas of the company	A- General manager made the decision based on budgets from the managers In order to stay on top of the newest innovations

A member of the board of directors of the water company explained the decision making process this way:

> The different municipalities have representatives on the board of directors and they bring the requests from the population. For example when there is a project to pave a street…the municipality tells us to replace the pipes before they do the paving. This is a cost that the water company has to cover. So the company has a budget that it plans to work with, then the municipality says do this and the budget is manipulated politically. The technical aspects always come in second behind the political aspect so that the mayor can look good… About 50 percent of the work that is done by the water company is for political reasons.

Throughout the interviews I heard from the managers that one of the things the water company was learning from the WUSC teams was their way of working together, their teamwork approach. One manager stated, "The WUSC team members are disciplined in their work habits and methodologies. We see their way of being, the way they work together, their order, their simplicity and responsibility. We learn from things like that, we watch and it gets transmitted to us." Another manager said, "The most important thing they are doing is

showing us how to work together, the productivity of working their way can be seen. We had planned things in the past but were not able to accomplish them because we did not have the mechanisms to work together."

On the other hand, the WUSC team members expressed frustration that the water company employees were not working together as much as they would have liked. One team member stated:

> They talk about teamwork but never put it into practice... Our way of working has not transferred more to them because they always work based on their organizational manuals. Teamwork values are not included in their manuals nor are they practiced. It's important that we teach by example so that the ideas do not just stay in books. Some of the workers are very interested in our way of working and we are very open with them.

Accordingly, during the workshop with the water company managers on decision-making, I also asked them to brainstorm the meaning of teamwork, the different components of it and to place them in order of importance (see Table 5.6).

Table 5.6 Factors that Comprise Teamwork - Water Company Managers

Group H	Group I	Group J
Sense of belonging to the water company	Guarantees the expected results	Communication
Personal motivation	Everyone in the group is involved	Responsibility
Will to improve	Everyone identifies with the work	Initiative
Coordination of work between the relevant departments	Everyone is responsible for the work	Identification
Support of the General Manager and the Board for the decisions that are made	There is no leadership or bosses	Creativity
	No one's ideas are discarded	

A second workshop was conducted with the water company managers on changes they had observed since working with WUSC (see Figure 4.7). Also participating in this workshop were WUSC team members and counterparts. The work of both the Engineering and Social teams were highlighted in the workshop findings (see Appendix 4). Changes were mentioned in areas internal to the water company and with the water users. The reasons that were cited

most often as causing change were to improve the company, to benefit the company and because there was economic support to make changes. The reasons that were mentioned least frequently were for political reasons, what was done before did not work and new information became available that was not known before.

In the interviews, some of the barriers to increased change and learning in the water company were mentioned including both external and internal factors. The main external factor is the municipal ownership of the company. One manager asserted, “The link with the municipality influences the culture of the water company too much. The link is too strong and it’s a negative influence. If the laws were changed so that the water company was separate from the municipality maybe people would respond to change; but now they are always dissatisfied.” Another manager stated, “People have said that the municipalities can administer their own resources, but there is too much manipulation. There is lack of resources and trained people, but we could still do it if the work plans were followed, but because of the political nature of the company, the plans and budgets are always getting changed.”

Inside of the company, the impact of municipal ownership can be felt as a barrier to change as well. A water company manager pointed out, “The correct way to fill an open position is with a hiring process based on merit but to tell you the truth we do not do that. Very few times have we had an official hiring process where we hired the most qualified person. The way we do it, there are lots of people who are inside the company not really doing anything, but they got their jobs because of their politics.”

The political hiring process leads to inertia that keeps water company employees from being creative and working for change. One manager commented:

> We fell into a monotonous routine; we came in did the same work and when the end of the day came we closed the same files. In this way day after day the years passed. We knew there was something more profound to be done… but there was no follow-up because there were always more urgent things and fires to be put out. So nothing really got done because these processes take years to really do properly. Sometimes we want quick success so we do something in a year but half-heartedly so it never really gets done properly. That's why we never implemented the trainings on team work that we got, we think too much of the short term and that has set us back a lot.

However, several managers mentioned key moments of learning like this one:

> We had great plans but things were always problematic [with the users] during implementation. They were demanding and told us to first fix their connections before we did anything else. There were even city council members and our own workers who were opposed to the installation of the water meters. We've learned more from all of the social problems than from installing the infrastructure.

And an Engineering Team member observed several changes in the water company:

> Other people did not want to share information with us in the beginning but this has been changing since we always share information with everyone. Also, people are seeing the problems that exist in the pipelines caused by poor quality work so they are learning that quality is important. At first people did not want to change the way they were doing things but now they have seen that it's important. We've been working little by little, sector by sector and people have been seeing the results. But people fear change; some people are still resistant to new ideas, they are afraid for political reasons. In general people are more eager to help, they're not ready for teamwork yet but they do share more information. At first they did not believe in us, but people are changing now because they have started to trust us.

Second Case Study Site: Rural Location

This section provides the findings from the five workshops and 27 semi-structured interviews that were carried out in the second study location as described in Chapter Four (see Table 4.3 and 4.5).

Function and Flow of Communication

As in the first study site, a workshop was conducted with the WUSC teams and counterparts on the flow and function of their communication with other stakeholders (see Figure 4.8). The communication functions listed in Table 5.7 that were mentioned most often, starting with the most frequent are to share information and knowledge, to influence others, and to establish rules, norms and policies. Communication takes place least often, starting with the most infrequent, to gain advantages over others, share talents and enjoy life, and to receive feedback and learn (see Figures 5.3, 5.4 and 5.5).

Table 5.7 Number of Times Communication Functions Were Mentioned

Communication Function	Group N	Group O	Group P	Totals
1 Reinforce group identity	11	12	8	31
2 Establish rules, norms, policies	10	19	6	35
3 Share information, knowledge	12	22	7	41
4 Get feedback, learn	8	11	8	27
5 Influence others or control self	12	18	7	37
6 Gain advantages over others, compete	8	1	5	14
7 Exchange ideas, explore diversity	12	7	7	26
8 Share talents, enjoy life	8	1	8	17
9 Transmit time-sensitive information	13	11	6	30

Figure 5.3 Function and Flow of Information- WUSC Team Members and Counterparts- Group N

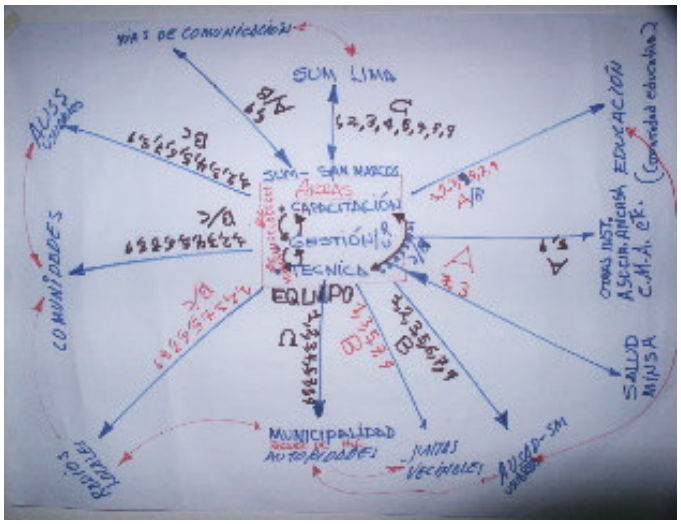


Figure 5.4 Function and Flow of Information- WUSC Team Members and Counterparts- Group O

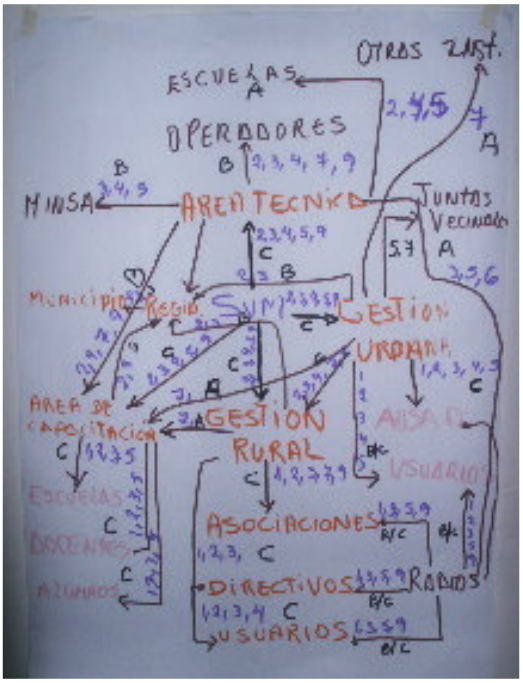
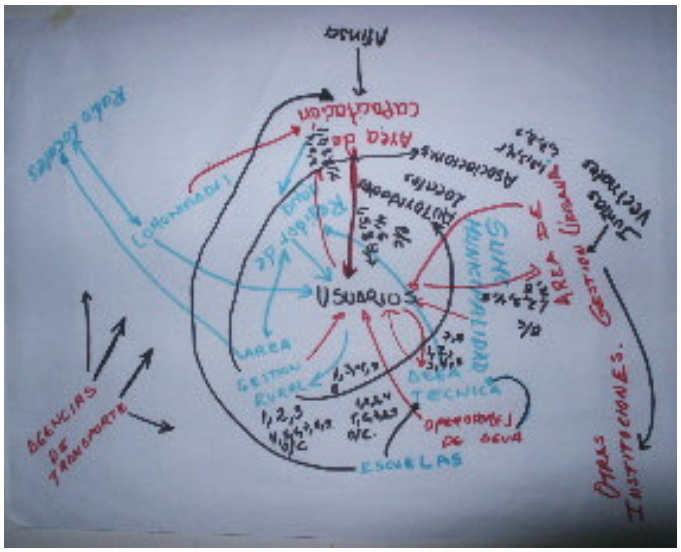


Figure 5.5 Function and Flow of Information-
WUSC Team Members and Counterparts- Group P



Each group drew their map slightly differently, reflecting different emphases. Group N had communication flows going from the three WUSC teams equally to all of the other stakeholders, while Group O separated the three teams to show how they each have their own sets of relationships. Group P placed the water users at the center as they thought the users were the core of all of the efforts.

