Planning for sustainable water supply projects in Bangladesh
Public Participation in Practice

Stina Wijk Risberg

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Abstract
Naturally occurring arsenic in ground water is currently threatening millions of people’s lives in Bangladesh and has emerged as one of the world’s largest water pollution and environmental disasters. Various studies have been conducted in order to find a solution to the problem and several mitigation projects have been conducted with various results. In many cases the mitigation options provided have failed in terms of sustainability, why there is an impatient drive to find the solution that can solve the problem permanently. Since technical solutions appear to be hard to transform into practical implementation many professionals are advocating the use of public participation in sustainable project planning and implementation in order to make the project successful. This Minor Field Study focuses on how an environmental problem can be managed through social processes. The main aim of this study is to investigate peoples’ experiences of public participation and project planning from two rural pipeline water supply projects and discuss how these experiences relate to how ideas about public participation might be used for sustainable project planning. To do this I have studied three key groups of actors: national development professionals, project professionals and local project beneficiaries. The aim is also to get a deeper understanding of how public participation within water supply management can be used and further developed for project sustainability. The results show that the implementing organisation has used a project implementation plan with a vision that public participation motivated by sustainability and cost-efficiency will lead to a process towards collective action. The objective is that the users, through joint ownership, takes full responsibility for the project and its future planning. To enable this, learning is a prerequisite given that without understanding and knowledge of how to operate the water supply system, the project and the system will fall short. A learning platform has also been found as a prerequisite for maintaining of public participation, and for interest and motivation of being involved at all. The theory argues for the importance of involvement of all for a sustainable project process, nevertheless is this not made possible in reality. Due to socio-cultural traditions where women are not accepted to attend public meetings or be involved in decision-making, the empowering process that public participation might facilitate, have been neglected. Further have those who are incapable of paying regularly for access to fresh drinking water been excluded from the projects. To attain the efficient bottom-up action wanted to achieve project sustainability, empowerment in combination with public participation is necessary. An improved methodology of how public participation can be integrated in project planning is compulsory, why more practical experience and continuous project evaluations is needed.

Keywords
Arsenic, Bangladesh, Group interview, Pipeline water supply, Project planning, Public Participation, Social Learning
Foreword

This thesis is a Minor Field Study (MFS) carried out in Bangladesh during ten weeks in February to April 2006. The MFS Scholarship Programme, within which framework this thesis has been conducted, is funded by the Swedish International Development Cooperation Agency (Sida). Through this scholarship programme Swedish university students are given the opportunity to raise knowledge and interest in international development by undertaking an in-depth study in a developing country, as part of their graduation thesis work.
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Abstract

Naturally occurring arsenic in ground water is currently threatening millions of people’s lives in Bangladesh and has emerged as one of the world’s largest water pollution and environmental disasters. Various studies have been conducted in order to find a solution to the problem and several mitigation projects have been conducted with various results. In many cases the mitigation options provided have failed in terms of sustainability, why there is an impatient drive to find the solution that can solve the problem permanently. Since technical solutions appear to be hard to transform into practical implementation many professionals are advocating the use of public participation in sustainable project planning and implementation in order to make the project successful. This Minor Field Study focuses on how an environmental problem can be managed through social processes. The main aim of this study is to investigate peoples’ experiences of public participation and project planning from two rural pipeline water supply projects and discuss how these experiences relate to how ideas about public participation might be used for sustainable project planning. To do this I have studied three key groups of actors: national development professionals, project professionals and local project beneficiaries. The aim is also to get a deeper understanding of how public participation within water supply management can be used and further developed for project sustainability. The results show that the implementing organisation has used a project implementation plan with a vision that public participation motivated by sustainability and cost-efficiency will lead to a process towards collective action. The objective is that the users, through joint ownership, takes full responsibility for the project and its future planning. To enable this, learning is a prerequisite given that without understanding and knowledge of how to operate the water supply system, the project and the system will fall short. A learning platform has also been found as a prerequisite for maintaining of public participation, and for interest and motivation of being involved at all. The theory argues for the importance of involvement of all for a sustainable project process, nevertheless is this not made possible in reality. Due to socio-cultural traditions where women are not accepted to attend public meetings or be involved in decision-making, the empowering process that public participation might facilitate, have been neglected. Further have those who are incapable of paying regularly for access to fresh drinking water been excluded from the projects. To attain the efficient bottom-up action wanted to achieve project sustainability, empowerment in combination with public participation is necessary. An improved methodology of how public participation can be integrated in project planning is compulsory, why more practical experience and continuous project evaluations is needed.
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1. Introduction
The focal point of this thesis is why some development projects last over time while others are abandoned within a year. What is it that makes a development project sustainable? Sustainable in terms of that the aim of the project can be fulfilled and retained over time, but also in terms of that the project process is planned with the ambition of finding a balance between economic development, social equity and environmental sustainability.

1.1 Sustainable development and sustainable projects
Sustainable development has been a globally established phrase since 1987 and the development goal to attain that “meets the needs of the present without compromising the ability of future generations to meet their own needs”\(^1\). In development projects it is therefore essential to consider environmental and socio-economic aspects and issues when planning activities. Many problems tend to be difficult due to their complexity in relation to sustainable development.\(^2\) The problem at focus for this study is the access to clean and fresh water in Bangladesh\(^3\), a densely populated country in one of the worlds wettest regions.\(^4\) The country is now facing what has been described as one of the largest mass poisonings in history, due to arsenic contamination of fresh water, threatening millions of peoples’ lives.\(^5\) It has further come into view as the largest water pollution in the world.\(^6\) The absence of clean drinking water affect peoples’ lives economically, socially and culturally, in addition is the existence of the ecosystem directly dependent on the availability of fresh water resources. The need for sustainable solutions of how to provide people with clean, fresh drinking water is strong from various perspectives, since water is the basic for life. Additionally, the country is in great need of development in several areas.\(^7\) To facilitate the access to fresh water it is argued that an important part of research efforts should focus on implementation of technical solutions in the local community. These have to be adapted to socio-economic capacities, and to environmental, cultural and political settings.\(^8\) This is probably easier said than done, thus how to transform theoretical and technical solutions into practical project implementation appears to be a major issue. In addition, McLaverty explains that in order to be successful, projects for sustainable development need to include a process of increased public participation.\(^9\)

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1 United Nations 1987 p. 54
2 Fraser et al. 2006 p. 114
3 Map of Bangladesh, see figure 1. Basic facts of Bangladesh, see table 1
4 Rammelt & Boes, 2005 p. 309
6 Ahmed 2005 p. 283
8 Fraser et al. 2006 p. 114, Rammelt & Boes 2005 p. 308
9 McLaverty 2002 p. 194 f.
Table 1. Basic facts on Bangladesh.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Area (km²)</td>
<td>144000</td>
</tr>
<tr>
<td>Population (2003)</td>
<td>136.6 million</td>
</tr>
<tr>
<td>Estimate population 2015</td>
<td>168.2 million</td>
</tr>
<tr>
<td>Population growth/y</td>
<td>1.7%</td>
</tr>
<tr>
<td>GNP/capita (2003)</td>
<td>1770 USD ppp*</td>
</tr>
<tr>
<td>GNP growth 1990–2003</td>
<td>3.1%</td>
</tr>
<tr>
<td>Segment with access to sufficient sanitation</td>
<td>48%</td>
</tr>
<tr>
<td>Segment with access to fresh water</td>
<td>75%</td>
</tr>
<tr>
<td>Ranking in HDR 2005 out of 177 countries</td>
<td>139</td>
</tr>
</tbody>
</table>

Figure 1. Map showing major rivers of Bangladesh. Modified from BGS 2001.

11 Source. Human Development Report 2005

*ppp= purchasing power parity

1.2 Public Participation for sustainable projects

The concept of public participation has emerged in response to failures of traditional top-down management systems, and in response to the demand for greater individual and social control of different activities. Cornwall explain that the terms of participation have gained major legitimacy and respectability within the general strategy for development, and is now seen as a longed for paradigm transformation within the development thinking. Agenda 21 describes public participation as a fundamental prerequisite for the achievement of sustainable development. Moreover, OECD has argued that well designed participation processes are particularly important in relation to policies promoting sustainable development.

Brett terminate that “the participatory development theory is mainly driven by the need to legitimate and improve the management of donor funded projects and programmes,

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13 Cornwall 2002 p.15
14 Meadowcroft 2004 p.162, United Nations 1993
especially those designed to deliver goods and services to the poor”. Arvidson argues that public participation should be used in water supply projects in order to counteract expectations of what services and benefits the project, donor and implementing organisation should provide. It appears that the project beneficiaries have high expectations on aid in terms of pre-planned solutions, financial support and loans, which end up with dependency. A project in progress towards sustainability is by Arvidson found to be a project based on a process promoting capacity building of, and for the people concerned. That will promote responsibility and lessen peoples’ dependency on development organisations and their fieldworkers.