Participants identified the best quantity and timeliness of communication with the WUSC office in Lima, the local radio stations, and the rural communities and associations. In the relationships rated C for flow (most quantity and timeliness), more functions of communication were used than in the relationships that were given an A for flow (least quantity and poor timeliness). In the information flows that were rated C, the functions that were most often used included to share information and knowledge, reinforce group identity, establish rules and norms, influence others, and to transmit time-sensitive information.

The communication flows that were rated as the sparsest and least timely were with MINSA, other community institutions, the urban neighborhood groups, and the schools. There also

existed little flow between the Management and the Sanitary Training Teams. The relationships that used the fewest number of communication functions included between the WUSC teams and MINSA, other institutions, the neighborhood groups, and the media.

Several team members emphasized the need for the three teams to meet more frequently to keep each other up to date and to coordinate their work more fluidly. One team member said, "Everyone sits at their computer and we do not know what each other are doing, we talk about communication but we're not doing it."

Another WUSC team member stated:

> We need to set a date so that we can meet and coordinate who is doing what when and talk about the problems that we're having in our work. Also within the groups, we all have to know what's going on so that if one of us is not here another person can do the coordinations. Each area needs to meet and all the teams need to meet together too.

Quality of Relationships

Building upon the first workshop on communication flows, a second workshop was also done with the WUSC team members and counterparts on the quality of their relationships with other stakeholders (see Figure 4.9). Participants selected and ranked the qualities that most affect the quality of working relationship (see Table 5.8) and used them to assign scores to each relationship as described in Chapter Four.

Table 5.8 Factors that Influence the Quality of Working Relationships

Factors that make for good working relationships	Factors that make for difficult working relationships
Communication	Lack of communication, false information
Respect	Lack of respect
Trust	Egotism
Sincerity	Mistrust
Responsibility	Bad intentions

Participants were divided into three groups, two of them focused on the relationships in 2005 while the other assessed the relationships in 2002-2003. Relationships that received high points with all groups were with WUSC Lima, the rural user associations, and the urban water association. Relationships that had low points with all groups, starting with the lowest, were with MINSA, the neighborhood groups, and water users (see Tables 5.9, 5.10 and 5.11).

Table 5.9 Quality of Working Relationships 2005- WUSC Team Members and Counterparts- Group Q

	Engineering Team	Management Team	Sanitary Training Team
Users	6	12	16
Neighborhood Groups	3	13	10
Urban Water User Association	15	20	10
Rural Water User Associations	15	19	12
MINSA	5	6	12
Municipality	13	10	8
Municipal Water Representative	14	13	10
Schools	13	10	15
Technical Operators	16	10	10
WUSC Lima	17	20	15
Engineering Team	11	15	13
Management Team	15	17	12
Sanitary Training Team	15	4	20

Table 5.10 Quality of Working Relationships 2005- WUSC Team Members and Counterparts- Group R

	Engineering Team	Management Team	Sanitary Training Team
Users	14	10	-
Neighborhood Groups	-9	12	-
Urban Water User Association	19	19	-
Rural Water User Associations	15	15	-
MINSA	-20	-20	-
Municipality	16	19	-
Municipal Water Representative	16	19	-
Schools	19	14	-
Technical Operators	20	12	-
WUSC Lima	20	20	-
Engineering Team	13	13	2
Management Team	16	16	-9
Sanitary Training Team	-	-	-

Note: there was no one from the Sanitary Training Team in this group, so the table was not completed in its entirety.

Table 5.11 Quality of Working Relationships 2002-2003- WUSC Team Members and Counterparts- Group S

	Engineering Team	Management Team	Sanitary Training Team
Users	11	9	11
Neighborhood Groups	-	-	-
Urban Water User Association	-	-	-
Rural Water User Associations	9	9	8
MINSA	5	10	5
Municipality	12	6	8
Municipal Water Representative	6	5	5
Schools	11	7	9
Technical Operators	8	5	5
WUSC Lima	8	7	6
Engineering Team	7	14	10
Management Team	11	5	11
Sanitary Training Team	8	12	5

Note: the neighborhood groups and water user associations did not exist at this point in time.

As in the first case study site, relationships that received fewer points in the second workshop also had a sparser flow of information and used fewer functions in the first workshop than relationships that received more points. The factors that most contributed to high scores in the good working relationship category were “respect” “trust” and “sincerity” while “communication” and “responsibility” rarely received points. The factors that most contributed to poor working relationships were “lack of communication” and “bad intentions,” while “egotism” was rarely given points as a factor that negatively influences relationships.

For the Engineering Team, the relationships that had the highest number of points were with WUSC Lima, the technical operators, the urban water association and the schools. The relationships with the lowest number of points were with MINSA, the neighborhood groups, the users and within the Engineering Team. Between 2002 and 2005 the relationships with the technical operators, the schools, the Management Team, and the Municipality gained points, and the relationship with MINSA decreased in points.

For the Management team the relationships with the most points were with WUSC Lima, the urban water association, the rural user associations, and among the Management Team members themselves. The relationships with the least points were with MINSA, the Sanitary Education Team, the technical operators, and the users. Between 2002 and 2005 the number of points with the Engineering Team increased, and during that same time, the relationships with MINSA and the technical operators decreased in points.

The relationships with the highest points for the Sanitary Training Team were among team members, with the schools, with the users and with WUSC Lima. The relationships with the lowest points were with the Management and Engineering Teams, and the municipality, the urban water association, the neighborhood groups, and the Municipal Water Representative. Between 2002 and 2005 relationships with MINSA, water users, schools and the rural water user associations increased in points and the relationship with the Municipal Water Representative decreased in points. As the only team with improved relations with MINSA, this could be due to the work that the Sanitary Team does with the rural health promoters in the communities rather than the main MINSA office, which is the central point of contact for the other two teams.

In interviews, many team members talked about the challenges of working with the municipality, however, local authorities were very positive about WUSC's work. One member of the Management Team explained:

> The municipality does not really understand the work that we're doing with the associations, they see that there are still problems in the communities so sometimes they think that we're not working. They are always more enthusiastic about the infrastructure components, they agreed to the whole project with us not because they were excited by it but because they saw it as a way to get financing for the infrastructure they wanted. The can sell the

> public works politically but the trainings they do not really get because its harder to point to concrete results. They're just starting to understand that it's a lot more complicated to work with people than with pipes and tools. We've had this same experience in every single WUSC project.

A member of the Engineering Team also highlighted that their team had received less support than they would have liked from the municipality:

> We have not done much work in the urban area. At first the municipality just gave us a council member and a technical operator as counterparts and there just was not any sense in that. Then later they though they would put some of their engineers on our team. But the engineers did not understand our project, they just wanted to come part time and supervise some work and that did not make any sense either. So for now, we're working with a technician and he is completely involved in our work, but we're always pushing the municipality for an engineer.

The lack of municipal counterparts in the urban area has been a barrier to WUSC accomplishing as much as they would have liked there. However, one local authority stated that:

> There is not a single institution here that opposes the work that WUSC does and the legacy they are leaving us. All of the other institutions are out of touch with the population, they spend so much money on operating costs that they have nothing left for their projects. None of them train any of our people so that we can continue on with their work into the future…. Based on these experiences, the municipality has closed its doors to MINSA and many other institutions; we just do not support them anymore. We are difficult to work with, we do not trust people anymore, as they always promise us everything but do not deliver. WUSC was the first who came to work with us with really qualified professionals and a love for our people. Over time they won us over, and now we trust them.

The MINSA representative responsible for environmental health and water quality expressed that he was overwhelmed with his role and this made MINSA a difficult counterpart for WUSC:

> Each month I inspect and report on potable water and sanitation, dog vaccinations, dog bites, health inspections for commercial establishments,

> health permits for food workers, rat eradication programs, slaughterhouses, trash collection, the school and municipal storage facilities for government food programs, and the condition of the cemeteries. I am supposed to train the water user groups to monitor their water quality and when cases of diarrhea are reported I'm supposed to visit the community three times. I have abandoned more than 15 rural communities because I just cannot get there, I have no idea what their water looks like…I do not do my work well, I cannot cover it all. Just doing the water part would be too much work for one person. We need to be coordinating better with the authorities, and sometimes my own institution is a barrier to getting my work done.

A member of the Management Team acknowledged that WUSC's work with the educational sector could also be improved, "We have not established very strong links with education and we need to work on that too. We need to get the municipality to work with them on a more permanent basis so that part does not collapse when we go."

In terms of the relationships between the WUSC teams, a member of the Sanitary Training Team explained:

> Sometimes we have so much work, we all do, we go out to the rural area so often and when we arrive late in the evenings we're tired. Some people misinterpret our actions; personally I just do not like to participate in parties and sports events. It's just not my thing. We advise them ahead of time that we will not be there but maybe people resent it.

However, one of the problems is that the head of the Sanitary Training Team does not work on a regular basis in the office with the rest of the WUSC teams, instead she comes to visit once or twice a month and coordinates a work plan with the Sanitary Training Team members. A member of another team explained the problem between the teams from her perspective:

> We tell you [the Sanitary Training Team] sometimes about things like meetings with the water users association, but you say that you cannot be there because you've already scheduled something during that time, but you need to leave space so that things can come up. We have to coordinate other things that are not part of your work plan, you do not have to always be

> calling your boss to see if it's ok, you'll be working with us on important activities. If we invite you to participate in something like the radio show it's because we think that the information you have is important to the work that we're all doing. We also have to communicate more with you too but up until recently you all would enter and not speak to us, not even to say hello or goodbye, and that shows a lack of respect.

The poor coordination between the teams led to cases where some communities received training on how to build and use household latrines up to two years before the Engineering Team had the funds and was ready to provide the materials and technical assistance for them to do so.

Educational Campaigns

The educational campaigns that were done with the water users, associations and schools were based on the diagnostics that were completed in each of the three areas. A member of the Sanitary Training Team explained how WUSC began work in the rural areas:

> When we enter a new community we talk with the authorities first and they introduce us to everyone in a general assembly. We show them the themes that we will talk about and answer any questions. Almost everyone wants to participate; they are humble people and they want to learn more. Most people already know us since we are from here and we speak Quechua. These are communities that have applied to participate with us so we already know that they have some interest before we meet them.

While most of WUSC's educational materials were delivered through interpersonal communication, workshops and over the radio and were modified through interaction with their audiences, only the sanitation trainings for the rural areas were designed in 2001 and had not been updated since, "We have not changed them since everyone here has the same health problems."

In the urban area, since WUSC and the municipality had agreed that the formation of a water users association was desirable, the user education program in the urban area focused on management models and to a lesser extent on water conservation. In the first user education workshop, the team gathered more information in order to determine what topics they would cover in the trainings. One member of the Management Team explained:

> After we had trained them, the heads of the neighborhood groups were extremely important because they helped us to convene the workshops. We knew that if we invited the population directly they would not listen to us as an external organization, but they had to listen more to their own neighborhood representatives. We went around and made a map of the whole town with everyone's name and then when we held meetings, we invited everyone by name. We got their opinions first and then start to work with them. We knew that if we went and just told them to do things, they would reject us so we had to go listen first and then design the program around that.

Originally, WUSC was only a going to spend a couple of months on public education for the urban water users association, but after the first workshop they realized that the population was a long way away from being ready to manage their own system. A Management Team member recalled:

> We had planned to do just one or two months of workshops but after the first one we had to rethink it and give people a lot more information before we could ask them to make a decision about forming an association. They had to know what participation meant. Then we could talk about the management model. People thought that participation meant that they would provide unskilled labor for public works. That is just passive participation but we wanted people to be active and make their own decisions about the water service. We talked to them about what quality service looks like and the problems they could have if they did not participate... For those that did not attend the meetings we went door-to-door with the brochures and spoke with them. And then we started using the radio to reinforce the topics so that the whole town would know what we were doing.

WUSC had to work hard to overcome many misconceptions on the part of the urban population. A water user explained why he stopped going to the WUSC meetings,

“Sometimes we went and they just argued and never talked about the water; it was a waste of time. If it’s a meeting about water then it should just be about water, but they talked about too many different things, and just ended up fighting." One member of the Management Team describes the challenges:

> We had to have a lot of patience, some people were very argumentative, they did not understand the project, and they did not come to the workshops to find out about it. There is a group that is still against the water users association, they say that this is the first step towards privatizing the water service, they even get on the radio with a counter campaign. Our strategy is not to respond directly to them but rather to continue reinforcing our themes. Also, because the mining company is from Canada too, people think there is a link, and this has been very tricky. And people in the urban area always saw our office here but they did not know about the work we did in the rural areas so they thought we were not doing anything since nothing ever got better in town.

While a local development association that was created by the mine did contribute money to WUSC’s projects, the mine did not influence WUSC’s work. However, the association of WUSC with the mining company in people’s minds was especially tricky, as it did not have a good reputation for either its environmental or labor practices. The mining company was subject to regular denunciations on the radio, there were public graffiti calling for it to leave the area and it was singled out and held responsible for municipal financial shortages. I was told to always say that I was working with the municipality when speaking with people to avoid being associated with the mining company in any way.

The Sanitary Training Team began work in the urban areas in 2004. They started with one school and then began to do sanitary training and hand out water storage containers to the public. One team member said:

> We did a parasite study in the school and found that and 70 percent of the kids had parasites. A major cause of this is the way water is stored in the home, so that’s why we started this campaign. In the urban area they did not think they

> had anything to learn, and that they already knew everything. But we went around and asked how many hours of water people had and targeted our workshops towards areas that have little running water.

They trained a group of people in the school to ensure that water was not being wasted and that the drinking water in the classrooms was chlorinated properly. Members of the Sanitary Training Team also demonstrated to the students how to wash their hands. However, the director of the school wished that the teachers would be trained to share the materials with their students.

> Our students have received very little training on water topics and since we have about 600 kids, we want more permanent training. The municipality is the one that is responsible; they should be training the teachers so that they can reach all of the students. Our teachers need to take over this role; we cannot keep getting trainings from outside.

Changes in Individual and Organizational Capacity

In interviews, several local authorities affirmed that they had learned a great deal from WUSC, many of the items mentioned focused on technical factors:

> We have learned from their example, this is like a WUSC school of water management. Now we are an example for everyone in the valley. We have learned how to manage potable water both for rural and urban areas. And we have learned to do technical plans in order to look for financing for projects.

One municipal authority recounted some concrete skills that he had learned from working with WUSC:

> Since I did not know much about it, I asked WUSC to help supervise the work on another project. We made their project manager buy better materials, he did not want to but we made them spend the money and do it right. Before we always just accepted the materials and let them work, and then the valves and pipes would break and there was nothing we could do. Now it's different, I can identify the quality of the materials by myself. I know how much work a person can do in a day and can tell when they have been overcharging us without doing the work. Now not even the engineers or workers can trick me anymore.

A member of the Engineering Team said that he had not seen many changes in the users:

> Up to now, people still do not understand. Since we've been here, our preoccupation has been with the safety of the water. But the other main problem is the amount of water that people waste; we have not advanced too much in that area. We've been working on the water loss in the pipes and expanding the hours of service. And we've been working on the radio to try to get people to understand what quality water means but they still do not understand.

On the other hand, a Management Team member pointed to several changes in the attitudes of the urban public:

> People have started to understand that there are problems in the water system. They had thought that they drank water from another river, and that there was a lack of water so they were always asking the municipality to look for new sources. They learned that the problems were caused by the fact that no one was really looking after the system and they were not paying so they did not have the right to complain about the service.

The population's approval of the formation of a water users association marked a large shift in the attitudes of the urban public. Appendix 5 chronicles the creation of the association from the point of view of its board of directors (see Figure 4.10).

Almost everyone agreed that there had been more changes in the rural communities than the urban area over the last several years. An Engineering Team member related some of the changes that he had seen:

> When I arrived here none of the communities had safe water, not one. So we are making progress, the communities are starting to understand the importance of this and hopefully with their own hands in the future they will continue to improve their water services…. In some communities we've seen that people will not pay their fees because they are too politicized. But in the community next door they can be really well organized and have their service running perfectly, so you can really see the relationship between their level of organization and ability to work together in the quality of their service.

One Management Team member commented the functioning of the rural water associations:

> They wanted to learn, someone just had to go out to the communities and explain things to them in Quechua. The way the associations work has changed, now the directors inform the population about their financial situation. In one of the communities no one paid their fee all last year. The directors decided to cut off the water supply of those who had not paid and people did not have anyone to complain to because they had approved their own bylaws, nobody made them do it… The other problem is that the treasurers do not like to spend the money they collect; we go and find that they have not bought the materials they need. They think that people will get mad at them for spending the money but we tell them to spend and then to report on it at the next meeting. This is a change for them, the president used to finish his term without reporting on anything so the directors have become afraid of spending.

There have also been changes in how the rural population feels about their associations, a Management Team member recounted that, "when the water associations hold fundraising events, they support each other across communities, they take their sports terms and pay to participate in the activities. The communities compete with each other a little to see who can fundraise the most money." Another management Team member said that:

> People feel more represented by their association than they did with the informal user groups. Some people have asked for copies of the bylaws, and little by little they are understanding them. They are learning about their rights and obligations. They are disinfecting the systems now and there have been fewer cases of diarrhea lately. And the board of directors is telling them when they will do maintenance activities so people know when to collect water and when not to use the water. People also volunteer with work crews so that the directors do not have to do everything by themselves.

A MINSA representative in one of the rural communities verified that the cases of diarrhea that he had seen had been decreasing over the past couple years. Another local authority commented that, "There used to be a lot of sickness in the communities but that has changed, now people know how to keep clean and where to keep their animals- they used to sleep together but now they keep them a little ways away." While the Sanitary Training Team felt that some changes in behavior had happened, one member stated that:

> They still do not like to drink chlorinated water; they would rather boil it or drink it straight from the spring. They use the chlorinated water to wash dishes and vegetables but not to drink. Also sometimes they continue to go to the bathroom outside around their homes.

Unknowingly corroborating the qualities that were selected for good working relationships in Table 5.8, a Ministry of Health representative also reported that:

> I am working in three communities on my own initiative teaching them how to use the liquid chlorination system. In some communities they are chlorinating really well, people are using protective gear, and paying their fees so that more chlorine can be bought. There has been a radical change in the communities where WUSC is working, things that we were not able to achieve, they have. WUSC works with the communities slowly; they visit people house by house. We go to the communities in a hurry, are in a hurry while we're there and leave in a hurry- and that kind of work does not yield many results. You have to become friends with people in the community

Members of the boards of directors of two rural water associations identified changes they had seen in each of their communities in a workshop (see Tables 5.12 and 5.13). As described in Chapter Four, they then took photos of changes in their communities (see Figures 4.11 and 4.12). Photos were taken of people paying their fee, in their homes washing their hands, washing their clothes, carrying water to the kitchen, storing water in the containers that WUSC had given them and of household latrines. Photos were also taken of a community health post, the outhouse and sink at a school, repairs of the water pipes, the drip chlorination system, the fences that protect the water storage tanks, and the metal locks that keep unauthorized people out of the water supply (see Figure 5.6 for some examples).