2. Problem background

This chapter gives a short background of the problem in focus for this thesis. It aims at describing the current water situation in Bangladesh and portraying the effort of finding a sustainable solution for access to clean and fresh drinking water, which will improve the situation for over 30 million people, today lacking access to safe water.

2.1 Arsenic contamination in Bangladesh

The occurrence of high levels of arsenic, naturally occurring in ground has diluted the past success of providing almost the entire Bangladeshi population with access to safe drinking water, mainly through shallow tube wells. The tube wells (TW) where installed to contribute to a secure and reliable drinking water supply and offered an alternative to the surface water sources with bacteriological contamination, causing various diseases. Dreadfully, almost half of the TW turned out to contain arsenic concentrations above the WHO guideline level (10ppb), and the national standard of Bangladesh (50ppb). Cases of arsenicosis, detected in the 90s made experts verify that many of the aquifers were contaminated. The arsenic contamination is a harsh environmental disaster affecting millions of people. According to recent estimates almost 30 million people are exposed to arsenic from TW water with contamination levels exceeding 50ppb, and 49 million people are exposed to water exceeding 10ppb. The greatest damage has been inflicted on the poor rural areas, which also forms the largest section of the population. In addition, the Bangladeshi government is lacking financial and institutional means to overcome the problem. Consequently the rural communities have to deal with the facing problem, relying on their own resources and by taking own initiatives. Figure 2 shows where arsenic contamination has been found in tubewells and gives a notion of the problem, which magnitude is enormous.

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17 Arvidson 2003 p. 62
19 Rammelt & Boes, 2005 p. 309
20 Ahmad et al. 2005 p 173, Bangladesh Water Supply Project Programme 2004 p. 1
21 Arsenicosis is the effect of arsenic poisoning. Drinking arsenic-rich water over long period results in various health effects: skin problems, skin cancer, cancers in kidney and lung, blood diseases and reproductive disorders. Source: WTO. Access 2006-05-12
23 Rammelt & Boes 2005 p. 309
2.2 Mobilisation of a naturally occurring poison

Arsenic, which is odour-, colour- and tasteless, is a naturally occurring poisonous metallic substance in ground water, encountered in the Holocene alluvial aquifers in the Bengal Delta Plain (BDP), Bangladesh. Here arsenic occurs at shallower depths (15-50 meters) as geological deposits, and is generally distributed in the soil profile as a component of different minerals.\(^{24}\) Moreover, it has been found that arsenic in ground water in the BDP is released from the sediment. The contaminations are associated with oxygen reducing or anaerobic conditions within the aquifers, and is mobilised through reductive dissolution of iron oxyhydroxides in the sediments. As arsenic is adsorbed onto the iron oxyhydroxides it is mobilised when the iron is dissolved. There is a sign that the irregular distribution of arsenic, its mobilisation and immobilisation, in the aquifers is linked to local variations in sedimentary type, and hydro chemical conditions.\(^{25}\)

![Map of Bangladesh arsenic concentrations in tubewells.](image)

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\(^{24}\) Rashid & Mridha, 1998

\(^{25}\) Bhattacharaya et al 2004 p.163f., von Brömssen et al 2005

\(^{26}\) BGS British Geological Survey. Access: 2006-05-15. This map was produced by the British Geological Survey and the department of Public Health Engineering (Bangladesh) undertaking a project funded by the UK Department for International Development (DFID). British Geological Survey. ©NERC. All Rights Reserved IPR/78-41C
2.3 Searching for sustainable options

Other studies have provided essential and sufficient knowledge about the water problem, the occurrence of arsenic as well as its health and socioeconomic impacts. In addition, also diverse options to address it. Different methods for supply and a number of options are available for each water source, from where drinking water can be obtained and they all have disadvantages. The most commonly mentioned water sources are surface, rain and ground water. Surface water, maybe recognised as the obvious resource, due to its great quantity. Even though it is free from arsenic it cannot be used for drinking without treatment, as an effect of waste disposal. Moreover it has poor sanitation conditions and is a source of water borne diseases. Large-scale treatment plants for surface water are however operating in a number of cities, and there are various campaigns for the use of surface water as drinking water. Rainwater is another arsenic free water source, but can only be harvest during the monsoon period. For use in the dry seasons, rain harvesting requires storage and space, which is considered to be too expensive for the rural people. Shallow groundwater has shown to contain arsenic at very low concentrations, even in arsenic affected areas. Thus various designs of dug wells have been suggested. Deep groundwater is considered safe all over the country and the main options for arsenic free water supply, although the safe depth varies from place to place. Several mitigation projects have been conducted with various results; in many cases the mitigation options provided have failed in terms of sustainability. Thus there is an impatient drive to find the perfect solution that is “culturally acceptable, technically feasible, environmentally safe and affordable to the people, in order to ensure sustainability”. Short-term options of different arsenic removal technologies and options can be used for an instant secure drinking water supply, but so solve the problem permanently the experts have agreed that long-term solutions need to be adopted.

2.4 Improving water supply management

Currently, several arsenic mitigation projects are focusing on pipeline-water supply (PWS) systems, which is a community-based option that is believed to help scale up the service to access to safe drinking water in the country. There is an idea that PWS systems can provide all people in the rural areas with arsenic-free and bacteriological safe water, at what is considered a low cost. In addition, it is perceived as an effort in achieving the Millennium Development Goals for water supply and sanitation by 2015. The major advantage marked out for the water supply option, compared to other options for arsenic mitigation, is its convenience. Water can be supplied and delivered to the household instead of people being enforced to collect water from community water points that may be found at distant places. The technology of PWS systems is however rather new to all and the knowledge about it is brief, why research is obligatory.

27 For further reading about different arsenic mitigation option: please see JICA/AAN 2004 published series on Arsenic Mitigation Project report 1-7, Jakariya et al. 2005, Jakariya 2003
29 Ahmed 2005 p. 289
30 Jakariya et al. 2005 p. 320
31 Jakariya et al. 2005 p. 329
As a result of many project failures, due to unsuccessful involvement of the community, the Bangladeshi Arsenic Mitigation Policy has been developed. Ahmed argues that the policy must be considered as the main instrument for managing the problem, as it has outlined the requirements for sustainable project management in a number of statements.\textsuperscript{33} The policy clearly demands the management to support and work for development of local capacity building and the strengthening of the communities’ capabilities. It is further explained that involvement of all people concerned is necessary for a sustainable management and implementation.\textsuperscript{34}

2.5 The rationale and aims of the study

When new technologies are introduced it is often the techniques in itself that is the focal point, despite that many experiences show that problems usually evolves around the implementation process.\textsuperscript{35} As the implementation of the arsenic mitigation options is a big challenge, in order to warrant sustainability, it underlines the need for a research. A research focusing on the monitoring and management of implementation in terms of peoples’ acceptance and satisfaction, especially where pipeline-water supply (PWS) systems are concerned. In the light of this background and the belief in piped water systems as a sustainable option, this study investigates the post-implementation phase of two rural PWS projects.

Since several arsenic mitigation projects have failed in terms of sustainability where the peoples’ acceptance, interest and motivation seem to be missing, there is a need for new management thinking and implementing planning. This study focuses on how an environmental problem can be managed through social processes. An environmental problem such as arsenic contamination, which has a major impact on peoples’ lives, from various perspectives, needs to be solved through cooperation between experts (that provides the solutions for safe water) and the beneficiaries (the people who are to use the solutions). Social processes are essential in that cooperation since it is through social interaction, interest, motivation and knowledge can grow. Arvidson, who in her doctoral dissertation reveals that numerous water and sanitation projects have failed for the reason of no involvement and no understanding of the people, support this belief.\textsuperscript{36}

The main aim is to investigate peoples’ experiences of public participation and project planning from two rural pipeline water supply projects, and discuss how these experiences relate to how ideas about public participation might be used for sustainable project planning. The aim is also to get a deeper understanding of how public participation within water supply management can be used, and further developed, for project sustainability. To do this I have studied three key groups of actors: National development professionals, project professionals and local project beneficiaries.

\textsuperscript{33} Ahmed 2005 p. 291 ff.
\textsuperscript{34} Ibid.
\textsuperscript{35} Rammelt & Boes 2005 p. 307
\textsuperscript{36} Arvidson 2003 p. 17
The main research questions of this thesis are

• How is public participation understood by professionals and beneficiaries involved in water supply management?

• How is public participation used within water supply management?

• Is there a distinction between how the concept of public participation is understood and how it is used?

• How can public participation be used in water supply management to contribute to the realisation of project sustainability?

3 Public participation for sustainable project implementation

The concept of public participation can be understood, categorised and analysed in a number of ways depending on what individuals and groups that initiate the actual participation.\(^ {37}\) It is difficult to capture public participation in a single definition, which also may be misleading implying uniformity in a process that is supposed to support development for sustainability. Consequently the theory of social learning advocates engagement and learning through different types of participation, which will facilitate a collective action towards project sustainability.\(^ {38}\) To be able to identify which participatory approaches to be used in project planning and implementation to obtain sustainability and development I have chosen to combine the social learning theory with different approaches of public participation. Further, public participation will be described using different discourses in order to give a picture of how participation can be used as a tool matching different objectives. In addition how it can be perceived as an end in itself, where it is used and understood as an ongoing process.