Table 5.12 Changes in 1st Rural Community- Directors of Rural Water Users' Association

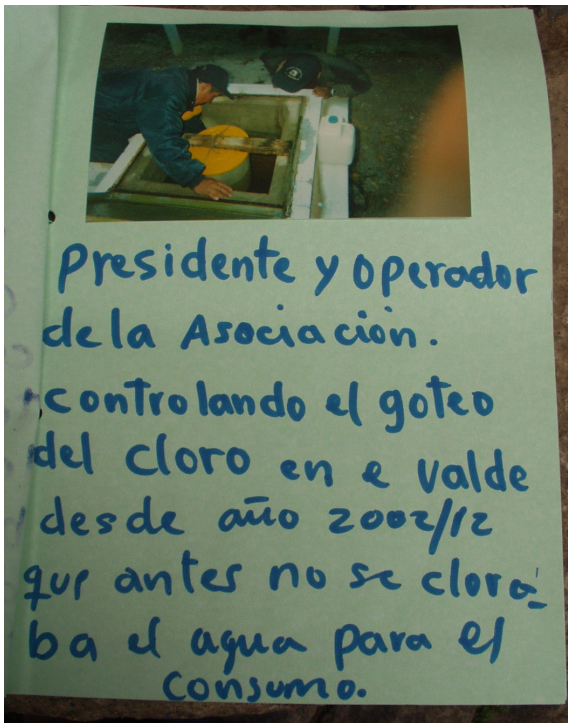
Characteristic	5 Years Ago (scale of 1-10)	Now (scale of 1-10)	Explanation
Users paying for water service	0	10	We are organized. Users now understand that to have water 24 hours, they have to pay for it.
Purchase of necessary tools and materials	0	10	Now that people pay the monthly fees, materials and tools such as valves and chlorine can be purchased to keep the system in good operating condition
Chlorination of water and disinfection of system	0	10	We did not use to know about chorine. Now, because of the training by WUSC, we know how important it is for reducing sicknesses.
Wise use of potable water, no waste	0	10	It's important to conserve water, we tell people though training and by applying sanctions and fines which are part of the duties of the association.
Consistent operation and maintenance of the water system	3	9	Before, we cleaned the system once a year, but without using chlorine. Now we do cleaning and maintenance every four months.

Note: 1=very little, poor; 10=very much, excellent

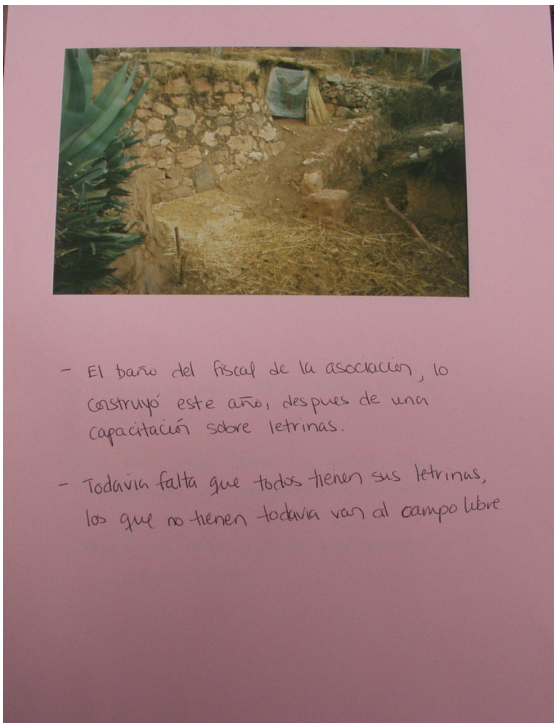
Table 5.13 Changes in 2nd Rural Community- Directors of Water Users' Association

Characteristic	5 Years Ago (scale of 1-10)	Now (scale of 1-10)	Explanation
Condition of large storage tank	9	3	There is a lack of funds to buy materials for repairs
Materials for repairs and maintenance	0	3	The system was built for us but we were given no materials, now we are starting to buy materials with the monthly users fees
We perform maintenance on the system every three months	8	10	We have improved our maintenance of the storage tanks
Buying chlorine	2	10	We now buy chlorine for each month
Users paying the monthly fee	1	10	Now all of the users pay a monthly fee for the water service

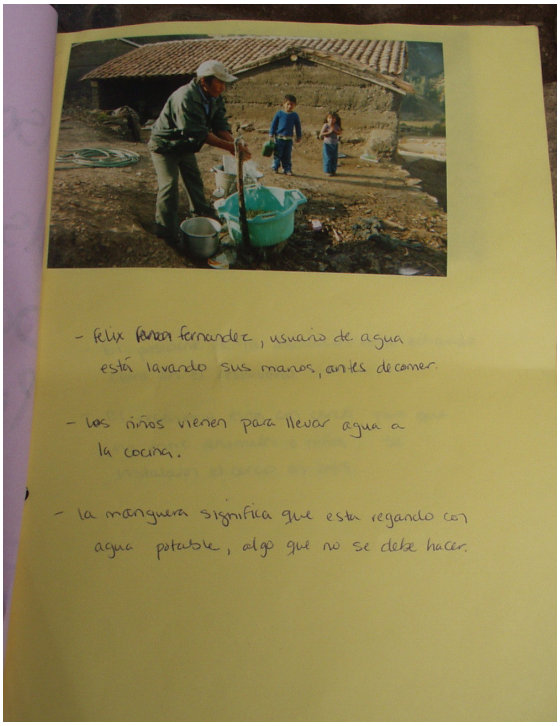
Figure 5.6 Photographs of Changes in Rural Communities-
Directors of Water Users' Associations



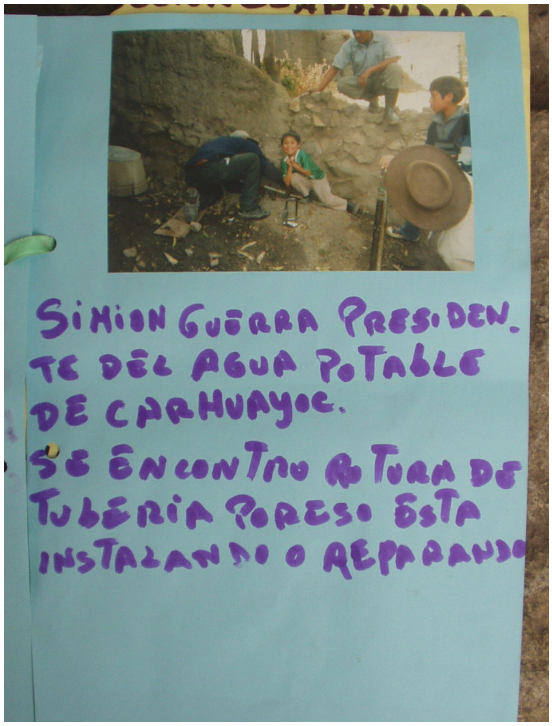
Chlorinating the community water supply



New household outhouse



Washing hands, collecting water for kitchen



Repairing a broken pipe

All of WUSCs teams were aware that they would be leaving soon and were working to ensure the continuation of the work they had started. Although the management-level team members had been to a meeting in Lima to discuss and plan for WUSC's exit, the teams were still deciding on which activities they would do and talking about how to coordinate their work with each other in order to make the transition as smooth as possible. There was no provision for monitoring the work of the municipality with the associations after WUSC left and one Management Team member said:

> There is a risk that when a new mayor is elected he could dissolve the whole [urban water] association. Approving the fee will be a fight with the population that could increase the risk. The future of the water service depends on the population realizing that there are benefits to paying a fee that gives them the right to complain when things are not going well. We want them to accept their institution and defend it against any political currents, the elections are coming up and the candidates could promise that people do not have to pay for water. If the population is not prepared then they could begin to believe that again.

The creation of the Municipal Water Unit is one of WUSC's main strategies to support both the urban and rural water associations. A Management Team member stated that:

> We've seen that the associations all by themselves are not sustainable; they need the permanent support of an institution and by law that should be the municipality. So we are preparing all of the procedures and mechanisms for them, they also have to know how to carry out evaluations of the associations, we're leaving them worksheets that will help them do that. We need to focus on supporting the Municipal Unit and the associations so that they will be strong enough when we leave. We're also trying to strengthen the ability of the counterparts to carry out this work. But legally the municipality is responsible so they will have to do something.

However, many team members felt that the municipality was not prepared to support the associations in this way. An Engineering Team member commented that:

> The municipality is not yet ready to assume its role; the communities are going to have to demand that it does so. We're going to have to make sure that

> the communities understand this in the time that we have left. The municipality still needs to gather political will to make this work, the current mayor needs to do it and later ones will need to as well… With the amounts that the municipality will pay the counterparts, it's a risk that they will find other work, so we're trying to get more people involved. We're counting on pressure from the population to make the whole thing work.

A member of the Sanitary Training team expressed doubts about the ability of the municipality to continue with the work:

> I do not know how it will work because of the politics, when the new mayor comes in he might want to hire all of his friends and change all of the people who have experience in this work. All the counterparts know their jobs, but the doubt starts when there are elections, each candidate has their own people that they will want to put in place so that might hurt the Municipal Unit.

Additionally, members of the population at large, expressed doubts that the municipality had their best interests in mind:

> They [local officials] do not hold open meetings, they only invite the people they want, they act like the money is already their own and they can do what they want. The mayors buy votes with food, alcohol, and coca and that's why people vote for them, not because we believe in them. They should invite everyone to the meetings, but if we go they do not let us enter, you have to have a special invitation. The development of the community does not matter to them.

Even local authorities were not sure if the next mayor would continue to support the associations or the Municipal Unit and thought that pressure from the general public to continue the work was its best guarantee. One official said:

> God willing, the new mayors will continue to work with the counterparts that have been trained. What happens with a new mayor will depend on the community, but since they now know what the municipality should be doing, they have to ask for what they want. When they did not know how things were supposed to be, they could not ask for it, but now that they do, the new mayor will have to provide it to them. They'll just have to teach the new mayors how to do it.

Chapter Summary

This chapter presented the findings from the workshops and semi-structured interviews that had been conducted for this research. In doing so, it addressed the research questions outlined in Chapter One and reveals that WUSC is contributing to various degrees to changing attitudes and capacities among the public, in school aged children, water user associations, water companies and municipalities in the two study locations.

While both project teams were trying to change people's behavior concerning water management, hygiene and conservation, the WUSC teams in the first study site did not feel that they were communicating to influence others, establish rules, norms or policies or to reinforce group identity. On the other hand in the second study site, some of the communication functions used most frequently were to influence others, and establish rules, norms and policies. In both locations, the teams regularly communicated to share information and knowledge. In neither location did the teams communicate to share talents and enjoy life or compete and gain advantage over others.