3.1 Using participation for learning

Social learning is a theory based on three agendas, created through participation (I) learning partnerships, (II) learning platforms and (III) learning ethics that support collective action towards a sustainable future.\(^ {39}\) In addition, these agendas have to be created throughout a project process if to reach sustainability. To facilitate this the theory of social learning uses five core strands: reflection, systems orientation, integration, negotiation and participation.\(^ {40}\) Participation is the basic element while it is participation that is needed if reflection, system orientation, integration and negotiation will appear. Supplementary these five core strands have to be combined to achieve sustainability seeing that they contain of diverse knowledge.\(^ {41}\)

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37 McLaverty 2002 p. 194 f.
38 Keen et al. 2005 p. 15 ff.
39 Keen et al. 2005 p. 5 ff.
40 Keen et al. 2005 p. 7
41 Keen et al. 2005 p. 248
3.1.1 Reflection

Reflection can be described as a series of cycles of learning, which are built up on following four steps that outline the base in a project process: (I) diagnose of the situation, (II) designing new ideas, options and knowledge of what could be done, (III) doing what can be done, testing new options and solutions (IV) developing a deeper understanding from reflection and evaluation of the practical experiences. The process is illustrated in figure 3. It is when experiences and ideas are shared between people reflection occur, which generates learning.

Figure 3. Model of a sustainable project process, based on public participation. Modified from Keen et al. 2005 p. 9, p. 249.

In projects for development and sustainability, each step in the process of planning and implementation, showed in figure 3, “will be successful if all key interests groups and concerned people are actively engaged”, explained by Keen et al. In other words, public participation is needed throughout the process. Diagnose of the situation needs intense and correct observation, together with experience of the people and the place. Designing of the option that is to change the situation requires capacity to coordinate interests. In addition it should include the engagement of and with the people. Putting design into action, doing, requires skill and is a very important step since the future of the project depends on decision taken at this stage of the process. The skill is needed in order to create a sustainable platform for the rest of the project, “a platform where people are willing to change”. Finally, for developing of a project programme into an ongoing process, which is what makes the project progress, evaluation is needed. Through evaluation it is possible to reflect and understand the outcomes of activities used in the process and decide the next step forward, to keep the process going.

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42 Keen et al. 2005 p. 9 f.
43 Keen et al. 2005 p. 250
44 Ibid.
3.1.2 System Orientation, Integration and Negotiation

System orientation or system thinking is important in any learning process, since it is through orientation the relationships within a process can be explained and visualised. Further, learning requires openness to new relationships and connections. To manage a process the people in charge has to be capable of integrating different interests. In projects concerning sustainable development where the social, ecological and economic systems are to be combined and the goal is to obtain integration of these three systems (see figure 4). To be able to cooperate and coordinate these interests, negotiation is compulsory because it is believed to generate knowledge and possibility for learning.45

![Figure 4. Integration of interest is necessary for sustainable development. Modified from Keen et al 2005 p. 13.](image)

3.1.3 Participation

From a social learning perspective, participation is a learning process in itself. Participation develops over time and in the theory of social learning it is identified as different loops of learning. After each step in the model of sustainable project process, the understanding of skills, practices and actions will be raised. This will facilitate the questioning of behaviours and how to take action towards change. Keen et al. believes that a participatory approach that relies on multiple-loop learning will provide a deeper understanding.46

3.2 Using participation as a tool to meet different objectives

Whether one supports participation and what type of participation one supports, will in many cases be a normative matter, McLaverty argues. Moreover, the participatory approach selected will depend on what is recognised to be desirable for individuals and/or for the society to be involved, and concerned by planned project, and its management processes.47 While public participation also is depending on the project aims, it can in many cases be perceived as ”a tool to be used by management to meet

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45 Keen et al. 2005 p. 10 ff.
46 Keen et al. 2005 p. 15 ff.
47 McLaverty 2002 p. 185 ff.
their objectives”. How this can be done depends on how the conception of participation is understood and interpreted by firstly the organisation, responsible for the project implementation. Secondly by the local management group that will take over the management responsibility after implementation. This is also why participation can take many forms.\(^{49}\)

### 3.2.1 Using different approaches

Public participation can be used as a tool to benefit the people, of whom the project is aimed for, since it can be used to improve the quality of decision-making, which supposedly produces pleasing outcomes, decent decisions, hopefully reflecting the public interest that will benefit the participants. \(^{50}\) If this type of public participatory process involves the ordinary people it can be defined as “citizenship participation”, according to Meadowcroft. This type of public participation aims at giving each individual citizen the possibility to contribute to public life, and to be involved in decisions that shape their future. It is further supposed to bring the citizens together to determine the best course for collective action. \(^{51}\) In addition to the citizenship, the community-based perspective on participation has been identified. This approach accentuates the local communities as a whole and their right to participate in decisions that affect their development. Meadowcroft argues that communities should be able to manage their own affairs and be involved in determining outcomes on issues that impact them directly, which is ought to lead to better decisions through an effective implementation. Participation can in this sense be seen as democratic process in itself, but it may also be recognised as a tool that enhances and encourage the democratic practice in the society. \(^{52}\) Meadowcroft and McLaverty have identified this as an educative objective of participation since it is used as a tool to develop not only people as individuals, but also their capacity to participate responsibly in their own self-government. Further desirable from a social development perspective. \(^{53}\)

Apart from participatory approach chosen as a tool to meet the projects’ and the managements’ objectives, and that it is ought to be desirable for the participants, chosen approach can also be related to the participatory discourses of the society. Cornwall has identified three discourse branches (I) Efficiency, Effectiveness and Equity of access to benefits, (II) Self-determination and (III) Mutual learning. \(^{54}\)

### 3.2.2 Participatory discourses with different objectives

The first discourse branch is based on the argument that if people are involved more directly in the participatory process, the possibility for a successful project result increases. This requires the process to be based on efficiency, effectiveness and equity of access to benefits. The second discourse can be described in terms of public participation

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\(^{48}\) McLaverty 2002 p. 195  
\(^{49}\) McLaverty 2002 p. 189 ff.  
\(^{50}\) Priscolli 2002 p. 43 f. McLaverty 2002 p. 190 ff.  
\(^{51}\) Meadowcroft 2004 p. 169  
\(^{52}\) Meadowcroft 2004 p. 170 f.  
\(^{54}\) Cornwall 2002 p. 20 f.
as an effort to increase control. It concerns the need for a social change that is needed for self-determination and self-governance. Self-determination is supposed to embrace rights, recognition and a more equitable distribution of resources. The last discourse of public participation is described as mutual learning. This implies the importance of people’s engagement. People should participate, co-operate and contribute their own resources to the process of their own development. This discourse also identifies the role of external resources facilitating these development processes. This form of participatory development that focuses on enhancing communication, respect, listening and learning between development workers and those they serve, has been adopted in recent years. These discourses show that public participation can be used as a tool and as an end in itself: a tool for efficiency and effectiveness and an ongoing process for empowering reasons.

4 Study sites

The two villages chosen for the study, further referred to as A and B, have been subjected to high exposure of arsenic contaminated water. They were chosen in consultation with my local supervisor in Bangladesh on the basis of project implementation of pipeline-water supply (PWS) systems based on community involvement. The involvement is based on a joint ownership by the people in the villages who are using the PWS, further referred to as stakeholders, participants and users, whom have contributed with 20% of the total installation cost. Without this economic contribution, the two projects would not have been implemented. The basic facts of the to PWS systems in the village are presented in table 2.

<table>
<thead>
<tr>
<th>Village</th>
<th>A</th>
<th>B</th>
</tr>
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<tbody>
<tr>
<td>Year of installation</td>
<td>2000</td>
<td>2006</td>
</tr>
<tr>
<td>Source of water supply</td>
<td>Arsenic free ground water</td>
<td>Surface water treated through sand filtration</td>
</tr>
<tr>
<td>Nr. of households (hh) connected</td>
<td>152</td>
<td>281</td>
</tr>
<tr>
<td>Capacity of water supply</td>
<td>400 hh</td>
<td>380 hh</td>
</tr>
<tr>
<td>Installation cost</td>
<td>2700Taka/hh (SEK 300)</td>
<td>2700Taka/hh</td>
</tr>
<tr>
<td>Monthly cost for connection</td>
<td>60Taka/household</td>
<td>50Taka for 1 connection 15Taka/extra connection</td>
</tr>
<tr>
<td>Users Committee (UC) Management group responsible for operating and maintenance</td>
<td>11 members (2 female)</td>
<td>16 members (no female)</td>
</tr>
</tbody>
</table>

Table 2. Basic facts of them pipeline water supply (PWS) systems implemented within the two projects investigated.

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55 Cornwall 2002 p. 20 f.
56 In A, tube well (TW) screening in 1999 showed: high iron contamination and 63% arsenic contamination. In B, TW screening in 2002 showed: 90% arsenic contamination and a 10% iron contamination.
57 Most of the households have 1 connection, some stakeholders has installed up to 10 connections.
58 Sixteen households have a double water supply connection; another three households have installed 3, 4 and 5 connections, while the other households have 1 connection each.
The PWS projects have been initiated and planned by the same organisation. The PWS system installed in village A is considered as one of the first of its kind in rural Bangladesh. Therefore it was interesting to investigate the result of the project, in terms of providing people with arsenic free drinking water, and the peoples’ experiences from involvement. The system installed in village B is the organisations’ second pilot project and an investigation of the implementing process and management monitoring was therefore needed. Since the projects have been implemented with six years interval it was interesting to see if any differences in the project implementation could be detected in order to verify if any lessons have been learnt along the way. The reason of using two projects was not, however, to conduct a comparative study in order to identify what strategies, approaches and activities that can be used for success. On the opposite the purpose was to reach a deeper understanding on topics linked to my research aim and questions. As PWS systems are considered as a sustainable option for arsenic mitigation various, major projects are being planned, why this study is of importance. As the projects have been implemented with six years interval the experiences are of course different among the stakeholders from village A and B. The participants in A have had several years to adjust to the project management while the participants in B only have experienced the initial stages of project process.

5 Methodology

This chapter aims at describing how the study was conducted, what methods that were used for collection of empirical material and how and why the respondents were chosen.

5.1 Empirical material and use of different methods for interview

The purpose of this study has been to investigate the relationship between public participation and project sustainability. With the aim of carrying out a study based on peoples’ experiences public participation from different projects, methods from the qualitative scientific research field were used. The qualitative method was also chosen since my ambition was to enhance knowledge and find a deeper understanding of the topic.59

The oral empirical material I have used, derive from a Minor Field Study that I conducted in Bangladesh for a ten weeks period, from February to April 2006. During fieldwork made in urban and rural areas in Dhaka district semi-structured group interviews were carried through with rural stakeholders. Semi-structured qualitative interviews were conducted with fieldworkers, people held responsible for the project at the implementing organisation and other donors responsible of implementing of pipeline-water supply projects, especially involved in the management monitoring processes.

The purpose of the qualitative interview, defined by Kvale, is except understanding, to be able to describe the life world of the interviewee, with respect to interpreting the meaning

of his or hers described experience. The aim is further to receive descriptions of different aspects regarding the interviewees’ perception of the actuality, which correspond to the purpose of the study.

The reason for choosing to use group interviews was because I wanted to bring a number of respondents and their experiences into the study and give them the opportunity to discuss these with each other. The advantage of using this method for collecting of empirical material is that it opens up for interaction within the group, which can provide ideas that can be used for further planning and improvements within the topic of the study. The focal point in the interviews was questions of more general character such as how the actual system is operating, the respondents awareness, interest, motivation and satisfaction, how the system has affected the individual people as well as the community. Consequently, the interviews might be considered as a form of evaluation.

The technique of semi-structured interview was chosen because it allowed me to have an interview guide containing of a number of questions linked to a series of topics and themes. At the same time I could be open to follow-up questions and changes in the series of topics and new questions introduced during the interview session. The aim with using semi-structured interviews was further that the point of views that are revealed is the result of the respondents’ personal perceptions, which agrees with the aim of the study.

5.2 Interpreting

To be able to conduct my fieldwork and the group interviews an interpreter, who translated between English and Bangla was employed. This was a prerequisite for carrying out the interviews as I don’t speak Bangla and the majority of the rural people do not know English. I wanted to work with an interpreter not involved in the projects to avoid the possibility of getting prejudiced answers. Further I wanted to avoid that the respondents may be affected by a person linked to implementing organisation and wanting to have the right answers to suit the project. With help from a contact at Dhaka University, I chose a male interpreter, not working for any organisation involved in water supply management. However, he had work experience from different NGO activities in rural Bangladesh, and interpreting experience together with foreign students. The interpreter performed the translation of all interviews, this in order to avoid different translations related to individual perception. I did consider working with a female interpreter while interviewing women, as I thought that they might feel more relaxed and comfortable with the interview situation, but there were no female interpreters available to me. Furthermore, to gain consistency I felt it preferable to work with the same interpreter throughout my study. My perception from the interviews is that the female

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60 Kvale 1996 p. 5 f, Kvale 1997 p. 39
62 Ibid.
63 Holme & Solvang 1997 p. 100 f.
respondents felt content in the presence of a male interpreter. To try to elude misperception during the interviews I had a continuous dialogue with the interpreter regarding translation, meaning and use of different words and expressions of importance for my study. I made clear my objective with the interviews and what I was trying to grasp with my questions. As the respondents’ experiences, opinions and comments were in focus for the study; their use of certain expressions and words was vital for the result of the study. The language barrier is a major problem and might therefore have had an effect on the result. In addition to translation during the group interviews, the interpreter was a valuable help in the interaction with the local people, explaining codes and norms linked to social and cultural traditions and translating informal conversations and discussions.

5.3 Interviewing and selection of respondents

Eight qualitative interviews were conducted, four of these were carried out with different donors, national development professionals, involved in pipeline-water supply projects. The other four interviews were conducted with people from the organisation, project professionals, responsible for the implementation of the two pipeline-water supply projects at focus for this study. The respondents for the qualitative interviews were chosen after a dialogue with my local supervisor. While my supervisor has been working with arsenic mitigation projects for several years, he is well experienced with whom and what organisations involved in different projects and the way they are working with water supply management. I chose donors with different orientations to establish a broad empirical base. Six of the interviews were conducted at either the respondents or my office, where the interviews could be carried out undisturbed from other people. The other two were carried through at a public place outside while on a field visit. There was however no interference by others during the interviews.

The interviews lasted around 30 minutes and the respondents were informed that the purpose of the interviews was to gather empirical background material that would help me to prepare my field study. Further I declared that their names and name of organisation were not to be mentioned in the thesis. Four of the interviews were recorded digitally, the other four was written down by hand, as the respondents felt uncomfortable with the use of recording devices. Two of the recorded interviews were carried through together with my interpreter, as the respondents’ spoken English was limited. The recorded interviews were transcribed shortly after each interview session. The qualitative interviews conducted with the donors provided me with background information of PWS systems as a technical option, implementing strategies and their thoughts on public participation as a tool to achieve presented goals and objectives. Through the interviews I was also given an insight of difficulties connected to implementing processes and the problems linked to management monitoring of pipeline-water supply projects. The result from the qualitative interviews worked as a guideline when compiling and working out the interview guides for the group interviews. Interviews conducted with staff from the implementing organisation, local staff involved in the project implementation, as well as informal discussions with staff from the local NGO office provided background information of the villages, and the projects implemented.
Twelve group interviews were conducted, six in each of the two villages. In village A five groups consisted of 8-12 women and one of 8 men, who also were members of the Users Committee (UC). In village B two group interviews consisted of 8-12 women all connected to the PWS, one of 5 male members form the users committee and one group consisted of 5 women connected to the PWS and 5 women not connected to the PWS. In addition two group interviews were held with people excluded from the project, one group consisted of 5 men and 6 women, while one consisted of 10 female respondents. The excluded people were interviewed as a part of another study and the result from these two interviews will not be fully presented and analysed in this study, as they fall out of the aim of this study.

I chose to interview women because they have the responsibility for water utilisation in the individual households. In a patriarchal society, fetching drinking water is their only role in the public life. Moreover, it is not commonly accepted for women to attend community meetings and discussions or being a member of a higher level of organisation. I thought that by interviewing women I would be provided with accurate and open information since the women have no direct bindings to the management. The groups consisting of only female respondents were a mixed group of rich and poor, old and young. I chose to have these mixed groups to get a broad perspective of opinions and experiences, and also to open up a discussion among the women on different topics concerning the project. The respondents were found when I arrived to the villages. In village B, the person from the local NGO office responsible for the project helped to gather the female respondents together. In village A, I received help from a local man to inform the women about the interviews. The advantage of getting help from the person involved in the project in village A was that it made the sampling of respondents easier and quicker. On the other hand the respondents might have felt that they had to give me certain answers as he had been responsible for the implementing process. Even so I felt that all respondents gave me honest answers. The interviews were all carried through at a public, open place outside, near the houses of the respondents. There was however no problem with interference by others during the interview sessions. Regarding the two groups consisting of only male respondents, the chairmen of the Users Committees was informed to gather the male members together for the interviews.

The interviews lasted between 40 minutes up to an hour. The respondents were informed that the purpose of the interviews was to gather empirical background material for a university study and that neither their names, nor the name of the villages were to be mentioned in the thesis. The interviews were recorded digitally, but additional notes were also taken during the interview sessions. The English part of the recorded interviews was transcribed shortly after each session. Those parts of the interviews where I had difficulties understanding the respondents reasoning and the translation, or when I wanted word-by-word translation of some answers and discussion, were gone through together with the interpreter.