Project staff in both locations selected similar criteria for judging the quality of their relationships. Trust, communication, respect and responsibility were selected as criteria for "good working relationships" in both study sites. Respect and trust were listed with many points in relationships that received high scores in both study locations. In fact, interviews with WUSC team members and other stakeholders often highlighted trust as a key factor in helping change and learning to occur.

Also common to both case study locations was lack of communication, egotism and mistrust, as factors that create "poor working relationships." High scores in the lack of communication

category often pointed to relationships with low overall scores. Similarly in the interviews, complaints about a lack of communication correlated with relationships that had received low scores in the second workshop.

In both study locations, relationships that in the first workshop demonstrated a limited use of communication functions and a reliance on sharing information, transmitting time sensitive information and influencing others as the main functions of the communication, received a low score in the second workshop. Conversely, relationships with high scores in the second workshop were characterized in the first workshop by frequent and timely communication flows that incorporated many functions. This indicates that communication needs to be more dynamic, interdependent and go beyond just informing or influencing in order to create strong relationships that lead to lasting learning and change.

The WUSC teams did not focus on explicitly working to change the organizational cultural of the water company or the municipality. But rather it was assumed that through embedding the teams within the counterpart organizations, the long-term contact and regular communication and working together would lead to changes in the capacities of the counterparts and changes in the attitudes of the general public. The organizational values expressed through attitudes and actions that emerged from the interviews and participant observation are highlighted in Table 5.14.

Table 5.14 Organizational Values as Expressed in Interviews

Water Company/ Municipality	WUSC
Hierarchy	Shared responsibility
Repeating what has been done	Learning from experience
Individual power and control	Value of each member of team
Personal gain	Results based
Saving face	Creates meaning
Doing as told	Looking for creative solutions
Static following of procedures	Seeking new ideas and improvements
Crisis management	Long-term planning
Reacting to past	Actively creating future
Hoarding information for control	Sharing of information and skills

Overall, the work that each team was doing with their assigned areas and stakeholders seemed to be having good effect. In other words, the Engineering Teams worked well with the construction workers and field operators, the Social Team had good relations with the schools, the Management Team got along well with the water user associations, and the Sanitary Training Team had a good relationship with the rural water associations. However, the relationships in areas that were outside of their strict area of focus often did not have fluid communication or receive such high points, especially in cases where the other half of the relationship had a limited amount to offer such as the case for example with some water company managers or MINSA.

CHAPTER SIX- Analysis, Conclusions and Recommendations

Introduction

Publicly owned companies like the water company described here, and institutions such as MINSA and municipalities, face challenges on all fronts from a shortage of resources and public support to limited knowledge and ability to carry out their work. Development organizations like WUSC can play a crucial role in supporting them to meet and overcome these challenges by providing expertise, training, and concrete working examples of how public services can be managed in a responsible, transparent manner that earns the trust and support of the public.

However, since international cooperation is limited by donor funds, goals and time scales, from the very beginning capacity development projects must begin to train local counterparts and transfer responsibility over to them so they will carry out the work on a long term basis. What are some of the lessons from WUSC's Peru project that can help us reflect on the roles that communication and capacity development play in this process? And how can they be used as strategically and effectively as possible? This chapter describes how the principles outlined in the conceptual approach in Chapter Four can be compared with the findings in Chapter Five to suggest how capacity development and Communication for Social Change strategies can be applied to support public water management in Peru.

Analysis: Communication for Social Change

As described in Chapter Three, WUSC has implemented many of the principles of Communication for Social Change in both of the case study locations (see Table 2.1). Through the use of brochures, face to face meetings with neighborhood groups, educational

sessions with school teachers, coordination with health workers, radio programs, participatory workshops, hands-on demonstrations of hand washing and chlorination techniques, and public celebrations of InterAmerican Water Day, they have succeeded in introducing the ideas of collective action for water management and conservation to the general public. As mentioned in Chapter Two, communication strategies that over a long period of time employ a variety of media for mutual reinforcement tend to contribute community dialogue, debate and ultimately to change.

As noted in Chapters Three and Five, the Institutional Image office in the first study site and the municipality in the second study site did not employ communication strategies that allowed for public dialogue and feedback. They instead reacted to the public mood portrayed in the press, on the radio or in person through complaints, to limit damage to the company's or mayor's public image.

When WUSC initially begins to work in a new location they conduct diagnostics, which gauge the public's level of knowledge about their water system and their rights and responsibilities as water users, their level of satisfaction with the service, their willingness to pay, and their main complaints about the service. This information becomes the basis for WUSC's communication with the water users. In the case study communities, WUSC team members listened first to what people were saying and found that they wanted improved water service and to learn how to contribute to that goal. The teams then designed communication campaigns around their findings to reinforce some ideas that were helpful and to introduce others. In both case studies, different media were used for different functions of communication (see Table 6.1). This methodology appears to have been successful as often times, as is the case with the neighborhood groups and the rural water

associations, people were convinced to change their beliefs and behaviors in a surprisingly short time.

Table 6.1 Media Used by WUSC Teams for Different Communication Functions

Communication Function	Media
1 Reinforce group identity	Interpersonal, official documents, radio, brochures
2 Establish rules, norms, policies	Interpersonal, official documents, brochures, radio
3 Share information, knowledge	Interpersonal, official documents, brochures, radio, TV
4 Get feedback, learn	Interpersonal
5 Influence others or control self	Interpersonal, brochures, official documents, radio, TV
6 Gain advantages over others	Interpersonal
7 Exchange ideas, explore diversity	Interpersonal
8 Share talents, enjoy life	Interpersonal
9 Transmit time-sensitive information	Interpersonal, radio

The teams' messages about water management were largely accepted in spite of initial resistance and mistrust on the part of the public toward their local officials and as a consequence towards WUSC's work as well. This acceptance was due to WUSC's long-term engagement with their partners, the use of multiple media, the face-to-face dialogue, and the use of Quechua in the second study location. Over time, the teams were able to create solid relationships in the communities where they work based on the values selected by the WUSC teams (see Tables 5.2 and 5.8). In the interviews with water company managers, local authorities and WUSC team members, they all commented on the trust that had grown between them (see Chapter Five for quotes).

While WUSC clearly undertakes a variety of communication activities, many of which are quite effective, they have no overall communication strategy. A communication strategy is based on research, development of clear communication objectives, identification of audience groups, carefully designed messages and choice of media, and finally, monitoring and feedback (Fraser & Villet 1994). In the case study locations, the diagnostics that took place at the beginning of the project did not ask people what communication media they

preferred, when and how they used different media, their level of trust in different spokespeople and media, nor did they identify the different stakeholders who would need to be reached with targeted messages in order to foster the changes that WUSC was seeking.

Because of the lack of an overall communication strategy, some groups have been left out which may make the continuation of the project, beyond WUSC's funding period, challenging for the counterparts who are expected to maintain the initiatives. In particular, the water company managers and board of directors, the mayor and city council members, and future mayoral candidates were not included as audiences for targeted communication efforts. These efforts would have promoted the attitudes and knowledge necessary for continued learning and capacity development for effective water management. This is particularly important given the quotes and workshop results in Chapter Five from the first study site that highlight the role of the project manager in overseeing the two WUSC teams, and the board of directors of the water company in making the majority of decisions. In both locations, one of the largest barriers to the project was the political influence of the town's mayor and the disruptions caused by each new mayoral election.

Keeping current and future decision makers apprised of the projects achievements and needs can help them develop a sense of ownership and protection over it that may help shield it from arbitrary political decision-making. In the case of the first study site, WUSC staff provided water company managers and board members with technical reports and presentations on their plans and progress. In the second location, the previous municipal representative had been very involved with the WUSC teams. However, oral reports had only recently been initiated with the current municipal representative. Site visits, videos, photographs, and radio documentaries could have helped decision makers visualize otherwise

dry reports (Fraser & Villet 1994). In neither case was the current mayor nor the future mayoral candidates targeted directly in WUSC's communication efforts.

The learning by doing approach employed in the project meant that WUSC's counterparts participated in the majority of their activities. However, because of the limited knowledge, experience, and personal agency of many counterparts, they often played only support roles (the main exception to this is the Engineering Team counterparts in the first location). While they learned new skills, in many cases they did not learn the underlying reasons behind them. This seems to point to the fact that WUSC views workplace learning more from a technical rather than social orientation (Easterby-Smith & Araujo 1999), which meant that some counterparts were not fully integrated into the teams (communities of practice) as equals. As a consequence, they experienced single-loop rather than double-loop learning as described in Chapter Two.

This situation was especially true in the design of communication activities in which workshop methodology and content was often planned by senior WUSC staff and brochures were created in Lima. Therefore, the local counterparts did not have the opportunity to contribute to their content or the process of their creation and while they were universally admired, they were viewed as WUSC's materials. A communication strategy would have included provisions for building skills among counterparts to write, field-test and produce professional communication materials for the public. They would have been more involved in the design of workshops, brochures, and radio programming and consequently, the counterparts would have developed feelings of ownership over the materials and the processes which would have helped them to continue with this communication work after WUSC's project ends.

This training would have been especially important for the Institutional Image Office and the Commercialization area in the first study site, as they have the most direct contact with the public. Even after having worked with WUSC for several years, one group in the workshop on decision making (see Table 5.5) identified that a decision had been taken and the public had been informed about it later, "because there is no way to communicate with the clients to make decisions together." In the second study site, this training would have been carried out with MINSA, the teachers, and representatives from the municipality.

Analysis: Capacity Development and Learning

Chapter Two outlines four areas of capacity including organizational performance, internal capacity, and favorable internal and external operating environments. Municipally owned companies need capacities in all of these areas in order to fulfill their functions. Internally, organizations need to define their sphere of action and long-term strategies to provide support to those that most need it based upon systems for diagnostics, monitoring and evaluation. Effective municipal companies require a clear sense of their own rights and responsibilities as well as those of the other stakeholders involved. They need transparent policies and procedures that are applied uniformly in all cases. Additionally, they should be accountable to the general public as well as a regulating body. Overall, these companies need leadership that enables and builds these capacities and supports sound management practices in general (Gubbels & Koss 2000).