5.4 Analysis

The transcribed interviews were read through several times to identify the main themes of relevance to the aim of the study and formulated research questions. The themes were
also collected to the background of the result from the qualitative interviews with the donors. During these interviews I had been able to identify certain topics of importance for monitoring of public participation. To give me an overlook of the empirical material I chose to divide the material relating to a certain theme into separate documents before compiling the result and begin the analysing.

As I mentioned I chose to interview people with different economic status and gender, but the aim was not to compare the statements from different groups. The objective was instead to get an understanding of different opinions, experiences and views represented in the villages. Thus the character of the empirical material in the study is qualitative, it is not viable to present a result such as a certain number or percentage of people with the same opinion on a certain topic. Although, it has been taken into consideration if a certain opinion was expressed by many, few or only one person. Therefore the expressions “the majority”, “a number” or “most of “ have been used in the analysis when referring to opinions and comments that have been expressed in all, one or many of the group interviews. Through observations, and the experiences and insights gained during the ten weeks spent in Bangladesh, my understanding of the situation and the problem at focus for this study has improved. This has been valuable when analysing the empirical material.

5.5 Ethical considerations

Ethical consideration when interviewing is mostly important to avoid any harm to the respondents. The right to privacy and protection from any harm is therefore a prerequisite, as well as an informed consent. 65 The main ethical problem when using the qualitative method of group interview is to protect the respondents from any harm. Given that group interview is a method that opens up for interaction within the group, it may, in addition, have an impact on the respondents where they become more open than usual. As the scientist and the interviewer I have to take this into serious consideration. I can guarantee that no information about the respondents’ identities or statements during the interviews will be revealed. On the contrary it is impossible to warranty that the respondents do not spread information about others. I chose to make the respondents aware of this dilemma in the introduction of the interviews.66 Furthermore I cannot guarantee that my interpreter will not spread information about respondents and statements, even though we had a discussion concerning ethical considerations.

As a researcher I have personal ethical responsibilities in terms of my actions and decisions. During my field study I had to consider if I was about to ask embarrassing or sensitive questions and if it was dangerous for someone to talk to me due to social, cultural and religious reasons. Given that I was conducting my study abroad, these questions seemed very important to consider why I had a discussion with both my Swedish and local supervisor, and with my interpreter. While out in the field, I asked for permission to conduct interviews, to record these and also to take photographs. Before each interview sessions I made sure that the respondents understood my aim with the field study and the interview, and why I was interviewing them. I also had a letter from

65 Denzin & Lincoln 1998 p. 70.
the Swedish institution I was representing, which identified who I was and the subject for my research. I became conscious of being respectful and grateful for the time, information and assistance the people gave me during my field visit. Due to my background I became aware of my status as a woman, being white and educated, and I had to consider the differences existing between the respondents and myself and if that could cause any problems or difficulties. Contentedly, it didn’t.

6 Public Participation in practice

The objective of using public participation in the process of project planning and implementation is to make it an ongoing process in itself, argued in the theory of social learning. The aim with the sustainable project process is to create learning through public participation, to make people understand their situation, how the project is designed, how it is to be implemented and how it is meant to work. The idea is that the learning platforms and partnerships created during the project process will make it possible and give confidence to a collective action towards sustainability. This outlines the theory of a well planned and effective project implementation. This chapter will contrast reality to theory, by describing how two pipeline-water supply (PWS) projects have been implemented, how public participation is understood, how it has been used and compare it with the theoretical framework.

6.1 Implementing pipeline-water supply systems in rural areas

Very little has been written on the subject of public participation in arsenic mitigation projects. Although several professionals have found that public participation is needed, few seem to know how to define or use it. The organisation responsible for the two PWS projects investigated considers public participation to be primary important. Yet how public participation is understood and how to work with encouragement and promotion of it, have not been, and is not clear. There is an obvious lack in clarity of what the concept of public participation really is and how it can be involved in project process of planning and practice.

The project process includes different steps, which are explained in chapter 3 and shown in figure 3. The process may appear complicated when describing it in text why a short clarification of often occurring expressions might be useful. In the projects investigated it is only one organisation (the implementing organisation) involved, which has the responsibility of the funding and the overall planning of the project. Their duty is to make sure a sustainable initial project process consisting of diagnosing of the situation, designing the solution and installation of the water supply system. The organisation also has the responsibility to ensure that there is a plan for sustained implementation, the doing step, but they are not responsible for managing the continued process. Instead it is a group called Users Committee (UC) that has the duty to ensure continuous implementation and development in the project process.
6.1.1 Identifying the problem and designing the solution

The planning of the implementing strategy is crucial for the projects’ sustainability argued by several researchers working with arsenic mitigation projects. By the background of a number of project disappointments due to project implementing strategies that has failed to make people interested and motivated to participate, focus have now been moved on how to involve and how to maintain involvement. One idea among the donors interviewed in this study is that economic contribution is more likely to assure maintained interest in implemented water option, and in addition this can warrant continuous involvement.

Before designing the project and previous to selecting of implementation strategy the situation at hand, i.e. the problem, has to be diagnosed. The theory of social learning recommends that those who are to benefit from the project should be involved from this stage in the project process. The implementing organisation, responsible for the two PWS projects, argues that experts make the diagnosing without involvement of the participants-to-be. In the projects at focus for this study, the theory is not functioning. It is the experts that have the knowledge about arsenic contamination and can make the decision of how to perform arsenic mitigation, and choose what option to be used to secure an arsenic-free drinking water supply. One donor argued for the learning and reflection process as very important for all parties involved in the project and that project for development is a process of social learning. The overall opinion regarding water supply project was that donors and NGOs should work in order to satisfy the people, and therefore it is essential that the stakeholders are involved in the initiating process. Not merely in order to provide knowledge, yet also to learn. Without understanding of the situation at hand and without identification of facing problems, the people will have difficulties in both attitude changing and motivation for participation, the donors explained.

The interview result shows that the people of the two villages were well aware of the problem with arsenic contaminated drinking water and that there was a need for an alternative water supply. The PWS systems as an arsenic mitigation were chosen as an effect of need of access to fresh drinking water and an interest of the water option among the male stakeholders. The men thought the PWS system would facilitate the women and make their daily life more convenient, due to water taps connected to each household. A willingness-to-pay study was conducted in the villages that proved that the majority of the people were both willing to and capable of paying for access to fresh drinking water.

The, of the implementing organisation, defined objective with the projects was to give rural people access to arsenic-free drinking water, at a low cost. The project planning implementation approach used is associated with the focus on how to most effectively involve people in project implementation, requiring contributions of money towards development efforts, i.e. the monetary costs of the water system. The two projects investigated are based upon joint ownership. Further, they are based on, and designed after, the idea that people pay to get services that increases their daily life quality,

improves their health conditions that will make them capable of carry through their duties. No environmental impact assessment has been carried out in any of the projects. The only environmental impact found by implementing organisation is wastewater. To prevent this a drainage system should be installed and constructed in connection to the PWS, this has, however, not been done.

6.1.2 Implementing the solution
Implementing can be described as when design is put in to action. Following section gives a short description of the strategy used for the implementation of the water supply system. The implementation is divided in practical installation of the system and theoretical and practical implementation of knowledge of how to manage it.

The organisations’ fieldworkers and technical engineers have the responsibility of the implementation, the actual installation and the work with the local community; the people and the UC. The fieldworkers are to offer technical inputs, reinforce community mobilisation and advice on how to manage the water supply system once it is installed. The people who are to benefit from the project contribute by paying a share of the installation cost and this is referred to as their participation in the project. When the project has been installed the UC have the overall responsibility of the project and is referred to as the management group. This group is responsible of maintaining of participation and the operating of the water supply system to ensure its sustainability. Thus most efforts in the initial stages of the implementation emerged to have been concentrated on the establishment of the UC. The members of the UC should be provided with training, and information to understand the importance of operating and maintenance and participation. In each village a caretaker have been selected to take the overall responsibility of the operating and maintenance of the technical system, while the UC has the responsibility of the overall management. This project design appears not to be exceptional, as the very same scenario has been identified and described by Cornwall and Pratt. 68

The theory of social learning explain that this is a very important step that requires skill, as the future of the project depends on the decision taken at this stage of the process. The skill is needed in order to create a sustainable platform for the rest of the project. In this with knowledge of how to operate and manage the water supply system. If the participatory management haven’t been planned in a way that enables both learning partnerships and a learning platform, the action towards sustainability might not be as sustainable, or reliable. According to Rammelt and Boes“ it is the way a technology is applied that sets the value of it, and that makes it suitable or not”. 69

6.2 Involvement of all – who is allowed to participate
Public Participation in water management is crucial for successful implementation Abu-Zeid argues. He continues to explain that participation should include all sections and groups in the society in a representative form and that the civil society should be

68 Cornwall &Pratt 2004 p. 16 f.
69 Rammelt & Boes 2005 p. 308
encouraged to participate in the entire project process. Meadowcroft support this by arguing that the management have to ensure that all participants are involved if the objective is an effective implementation. By involvement of all, the decision-making will additionally be improved due to an aware, interested and well-informed population. Further are an active participation and a direct involvement of all a prerequisite for a well-functioning participatory process, argued by the theory of social learning. The reason of why this theoretical aim of public participation isn’t fulfilled within the two PWS projects investigated might be related to the fact that there are: (I) no further goals with the actual use of public participation in the project process, except financial means, have been defined, and (II) there is no direct involvement of all participants. Following section is focusing on the latter. Two groups of people have in different ways been excluded from public participation in the project process: women and the ultra poor.

It appears that responsibilities linked to participation is divided between men and women where women should be responsible for water utilisation and the men are responsible for decision-making. As a result of the social, cultural and religious tradition in the villages, it is unacceptable for women to be present at community meetings.

“Women are not supposed to be attending any meetings…even yesterday it was a meeting, but since I am a woman…I can’t go to any meeting”

Consequently, women have been excluded from activities regarding decision-making. Public participation is a process that is considered to benefit the individuals and by the donors it was explained that the UC is to look after the stakeholders’ interest through collective decision-making and consensus building. Seeing that public participation is considered as a tool for improving of the democratic processes, it is a prerequisite that men and women, as well as different interest groups, are involved and that they are entitled to participate on the same grounds. In the project proposal of BWSPP – Bangladesh Water Supply Programme Project, a major project being planned at the moment, it is stated that: “In order to ensure sustainability, involvement of all stakeholders is intended throughout the period of project implementation”. Further is the empowerment of women and female involvement is particularly highlighted in the project proposal. Especially in water supply projects it is essential that women, as being responsible for each household’s water collection, consumption and have a say in community meetings.

Involvement of all is indispensable for learning partnerships and learning platforms and it is further through this the common interest to contribute to a fulfilment of the decisions people have been involved in taking, is believed to be encouraged, according to McLaverty. Further, he sees that the knowledge of local capabilities that is built through this will bring people together and hopefully produce a greater sense of community self-

71 Meadowcroft 2004 p.165
72 Female stakeholder, group interview nr. 4 in village B
73 Abu-Zeid 1998 p. 17
74 Bangladesh Water Supply Project Programme 2004 p. 77
75 Abu-Zeid 1998 p. 17
confidence and also a whole society.\textsuperscript{76} The implementing organisation argues for the importance of transparency, where the participants should be provided with continuous information and be invited to discussions to improve the participation. Therefore it is considered indefensible not to inform women about the financial management, community action plans and the actual management work.

“The men go to the meetings and our husbands are involved in the project, but we are not and we are not so much informed.”\textsuperscript{77}

It is further not accurate to use an argument such as women don’t have an interest in these issues. Moreover I sensed that it is of consciousness that women are kept out of information to avoid their interference, as the men assume that they have no knowledge about these issues any way.

In B, the female stakeholders were upset over the way the electing of members to the UC had been carried out. In both villages the members were selected as a joint decision and resolution among the male stakeholders. The women demand a more democratic process. They consider it to be the peoples’ right to select members for a committee that is presumed to represent the peoples’ interest, and work in order to improve their conditions. It has been recognised, not only in this study, that to some, public participation appear to be aggravating. Especially if it is to be used as an end, where empowering of different groups is important.\textsuperscript{78} In cases where the existing social structures may be challenged, people might consider that involvement of all only confuses and multiply problems.

\subsection*{6.2.1 Demand for empowerment}

The theory proclaims the necessity of involvement of all, but what if the participants have no interest in active participation. Quite a few of the women in A made, during the interviews, clear that they had no interest of being involved in the UC as a member or attending meetings. Several women explain that they, due to other commitments, haven’t got time to attend the meetings, even if they were authorised to participate. Some women argued that since they receive information about decisions taken, and what issues that has been discussed at community meetings, in second hand from their husbands, they feel involved. Still, the overall opinion among the women is that they want to be more active and there is an interest of membership in the UC as well as attendance and participation in meetings and discussions. Some women in A expressed their worries of if they were to be involved and elected as a member of the UC, they would not be capable of compiling the duties and tasks requested. This as a cause of exclusion from meetings, and discussions held by the UC. On the opposite, a number of the women from both villages expressed a strong belief in their ability to look after the PWS in a more superior way than the men. They confirmed that they had realised that while they face many kinds of problem with their own connections, and help each other, they could take full responsibility for the maintenance and operating of the whole PWS.

\textsuperscript{76} McLaverty 2002 p.186 ff.
\textsuperscript{77} Female stakeholder, group interview nr. 2 in village A
\textsuperscript{78} Arvidson 2003 p. 18
"If we, the women, were in the committee the work of the committee would be much more efficient, because women are more effective than men. We can do a better work of looking after the pipeline water supply than the men can do".\textsuperscript{79}

It was revealed that some women have meetings among themselves, this was however related to cluster\textsuperscript{80}, where they discuss different issues related to the water supply, such as costs, operating, utilisation, amount of water supplied and sanitary awareness. But frequent and planned discussions where women have the chance to meet and learn were demanded. The task the respondents considered most important to work with if they were to become members of the UC was awareness training for women, which they believed would encourage a more active participation and involvement in decision-making. The members of the UC in B declared that they want women to participate and explained that they are keen of getting women involved in the future, and they strongly believe that the interest of membership will develop among the women. Yet, women doubt that their husbands, other men in the village and the members of the UC would accept them as members.

After the implementation of the project in A, the implementing organisation has realised that the project implementation have to be reorganised in order to involve women. According to the fieldworkers this is mainly due to equity arguments, where men and women are both to benefit from the system and have a say in decision-making. Fieldworkers have had separate meetings with the female stakeholders in B and have informed the members of the UC about the importance of female involvement in the UC to encourage participation of other women. Yet, has none of the UCs addressed how to work with encouragement and empowerment of women as active participants.

\textbf{6.2.2 Exclusion}

During the group interviews with the stakeholders it was made clear that

"Those who can pay are involved...can you not afford to pay...you will be excluded".\textsuperscript{81}

Throughout the interviews with staff from implementing organisation and field workers it was exposed that people, in particular one cluster, had been excluded from involvement in the PWS system project in A. It is argued that a PWS is a sustainable solution since it gives access to arsenic-free water at a low cost. Thus it is considered as a fine option for the rural people of Bangladesh. The practical problem is that everyone cannot afford to pay, the economic capacity among the rural people differs and the social gaps are substantial. Due to poverty, the mentioned cluster has been excluded from participation. The people in this cluster explained that they have been informed about the project, but since the majority of the people are day labourers they are not capable of paying both the installation cost and the monthly water bills. They have requested to be subsidised by the implementing organisation, but the implementing organisation explain that they have

\textsuperscript{79} Female stakeholder, group interview nr. 5 in village B
\textsuperscript{80} The village is divided in smaller segment or areas, so called clusters, these consist of either a smaller or larger number of households
\textsuperscript{81} Female stakeholder, group interview nr. 3 in village B
completed the project implementation, and that the people have to seek support from other NGOs.

Apart from this specific cluster, which the respondents themselves refer to as “the cluster of the poor,” there is also a number of household in a different cluster that have been excluded, as a consequence of poverty. These people are requesting financial support from the government, as they do not consider themselves able to afford to pay for an individual water connection. The members of the UC in A say that they want to include all the people in the area but

“...there are both technical and financial problems with an extension of the PWS. If people want to be connected now they have to pay 3000 Taka, because the equipment is expensive. There is a problem because people are poor and the committee are not willing to agree that they pay a higher monthly water bill instead of paying the installation costs”.

In her doctoral dissertation on participation within NGOs in Bangladesh Arvidson points out that poor people are believed to lack in capacity to analyse their situation and to realise how their behaviour and habits can be related to their situation. Consequently they are also believed to lack capacity to realise how they, themselves can affect and change their situation. The people declared that they are motivated to be involved but not as a cooperative. Thus the major issue to work with among theses people is the motivation and attitude to joint participation and involvement, this is also crucial for their future. Public participation is here needed as both a tool and as an end itself.

6.3 Development - Learning for the future with lessons from the past

According to members of the UC, field workers and donors public participation involves engagement, and joint ownership means shared responsibilities. While the two projects are said to be based on community involvement a common action plan would be considered as a prerequisite. The future planning for progress towards sustainability and project development is, from a theoretical point of view, recommended to be carried out collectively and include activities that involves the participants and improves the public participation. No information of community action plans is however known by the stakeholders. Consequently the majority of the female respondents in B do not trust the UC to have a future plan of how to ensure water supply sustainability and future development of the village. Several respondents expressed their fear of incapability of both the users and the members of the UC of being able to manage the PWS. In A, the female stakeholders are still, after six years of operating, questioning the UC and the peoples’ knowledge about, what is understood as “proper” operating.