The findings in Chapter Five describe how in the two case study sites, hiring decisions, planning and budgeting, allocation of resources to different activities and communication with the general public are based on partisan politics rather than social or technical criteria.

This type of decision making has led to the massive budget deficits faced by almost all of the municipal water companies in Peru. The lack of the soft capacities outlined above has led many people working in the water sector to believe that concessions to private companies for certain parts of the service or larger-scale privatization is the answer to municipal water problems. Many people view private management of municipal services as more technical (as opposed to political), professional, and efficient. However, members of the public seem not to be in favor of these arrangements because of fear that their rates would increase. This fear was behind much of the resistance to change that WUSC addressed in their public educational campaigns.

As described in Chapter Two, capacity development can be viewed as a means to strengthen the ability of an organization to carry out activities; as a process to enable the organization to reflect and adapt in response to change; and as an end it strengthens an organization's ability to survive into the future. WUSC has most contributed to the building of organizational capacity as a means by assisting the water companies, municipalities, and user associations to improve their use of resources, knowledge, and processes to carry out specific activities.

To a lesser extent WUSC has contributed to capacity development as an end through more effective processes and increased public support, although not to the point that the future of municipal water and sanitation services is assured. This capacity development has occurred because of the professionalism and experience of the WUSC staff and the degree to which they were able to transmit their experience to the counterparts. The counterparts learned new ways to manage the water system by observing the WUSC team making decisions based on diagnostics, social and technical criteria, and past experience rather than political expediency.

The area in which WUSC seemed to have little impact was on the development of capacity as a process to reflect, learn and adapt to change. As described in Chapter Two, this could be due in large part to the lack of the development of an information sharing culture within the water company (see Tables 2.5 and 5.14). Because of WUSC's policy not to get involved in partisan politics, they did not make their own political agenda explicit nor employ strategic communication or activities within the water company or municipality to explore, question or transform the political *status quo* within the organization or community as described by Coopey and Burgoyne (1999) in Chapter Two. While the WUSC teams tried to foster a teamwork approach based on the free sharing of information, they did not acknowledge the influence that the organizational hierarchy and political maneuverings were having on the ability of others to share or use information they had gained.

When describing the decision making process used in the first study site, managers most frequently identified decisions as having been made by one person or group who later informed other people who were affected by it (Type A decision making). Even in cases where the managers identified that the decision had been taken in a more participatory manner, such as when they worked with WUSC to install the water meters in one sector of the city, it had not been done in consultation with the public who was ultimately affected by the decision (see Appendix 3). This points to the fact that the water company managers still did not have the mechanisms to examine their decision making processes, to solicit feedback from the population, nor did they have a solid understanding or desire to implement more participatory decision making.

In the first study site during the workshop that identified changes, the reasons most frequently cited as having caused a change were because there had been economic support to

do so from WUSC, and to benefit or improve the water company (see Appendix 4). Reasons that involved reflecting on or learning from past experience were rarely listed, which indicates that the water company managers have not yet learned to do this as part of their decision making process.

Everyone agreed that WUSC had originally been invited to work with the municipalities in order to provide extra financing for infrastructure projects. At the time of the research, however, many water company managers and local authorities had, encouragingly, begun to realize that technical and social issues could not be separated. In the interviews, many counterparts echoed the principles of socio-technical systems: that in work environments where the main work consists of the interaction between equipment and people, such as the management of a water system, the social and technical components are interrelated and cannot be managed separately (Trist 1981).

WUSC's learning by doing approach is invaluable as Trist (1981; 48) points out, "new patterns [of thought and behavior] can only be discovered by the individual and group members when they undergo an experience through which they themselves can establish the validity of the patterns." WUSC team members do teach by example especially with the direct counterparts that make up their teams. The capacity development work with the schools in the first location, and rural water users associations in the second, were particularly positive. In both cases the counterparts took ownership of the new information, were able to integrate it into their practices, and achieved noticeable changes in their communities.

On-going close contact seems (as described by Freire in Chapter Two) to have been particularly important to the progress that was made. In both cases where project team members were located at a distance, the communication and collaboration was not very fluid. In the first case study site, the Social Team was located at a distance from the main water company location and seemed to have limited impact on it, while in the second study site the head of the Sanitary Training Team was not physically present, which seemed to obstruct the communication with the other teams. These findings confirm the principles of situated learning theory outlined in Chapter Two, in which people learn through their membership in a community of practice. The development of good working relationships based on trust (and the other qualities described in Tables 5.2 and 5.8) within a community of practice allows information to be shared and knowledge to be passed on.

While WUSC carries out many capacity development activities, revolving around their learning by doing approach, they have no overall capacity development strategy. This approach appears to have resulted in many counterparts who know how to do more explicit hard capacity or physical tasks but who have not gained the tacit or soft capacity knowledge that the WUSC professionals learned through their years of professional experience. Fraser and Greenhalgh (2001) highlight how traditional education focuses on improving knowledge, skills and attitudes (competence) but not for increased ability to adapt to change, generate new knowledge and improve performance (capability). Capability is enhanced through feedback and a focus on learning processes over prescriptive content. The competence approach is limiting since water counterparts learn how to carry out the work but there is little focus on training them how plan for it, and make strategic decisions about what should

be done with whom and when. This has resulted in a limited transfer of WUSC management practices to the water company and the municipality.

Overall, WUSC has not explicitly focused on and therefore has had relatively little effect on the municipalities' or water companies' organizational culture, leadership and management styles, incentives and rewards systems, or organizational structure (see Horton *et al* 2003; Tables 2.5 and 5.14). The employees in the water systems still primarily view their organizations as political arenas and structures, while WUSC views the water company and municipalities as structures and human resources. All parties could benefit from an increased view of water provision as systems (see Table 2.4). WUSC's work was limited by the fact that they do not work at the level of the external environment that provides the administrative and legal system, national and local policies and political systems, and the overall social and cultural milieu within which the municipalities operate.

Water company managers and municipal authorities observed the WUSC teams and admired their way of working, especially their professionalism, responsibility, and teamwork. However, the explicit trainings that WUSC provided were in more tangible areas, and the intangible values were supposed to be conveyed tacitly through working together. In the interviews with WUSC team members, water company mangers and municipal authorities, they asserted that these values were not being learned and embedded in individual or collective mental models as much as each side would have liked. Further evidence of this observation is provided in Table 5.6, where some water company managers demonstrate that they do not fully understand the meaning of teamwork. The managers had not learned to reflect on the gap between their theory in use and their actions as described in Chapter Two.

One of the reasons for this unexplored potential in soft capacity areas is that WUSC's Peru project does not have goals directly relating to communication, learning or capacity development nor methods to monitor or evaluate these aspects of the project. The technical focus of the project is reflected in the indicators that the project used to monitor and evaluate the work of the Social Team in the first study site, which include the average amount billed per connection, the number of months of late payments, monthly profit of the water company, the number of schools participating in the training programs, the number of teachers trained, the number of students trained, and percentage of water users satisfied with the service.

Another explanation for the limited transfer of soft capacities is that the WUSC teams did not help the capacity that they transferred to move to other areas within the organization. As described in Chapter Two, learning may have been taking place in individual counterparts but was not being transferred and codified across the whole organization. This could in part be due to the limited personal agency of the counterparts within their organization, such as the head of the Social Team in the first study site. As Trist (1981) points out, work teams that are trying to implement change and fail, most frequently do so because of a lack of support from the wider organization.

Furthermore, WUSC was not working to build the capacity of some of their natural counterparts. For example, in the first case study location the other water company departments in direct contact with the public are the Institutional Image Office and the Commercial Office, yet the Social Team did not work closely with them. Both departments employed a style of communicating and interacting with the public (for example, by posting rules in the customer waiting area or by requesting the population to provide manual labor)

that was based on the communication functions of transmitting information and persuasion. These one-sided communication activities served to keep community ownership and participation in the management of their community's water service at the lowest levels by simply contributing manual labor and monthly fees with no decision making power (see Table 2.3).

Personnel from the Institutional Image Office did not accompany the Social Team to speak with water users and schools, nor did they design communication materials together such as the video that was in production during the research period. WUSC teams did not work with the General Manager or Board of Directors to modify the job description or focus of the Institutional Image Office so that it encompassed two-way communication with the water users. The Institutional Image Office was to again be the main point of contact with the public at the end of WUSC's contract and that their staff was not trained or interested in performing anything other than their traditional public relations work which focuses on the communication functions of sharing information and influencing others.

In the case of the Commercial Office, the expertise of the Social Team was not used it its full benefit either. For example, they did not accompany each other into the field to jointly speak with users nor did members of the Commercial Team undergo training with the Social Team to learn how they were communicating with the public. The communication that the Commercialization office initiated with the users was not a dialogue, but rather involved water users visiting their office to file complaints. The planned communication that the Commercial Office provided for the users consisted of posting information on a board in the customer waiting area again to share information and to influence behavior. This contrasted

to the neighborhood meetings, door to door visits, brochures and educational talks in the schools and other public events that the Social Team carried out.

In the second case study location MINSA workers and the schools were natural partners. In the case of MINSA, the Sanitary Training Team worked primarily with the volunteer health promoters in the communities rather than the health posts or the head of the Environmental Health Unit. The Engineering Team did provide a series of four workshops in 2004 on chlorination and disinfection of rural water systems to MINSA staff, but this effort did not lead to consistent on-going collaboration. The work with the schools took place primarily in the rural areas, with very little training of teachers in the urban area. Both institutions suffered from considerable resource shortages and would have greatly benefited from increased training and collaboration with the WUSC teams, which over the long-term would have helped them to become more suitable partners for the project.

Leeuwis (2004) highlights the fact that many public extension projects in developing countries are facing similar problems as those expressed by the MINSA employees in the second study site. They are chronically under-funded and are trying to reach too many people with too few resources so that trying to build personal relationships with their entire target audience is nearly impossible.