During the interview with the members of the UC in village B it was argued that they felt that they have the responsibility to make the project long-term sustainable and the project process more efficient by making the stakeholders aware of the system and the use of it. An easy way to make people aware is to provide information, recommended by several

82 Female stakeholder, group interview nr. 4, excluded group nr.1 in village A
83 Male stakeholder group interview nr. 2 in village A
84 Arvidson 2003 p. 61
professionals. The UC have planned to provide awareness rising training and information where the stakeholders have to take an active part. Further has research proved that it is through training that people become capable of managing the project on their own.\textsuperscript{85} Training has also been required from the stakeholders, and is clearly needed to prevent lack in confidence and unawareness. In theory this is referred to as learning platform and collective action towards sustainability, achieved through public participation.

The UC in A has only recently discovered that costs are strongly linked to water utilisation. As a consequence of the problem faced with misbehaviour of water utilisation and financial difficulties, it has decided to outline a community action plan. This plan involves the participants in a way that hasn’t been done before, in view of the fact that it includes awareness and information campaigns to increase the knowledge about behaviours and how different actions have an impact on other issues and interest. The purpose is to make people more active in the project by making them aware of responsibilities, but also to make them understand how different interests interact. The UC is preparing an installation of water meters, in every household, to ensure a proper water utilisation, and to make people aware and conscious about their actual water utilisation behaviour. The experienced problems in A have not appeared over night, it is the result of an, for a five years, on-going process, and it was discovered by the implementing organisation in September 2005.\textsuperscript{86} Since it was discovered that water utilisation induce the economic issues of the project, the implementing organisation has made some adjustments in the overall project plan of the PWS system in B. More exactly the financial plan, where the monthly water bill is related to number of water connections installed in the households. This proves that an evaluation is needed to identify where changes and improvements have to be done if to ensure sustainability. Evaluations are essential if progress and development is wanted. It is through an evaluation questions of what have been learnt, where more effort is needed can be answered. Through this it can be identified where priorities and responsibilities are needed. According to the theory of social learning this facilitates progress towards sustainability and improves public participation.\textsuperscript{87} It is moreover believed that this will create common visions that facilitate action towards sustainability.

\textbf{6.4 Public participation – how it is understood}

Regarding the two PWS project, no project plan or proposal were to be found and this may be a reason why there have been difficulties in identifying and understanding what is included in the concept of public participation and how it can be used, especially at field level. This includes both users and field workers. At the professional level public participation is understood as the most essential for project sustainability, but there is gap between how it is understood to be used and how it is used.

Seeing that several projects have failed as a result of absence of community involvement, public participation is understood to be an effective tool to use to achieve sustainability

\textsuperscript{86} Sarkar et al. 2005
\textsuperscript{87} Keen et al. 2005 p. 250
by involving the public more directly in the implementation. By using the concept of public participation, where the people have to take an active part to get access to fresh drinking water, professionals hope to make their project more successful and long-term sustainable. In short, public participation in water supply management is understood as a tool used to ensure sustainability. It is further understood to be an ongoing process in which people take charge of their situation and strengthen capacity to take action for an improved life situation. Moreover, public participation is implied to bring about interest and motivation among the participants to take an active part in the project process. Overall is the professionals understanding of public participation strongly linked to the theoretical framework off the concept. Nevertheless, there are difficulties in first planning how theory can be put in practice and secondly how to put planning into action. In the projects public participation is, by the professionals, understood as payment, where payment is linked to commitment, related to long-term, synonymous with sustainability. Public participation is in an economic sense enthused in the need for sustainability. The actual participants define public participation as “being involved”, involved in terms of having a household connection. Those who have paid the installation cost and regularly are contributing with money through the monthly water bills can entitle themselves “participants”. The stakeholders have understood that the economic responsibility and an active involvement in terms of regular payment are the most important if to ensure the projects’ future sustainability. Though is the economic responsibility undoubtedly individual.

“If you pay to be included than you have to continue to pay, otherwise you will be excluded. Everyone has an individual economic responsibility in this.”

Once people have become dependent on services that only can be provided through an active involvement in terms economic contribution, public participation is assumed to be a self-going process. Although, it is also understood that in order to make possible the sought maintained participation, learning is a prerequisite. Without a learning platform, not only the public participation understood to certify sustainability of the water supply project will fall, but also the whole project. Public participation in water supply management is used for the reason to make people take responsibility for the water supply system, for its operating and maintenance. For this, learning is necessary. But when, in the project process, learning and especially when knowledge is to be secured has not yet been determined. Thus it appears that skill and knowledge when implementing the water system is extremely important for the future project process.

Coordination of activities seems to be the major issue when planning a sustainable project process since various professionals on arsenic mitigation and water supply management have agreed upon this. Rammelt and Boes argue for the importance of using implementation strategies that can be understood and exercised at the local level and by the local capacities. Scientists, professionals and field workers explain that awareness is the key to interest in public participation. In the implementing (doing)
process, Jakariya et al. demand availability of information to raise awareness among the people in order to make them involved.\textsuperscript{91} This can be understood as the creating of a learning platform, which are best secured through actions of learning such as discussions and meetings. Through these activities people would hopefully be committed to maintain the system\textsuperscript{92}. Discussions and dialogues where information and knowledge is shared seem to be the best, most effective and efficient way of improving awareness and to encourage people to take action. Jonsson has discovered that an active participation requires different methods, e.g. a one-way flow of information to the participants from the UC and the implementing organisation. However, to further develop the knowledge a mutual learning process is needed in terms of dialogue and two-way communication.\textsuperscript{93} The donors and the field workers explained that when people gain knowledge, when they learn, they have the motivation, and the capacity to participate.

“The implementing organisation, institution or donor, and the local fieldworkers and NGOs have the responsibility of strengthening the community and its capacity so it can be able to operate and manage the project independently”.\textsuperscript{94}

Learning is in this sense believed to create efficiency and public participation is used for effectiveness and for the making of collective actions. Overall it appears that putting theory into practice and planning how to operate the process of public participation within the project process is a slow procedure.

### 6.5 Using public participation

In their final report from 2004, JICA, Japan International Cooperation Agency AAN, Asia Arsenic Network, declare that arsenic mitigation can only be effective if the implementation plan involves activities for awareness rising and public participation.\textsuperscript{95} Arvidson recognise that public participation demand efforts from implementing organisations and donors to find out about socio-cultural and socio-economic norms at the grassroots level, the community level, and doesn’t only necessitate efforts from the public to accept new knowledge.\textsuperscript{96} The professionals involved in arsenic mitigation proclaim the socio-economic conditions to be as important as peoples’ acceptance and foremost peoples’ motivation for project sustainability. The drive behind using the public participation derives from the consciousness that participation of proposed beneficiaries will lead to more cost-effective projects.\textsuperscript{97} So, public participation has been used to make certain cost effectiveness, which in turn makes the project demand-driven. In relation to the theory, the projects tend to use public participation as a tool of serving the goals set by the implementing organisation and to meet the objectives of the UCs. This may indicate that it is used as a controlling instrument. This is not extraordinary since

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\textsuperscript{91} Jakariya et al. 2005 p. 322  
\textsuperscript{92} Jakariya et al. 2005 p. 322  
\textsuperscript{93} Jonsson 2005 p. 497 ff.  
\textsuperscript{94} Donor, qualitative interview nr. 3  
\textsuperscript{95} JICA/AAN 2004 p. 69  
\textsuperscript{96} Arvidson 2003 p. 18  
\textsuperscript{97} Arvidson 2003 p. 48
Arvidson has identified the same scenario. The implementing organisation use promotion to encourage motivation and willingness to buy the services promoted. By means of making the public participate in sharing costs and join the ownership, responsibility is assumed to be cultivated that will outline the base for sustainability. The implementing organisation has further used a project plan where they envision that public participation, motivated by sustainability and cost-efficiency will lead to a process towards collective action. It is promoted that the community takes full responsibility for the project, and its future planning. This include that the participants have gained knowledge and that the creating of a learning platform and learning partnerships have begun. Yet do people lack in confidence of operating and managing the system independently from the field workers.

Donors and other experts involved in water supply management consider community involvement through joint ownership to be the first step to an active public involvement, and are assumed to facilitate project sustainability. One might think that since the project is based on community involvement, ideas and perspectives linked to the community centred participatory approach would be reflected in the project implementation and identified throughout the interviews. Nevertheless, does the result not give a notion of either enhanced participation where individuals and groups are to be active in problem solving or that the whole community is able to participate in decision-making. The aim with community involvement in terms of joint ownership is, according to national and project professionals, to make people take and feel responsibility of the water supply system. This can be understood as an empowering mean, where people take charge of their situation, which further is what Arvidson see as the objective with public participation. Projects that enable people to identify their problem are assumed to create interest, demand and capacity among people to take charge of their situation and improve possibilities for change. In this sense, public participation is used for empowering reasons. But in reality, there is an obvious tendency found among the stakeholders that economic participation is combined with a limited responsibility.