In these cases, concentrating on training of trainers to reach others in their communities might be a better use of resources than attempting to visit distant communities in person. Additionally, the use of public media such as radio can help to increase public dialogue about health topics and to reach people in remote areas. Not only could MINSA have been invited to coordinate and co-communicate with WUSC radio programs in order to connect with end

users that are currently out of reach due to resource limitations, but WUSC could direct radio programs towards strengthening the capacities of local MINSA staff as well.

Conclusions

The purpose of this research was to document and analyze the experience of WUSC's capacity development training programs for water and sanitation as a case study of Communication for Social Change. Conclusions from each of the three research objectives are highlighted below.

Objective 1: To describe the communication and collaboration between and among WUSC and municipal governments, water companies, water user groups, and end users that have been used to strengthen the capacity to plan, carry out and administer water and sanitation services.

In Chapters Three and Five, I described the communication and collaboration between WUSC and the other stakeholders. These processes have taken place as part of a long-term engagement that involves the use of many different media from workshops to face-to-face conversations, brochures, presentations, posters, radio shows, and TV spots.

In their communication, the WUSC teams most often communicate to share information and knowledge. They place less emphasis on other communication functions that are important for Communication for Social Change such as exchanging ideas, reinforcing group identity, getting feedback to learn and sharing talents. Additionally, WUSC does not have an overall communications strategy, which means they have no way of monitoring which messages and media have been most effective for different stakeholders. The lack of a strategy has also resulted in the exclusion of some important audiences such as decision makers from learning

about the gains and challenges experienced by the project and municipal water management in general.

Overall this research has contributed new communication functions to the existing ones that had already been documented in Table 2.2. These functions can add new dimensions to the planning, practice and monitoring of capacity development projects for water and sanitation. Additionally, it has confirmed the importance of two-way communication, trust and a 'toolkit' approach using multiple media with an emphasis on interpersonal communication.

Objective 2: To identify perceived changes in individual and organizational capacity since participation in the project began.

Perceived changes about capacity are documented in Chapters Three and Five. WUSC employs a learning by doing approach that places teams of professionals inside water companies or municipalities to work directly with counterparts on a daily basis. This methodology has especially contributed to changes in the public's perceptions about their own rights, responsibilities and roles within water management and conservation. However, because WUSC has no overall strategy or indicators for measuring capacity development processes, more intangible tacit knowledge in areas, such as how to work effectively in a team, have been slow to transfer and to spread beyond direct counterpart team members.

This research has confirmed the ideas of soft and hard capacities as a useful way of conceptualizing capacity development efforts. It also pointed to the importance for capacity development efforts to focus on all four capacity areas including the external operating environment for best effect.

Objective 3: To identify the principles of Communication for Social Change that may be applicable in the design of other water and sanitation projects in Peru.

The principles of Communication for Social Change include the ones that WUSC is using already as well additional ones they have not considered. The project teams engage in long-term interventions that begin with a diagnostics phase to listen to the views of their target audiences before they design any workshops or other communication or capacity development materials. In their work, WUSC tends to focus on interpersonal communication through close physical proximity supplemented with additional media such as brochures, posters and radio programming.

Other principles of Communication for Social Change that could be given greater emphasis in WUSC's project include the planned use of communication functions that help to build trust and two-way communication; the development of learning objectives for increased monitoring and evaluation of the impacts of communication and capacity development efforts, and an increased production of messages around water and sanitation issues by the target audiences themselves to help people to become agents of their own change. All of these ideas confirm those presented by proponents of communication for development, empowerment and participation in Chapter Two.

Recommendations

Based on the literature review, findings and analysis presented in this thesis, I offer the following recommendations to policy makers, WUSC (and by extension other similar capacity development projects for water and sanitation in Peru) and future researchers.

For Policy Makers: Support the development of a healthy local-level public sector that can responsibly and reliably manage water and sanitation services. This can be done through the institution of a legal and regulatory model to limit the interference of partisan politics in the management of municipal services, through promoting and learning from successful municipal models that are currently in place, and through increased capacity and coordination between all stakeholders. Increased municipal capacities could help make more efficient use of government resources such as those distributed through FONCOMUN, provide more consistent quality of services for Peruvian communities, maintain national sovereignty over natural resources, and decrease opportunities for conflict between community members and private foreign companies.

A national framework for successful water and sanitation services could be based on that described for Peruvian municipal banks in Chapter Three. It could involve measures such as limiting the number of municipal representatives who can serve on the board of directors to a minority, establishing an external oversight committee un-affiliated with the municipality that could, for example, be in charge of hiring decisions, implementing procedures for increased transparency and accountability to the public in planning, budgeting and resources allocation processes and/or providing incentives for improved performance of municipal water companies.

For WUSC: Continue to embed professional teams within counterpart organizations for long periods of time, conduct community diagnostics and use a variety of media to reach out to the public. Make strategic communication planning including the use of communication objectives, audience analysis, media selection and monitoring and feedback part of this process.

Prepare communication and capacity development strategies based on a thorough analysis of all stakeholders and their capacities (see for example Horton *et al.* 2003). Use this information to develop learning objectives for each key stakeholder that can be monitored and used for feedback. This approach will serve to make these soft capacity activities more tangible, help demonstrate progress to infrastructure-oriented municipalities and increase decision makers' understanding of the project goals.

Develop a monitoring and evaluation system from the beginning of each project based on a gradual lifting of protective conditions and an exit strategy that will leave local counterparts and organizations with the ability to continue the work (see Leeuwis 2004). Design indicators and monitoring questions that will allow for the evaluation of learning and social change (see for example Parks *et al*. 2005).

Concentrate on increasing the capacities of the local counterparts to plan for and carry out work by themselves with minimal supervision early on in the project.

Plan for the close physical proximity of all teams and counterparts to facilitate frequent communication, coordination and the development of trust.

Increase the capacity of counterparts that have limited resources and agency. For example by involving MINSA and the schools in the radio programming and also providing programming designed to increase their capacities.

Demonstrate and communicate to decision makers why it is important to take people into account in infrastructure projects and teach them to conduct social and technical diagnostics and subsequently, long-term planning based on the data.

Strategically use communication to foster a policy environment that supports more professional social and technical rather than political management of water services.

For Further Research: Assess the long-term impacts of WUSC's project after they have left Peru, particularly on municipal capacity and changes in the communities.

Conduct additional social science research exploring the intersection between social and technical factors in other WUSC projects and/ or in other municipal water and sanitation projects.

Design and conduct trainings in capacity development and Communication for Social Change for WUSC headquarters and field staff based on the expertise that the Capacity Development and Extension Program at the University of Guelph has in this area.

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APPENDICES

APPENDIX 1: Results of Workshop with End Users in the First Study Location

Appendix 1: Sources of Information- End Users in One Neighborhood Group

Information source	Which one	When	What I like about it	What I do not like about it	Trust-worthiness of information (scale of 1-5)
TV	America ATV Red Global Panamericana TV Cable	9-11 pm daily 1-9 Saturday 9-10 Sunday 1 soap operas	Cultural information News Soap Operas Reports	Violence Terror	4- News 3-Reports
Radio	RPP Inovidable Radio Mar Radio Huara Radio Paraiso Radio Universal	All day All day Mid-day Morning Mid-day Mid-day	Music	Incomplete information They request bribes from authorities	3- News
Newspaper	La Razon El Correo El Popular El Comercio Opinion Asi Ecos Caras y Caretas	Daily Monthly	National and international news Recipes Coupons	Incomplete information Sensationalist news	3-4 News
Inter-personal	Home Work Friends Neighbors	Everyday continuously	Quick Direct contact	Unreliable information	3-4 Depending on who it is
Brochures	Companies Institutions Schools	Monthly Periodically	Constructive information No cost	Infrequent	3-4

Note: 1= not trustworthy, 5= very trustworthy

APPENDIX 2: Results of Workshops with Teachers in the First Study Location

Appendix 2a: Teachers Use of WUSC's Educational Materials in Schools

Category	Response
Level Teaching	1. Secondary teacher 2. Primary teacher 3. Primary teacher 4. Director of school
Where is information stored?	1. In folder in briefcase 2. Classroom library 3. Folders, library, on wall in classroom 4. Educational folder in office
How many times have you looked at it?	1. Four 2. Two 3. Three 4.When we needed to
Who have you shared it with, what format?	1. Family, friends, students other teachers, verbally, photocopies 2. Students, parents through a traveling backpack 3. Parents, family, friends, verbally 4. All of the teachers in the school, at the monthly meeting with parents
How do you know if the students learned from it?	1. Asking students questions, educational material was placed around sinks and behavior was observed 2. Anecdotes from students, observation of behavior 3. Observation of students' behavior 4. Observation of students' behavior
What impact do you think it has had on students' behavior (scale of 1-5)?	1. Two 2. Five, I use a public ☺ and ☹ chart to give kids feedback 3. Three, lots of impact with kids, less with family 4. Four

Appendix 2b: Teachers Feedback on Social Team's Presentation

Theme	Responses
I liked	1. The materials employed, the data, concrete information 2. The presentation, the use of materials, the way each person presented on a different theme 3. The format of the exposition, the themes covered, the woman who introduced each speaker 4. Learning how to use and conserve water, knowing that the water we have is "hard" 5. The campaign to educate the public about how not to waste water, the whole talk was clear and the presenters explained the problems of water scarcity in a simple way
I learned	1. About the reservoirs and tubes 2. The importance of water, the crisis that we will have in a few years because of the lack of water, that saving water also means saving money 3. How to change my habits, that water leaks in the home cause higher water bills, the importance of water meters to help us stop wasting water 4. The UN says every person has the right to 50 liters of water per day, that Peru is among the top 20 countries with aquifer reserves 5. We should not leave the taps on when we are brushing our teeth, shaving, washing our hands, etc, that water is a scarce resource and it should be used wisely
I would change	1. – 2. Use more images in the power point slides 3. More depth in the part about the chemistry, the topic on global availability of water was skipped 4. – 5. –
I did not understand	1. If there is a reservoir in my neighborhood, why do not we have water? 2. – 3. – 4. The desalinization process, how to turn salt water into potable water 5. –

APPENDIX 3: Results of Workshop on Decision Making Processes in First Study Location

Appendix 3a: Decision Making Processes- Water Company Managers- Group F

Decision	Who made it and how it was made
Electrification of the well pump	A- The public and the authorities were informed of the decision The public is not interested in reducing production costs.
Installation of household water meters	A- Decision initially made by Commercial manager The users did not agree with the decision D- WUSC, managers & population Because of the results of the first experience
Continuing to work with WUSC	D- The company and representatives of WUSC Because we share the same interests
Installing a condenser bank	A- Operational manager & Head of Planning Because it did not affect anyone else
Improved collection of money from water users	A- Commercialization manager To increase the liquidity of the company

Appendix 3b: Decision Making Processes- Water Company Managers- Group G

Decision	Who made it and how it was made
Switching to SICI software system	C- Board of directors made the decision based on information given by the managers and team leaders
Renewal of contact to work with WUSC	C- Board of directors and managers made decision. Team leaders gave information
Installation of water meters in 35% of city	A- Board of directors made the decision. Managers and team leaders were consulted.
Carrying out large infrastructure projects	C- Board of directors and managers made the decision. Team leaders provided information.
Treatment of waste water	A- Board of directors The decision has been made, the project is in progress.

APPENDIX 4: Results of Workshop on Perceived Changes in the First Study Location

Appendix 4a: Perceived Changes- Water Company Managers, WUSC Team Members and Counterparts- Group K

Changes	Description
In individuals	More integration between of the water company and the WUSC teams (change happened because there was economic support to do so)
In teams or work areas	Our work together is better planned and coordinated (change happened because there was economic support to do so, and the situation had changed)
In the company in general	Improved public image, increased investments in improvements (change happened because there was economic support to do so)
In procedures	Talking with the population before beginning work in an area, distribution of educational brochures
In attitudes	Users now identify more with their water company
In relationships	More interaction with the schools, neighborhood groups, and users in general
In activities	Educational talks in schools, contact with users, use of educational materials, dividing city into sectors (change happened because what we did before did not work, and to improve our relationships)
In strategies	Home plumbing repairs, talks with schools and neighborhood groups, radio and TV publicity, contests and parade for InterAmerican Water Day (change happened because we had new information that we did not have before, and we reflected on our past experiences)
In objectives and goals	Improving quality of service provided, 85% approval rating by population, increase in number of hours of service offered, decrease in number of customer complaints (change happened because it was beneficial for the company to change)

Appendix 4b: Reflections on Most Important Change- Water Company Managers, WUSC Team Members and Counterparts- Group K

Reflections on…	Components
Most important change: Improving the quality of service offered	Dividing the city into sectors, changing the pump system to increase water production, inventory of users and water connections, installation of water meters, equalizing water pressure in the system, offering home pluming repairs, monitoring progress
Lessons	Difficult problems can be resolved through team work, problems can be solved by investing money wisely, well-trained people achieve good results, coordinating work with the public helps work progress well in the field, solving problems requires technical, financial and social resources, every city has different experiences with water and sanitation
For the future	Keep working on the lessons learned from working with WUSC, monitor the programs that have been developed

Appendix 4c: Perceived Changes- Water Company Managers, WUSC Team Members and Counterparts- Group L

Changes	Description
Overhaul of system in nearby satellite town and first sector of city	Changes were made to benefit the company, to improve the company, the situation had changed, and there was economic support to do so.
Client satisfaction	Changes were made to benefit the company, to improve the company, to imitate others with good systems, and to improve relationships with the users
More importance placed on strategies to save water	Changes were made because of the presence of WUSC, to improve the company, and based on past experience
Educating public about the importance of water	Changes were made because of the presence of WUSC, to improve the company, and based on past experience

Appendix 4d: Reflections on Most Important Change- Water Company Managers, WUSC Team Members and Counterparts- Group L

Reflections on…	Components
Most important change	Overhaul of system in nearby satellite town and first sector of city
Lessons for the water company	We should focus on optimizing the operating of the system so that we save water and give other sectors better water pressure, hours of service and water quality
Lessons for WUSC	Support for the operation of systems should be given priority
Recommendations for the future	Give more support to user education activities, take preventative measures during the installation of new pump systems

Appendix 4e: Perceived Changes- Water Company Managers, WUSC Team Members and Counterparts- Group M

Changes	Description
Operational changes in the potable water system	Projects and work plans are now based on sectors of the city, professional growth of team members, team work, improvement of the quality of service of one sector of the city (12,000 people) and 100% of one satellite town (Changes were made to benefit the company, to improve the company, because of the presence of WUSC, changes in the situation, and there was economic support to do so)
Improvements in the public image of the water company	Communication from the company to the users about the services that are offered, implementation of programs to reduce non-payment (Changes were made to benefit the company, to improve the company, changes in the situation, and there was economic support to do so)
Personal changes in the freedom to made decisions and confidence	Changes made to improve working relationships, reflecting on past experience, and to improve the company

Appendix 4f: Reflections on Most Important Change- Water Company Managers, WUSC Team Members and Counterparts- Group M

Reflections on…	Components
Most important change: Improvements in the public image of the water company	Better service: more hours, increased water pressure, improved water quality. Relations with users: talks in schools, information given to users, home plumbing repairs, events and activities
Lessons for the water company and recommendations for the future	Plan work in stages as part of a larger integrated vision, involve all of the necessary areas in each project, the projects that are being developed should include social education components, and evaluate project results.

APPENDIX 5: Results of Workshop with Directors of Urban Water Users Association in Second Study Location

Appendix 5: Time Line of the Creation of the Urban Water Users Association

Key Events	Key Challenges
Identifying the water problems and educating neighborhood groups	Lack of interest and low attendance at public meetings, some neighborhoods did not participate at all
Open dialogue between WUSC, users, municipality	Gossip: people were afraid the rates would go up too much, and the service would be privatized
Neighborhood leaders went to visit water systems in other cities	The bylaws were opposed by some people who use an excessive amount of water
Election of Urban Water Association Directors	Lack of resources to complete legal registration process
Consultation, writing and public approval of bylaws	People have not paid what they pledged at the fundraising event
Legal registration of association, recognition by SUNAT	Lack of resources to set up office
Support of WUSC in training the directors	The municipality has yet to transfer authority to the association
Public fundraising activities, donations	Association directors have not followed up on letters to institutions that were sent asking for their support
One school in town now has water 24 hours a day	There has been no improvement in the water service yet
Public competition to create the association's logo	Little commitment on the part of the directors to attend association meetings and arrive on-time
Infrastructure improvement projects in 3 neighborhoods with municipal and user participation	
Regular cleaning of the potable water storage tanks	

APPENDIX 6: Research Introduction and Information Sheet (English Version)

Case Study of Communication for Social Change:
WUSC's Capacity Strengthening Project in Water and Sanitation

Between June and September 2005, WUSC will be participating in a study called "Case Study of Communication for Social Change: WUSC's Capacity Strengthening Project in Water and Sanitation." The research will be conducted in the spirit of learning from and improving the experience of participants in WUSC's programs.

The research will take place in two locations in Peru in order to document and analyze WUSC's training programs as a case study of Communication for Social Change (CFSC). CFSC looks at the use of communication methods and media for capacity building, policy dissemination, and adult education. Specifically, this research will describe the communication and collaboration between WUSC and municipal governments, water companies, water user groups and end users that have been used to increase people's ability to plan, carry out, and manage water and sanitation services.

You may be asked to volunteer to participate in this study. If you choose to participate, you might be asked do the following things:

Logistics- provide feedback to the researcher on the design, methodology and logistics of this study.

Interview- individually speak with the researcher about your understanding of water and sanitation before, during and after participation in the project.

Focus groups- attend focus groups or workshops with other people to talk about:

- How have relationships related to water and sanitation been built?
- How have decisions been made?
- What has been the flow and content of information exchange between different individuals and groups?
- What have been the perceived effects of WUSC's project in general and their educational campaigns in particular?
- What changes in individual and organizational capacity do you believe have occurred?

There will be an opportunity to provide feedback to the researcher on the research process and to talk about what the researcher learned from the research. A complete copy of the final case study will be provided to WUSC.

About the Researcher

April Pojman is an MSc student at the University of Guelph in Canada, this research is part of her thesis work. Before beginning her studies, she spent over three years working with coffee farmers, cooperatives and roasters. She also taught environmental science to children for a year.

April has worked, studied and traveled in Bolivia, Ecuador, Nicaragua and Mexico and is looking forward to spending time in Peru and seeing the Andes again.

APPENDIX 7: Guiding Questions Explored in Semi-Structured Interviews

What is your organization's relationship with other water and sanitation stakeholders? How have those relationships been built?

What activities have been done with whom?

How was it decided what would be done? (both internal to organization and external)

How are responsibilities divided up? (selection of participants, budget, construction, operation maintenance, repairs, training, rules & regulations, fees)

Where do the resources for your work come from? Do funders help to define areas of focus?

How often do you communicate with each of the other groups? Who does it and in what form?

What type of information do you give to each of these groups? What do they do with this information?

What type of information do they give to you? What do you do with this information?

What have they learned from you? What have they done with this knowledge?

What have you learned from them? What have you done with this knowledge?

What changes have you seen since WUSC first started working there? (In general and changes in each actor group)

Are organizations or people working together differently? How?

Have you seen changes in organization's roles, tasks or leadership responsibilities? Like what?

Have there been any changes in the attitudes that people have?

Are there any changes in the way people manage problems or handle conflict? What systems are in place to resolve conflict?

Have there been any changes in the way each group sees or interacts with the others?

How are people within each group learning from the others?

Are people doing other new things without the support or guidance of WUSC?

How do you get feedback about the work that your organization is doing? Who do you get it from? What do you do with it? Do you give feedback to others?

What educational campaigns have taken place?

What has been the message of them, who was the target audience, how was the campaign distributed, what were people intended to do?

How do you think that people understood them?

Do you think that they have contributed to any changes? Why or why not?