“We are depending on the committee and their work in order to make this project sustainable in the future. We have no responsibilities in this, we just pay...and we are not informed about responsibilities too”.

The assumption that everyone benefits equally from a project based on community involvement where a community participatory approach is used, that everyone participates in managing it and that no one is excluded from activities, is only a theoretical assumption, or maybe the desired theoretical goal. The participatory approach of citizenship, if to improve decision-making, community planning and collective actions, is not known to either implementing organisation or the UC. Making possible empowerment and giving power to the people to decide their way forward is a must

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98 Arvidson 2003 p. 19
99 Arvidson 2003 p. 62
100 Arvidson 2003 p. 61 f.
101 Female stakeholder, group interview 6 in Village A
within the PWS projects. The implementing organisation proclaim itself assign from the overall responsibility after the installation of the hardware. Public participation rooted and understood by the participants is emphasised since it argues for greater flexibility in the progress towards development, identified by many scientists. Further it is believed to lead to a strengthened connection between the project plan and the local needs, between the people and the professionals.

The donors made clear that the hardest task within participatory management is to ensure future and continuous participation. Therefore they recommended frequent evaluations, initiated by the UC, where the peoples’ experiences and opinions are discussed. Their experience from other PWS projects is that the interest of participation will without encouragement and development decrease over time.

“…once the system exists there is a belief among the stakeholders that it will keep on running, but instead it begins to slow down…when nothing is put into it”.  

If to facilitate and encourage involvement it is necessary to have a system that includes meetings and discussions where evaluation and monitoring of the water supply is carried out by the local community, not by the implementing organisation, argued by Rammelt and Boes. To ensure sustainability, public participation is preferable used both as a tool for improved decision-making and as a process within which the cooperation and the capacity building among the people is strengthened. Professionals identify discussions and dialogues to be the most important in the project process, since it is through these information and knowledge is shared seem. In addition, it is considered as the best, most effective and efficient way of improving awareness and to encourage people to take action. It appears that the importance of maintaining the interest of participation has been neglected as focus is put on how most effectively public participation can be used. The importance of efficiency in the project process is reflected in the implementation step. I have chosen to divide the project design in software and hardware, where knowledge and capacity have been identified as software while the actual technical system, the exterior, is the hardware. The donors made clear that only after knowledge and understanding (software) have been ensured, the actual system (hardware) could be handed over. This is in agreement with the theory of sustainable project implementation. Arvidson also holds up ensuring the quality of software before installing the hardware. She has found that one of the motives behind the introduction of participatory strategies in water projects is by involving the people in the process of choice and implementation of hardware. Hence, in order to use public participation and make it work, it has to be assured that the users have gained knowledge of maintenance of hardware, that they are capable of managing the system. In the two PWS projects people were informed about the project on a regular basis, but no information about the use or knowledge of how to operate and manage the system were secured, i.e. the awareness about the system was not available. This may also be the reason of why the actual operating of the system hasn’t been functioning

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103 Arvidson 2003 Keen et al. 2005, McLaverty 2002 and Meadowcroft 2004
104 Arvidson 2003 p. 49
105 Donor, qualitative interview nr. 2
106 Rammelt &Boes 2005 p. 308
107 Arvidson 2003 p. 60
properly in the two villages, which have caused dissatisfaction among the users. The female stakeholders clarified that they are not provided with sufficient water why they feel incapable of carrying out their household duties in a satisfying way. In B, the women have not been provided with information about water utilisation. Consequently the women closest to the PWS takes out more water than actually needed with the effect that the households, situated far from the actual supply, face shortage of water supplied.

“It is like the electricity bills, we pay for electricity, but we don’t get any electricity, we pay for water, but we don’t get water 24 hours a day, that’s the problem. If we are going to pay, we want to have a lot of water”. 108

The result from the field study shows that the concept of public participation and how it is used in order to attain project sustainability contain several challenges. It is understood to certify sustainability as it involves people in a process where they contribute to their own development, but it is used as a tool for cost-efficiency that enables sustainability. This is clear as participants define involvement as paying regularly; in addition, those who are unable to pay due to poverty have been excluded from the project, in view of the fact that they cannot contribute to the projects sustainability. It is presumed that economic ownership makes future engagement possible, where people take responsibility of managing the water supply system. In this sense, the use of public participation is assumed to, by empowerment, make people take charge over their situation and strengthen capacities. This demand a bottom-up approach characterised by collective action and joint decision-making, but the, until now proceeding project process have not made possible such actions. A project process based on bottom-up approach and collective action is further hard to accomplish when people have difficulties in determine and realise their own interest, as their knowledge and understanding is based on the information established by the implementing organisation. This knowledge has a foundation of a predefined logic between the strategy for a proceeding project process and expected outcomes, i.e. that regular payment gives access to fresh drinking water that in turn is linked to a number of benefits. The impression given is that it is hard to hand over the responsibility of the water system and the continued project process to all participants and that the concept of public participation, as a process for empowering hasn’t been given space to arise. If an efficient bottom-up approach is wanted, people have to be encourage and empowered to act and this could be why public participation, when used to attain project sustainability, is recommended to be used and understood as a process, not only as a tool to obtain certain objectives. If people participate in a learning process, chances might be that they become more interested and engaged in decision-making. In turn this could possibly generate the ongoing process of empowerment, needed for sustainability and development.

The way public participation is used is not the way it is fully intended being used and this has to do with that understanding hasn’t been put in either planning nor action; there are no goals to follow. Arvidson point out that a number of water and sanitation project evaluations prove that communication with participants, involvement of women and

108 Female stakeholder, group interview nr. 4 in Village B
training in operating and technical maintenance have been “remarkable poor”. In several ways does the water and sanitation projects in Bangladesh demonstrate the effects of ignoring the role of public participation, and the difficulties in effectively using the concept. Nilsson and Woodford-Berger, who has been studying the participatory approaches used by Sida, explain that if the management, here the implementing organisation and the UC, works hard to produce commitment and care for an understanding of what is involved in participation, and also work to include all participation, the meaning of involvement can grow. This is what encourages changes for improvements. If public participation in arsenic mitigation were to be realised as a way to facilitate sustainable project implementation, where communities can organise and be empowered to take charge of their problems, people would have to be more actively involved in these activities. Johnson et al. support this belief in view of the fact that they have found the same problematic issue in watershed management. Public participation is not only to be used as a functional strategy for the professionals. Moreover it is not merely a question of applying tools, why professionals need new skills in order to work effectively with participatory activities in project implementation. Collentine et al. and Johnson et al. have further identified that a cycle, or a process that uses problem identification, solution, action and evaluation is the ultimate for sustainable management when working with public participation in water resource projects. Thus, it is announced that if professionals want users to adapt and adopt a technology, they have to be empowered through public participation. Finally, if the users are to adjust to a water system, and improve and strengthen individual capacity, social learning, created through public participation in sustainable project implementation is identified as the most important.

7 Concluding remarks

The initial aim of the thesis was to find out what it is that makes a project last over time. On the topic of water supply management and arsenic mitigation projects public participation is vital for sustainability. Thus it appears that for many development organisations, cooperation and NGOs, public participation is essential in the project implementation strategies. The problem is how to define and understand how to use the theoretical concept and make it practical, and operational. Looking back at the theoretical framework it appears that public participation in some way is seen as a conceptual superlative. It is assumed that organisations and donors responsible for projects want all people to participate and that they give people the opportunity to do so. And in the end, that the public participatory process is democratic and that everyone benefits equally from it. These are the objectives, and public participation can be used both as a tool and a process of their realization. There is nothing such as a public participatory outfit one-size-fits-all. This may be the reason why I haven’t found the “right” public participatory approach that is the solution to ensure project sustainability. So, what I have been trying

109 Arvidson 2003 p. 17
110 Arvidson 2003 p. 17
112 Johnson et al. 2001 p. 515 ff.
113 Collentine et al. 2002 p. 452, Johnson et al. 2001 p. 512
114 Johnson et al. 2001 p. 511 ff.
to do is to illustrate how a model for a sustainable project process, built on effective planning and implementation, in combination with public participation, can be used to create a process for learning and improved knowledge that is needed for future actions and development to ensure project sustainability. In this sense public participation, can be used as a tool and an ongoing process, the way the concept may be understood should not eliminate the other way it could be used. To attain project sustainability, an ongoing process in which diagnose, design, doing and development can be done is recommended. In short it can be described as a process where understanding of the situation designs the solution that is put in action and evaluated. Although, it may not be possible to involve the participants in all decisions, especially not in arsenic mitigation projects where the participants are depending on the experts to solve their water situation. The experts have the knowledge of how different technical options work and how they can be installed to facilitate the people. To be able to put theory in practice the participants need to be involved in a process where they understand the situation and what is needed to change it. This can facilitate acceptance, motivation and interest in participation, and that is what the professionals’ request. Important in this process is that different interest groups and all participants get an opportunity to interact and negotiate, and reflect over actions that decides the next step and the way forward, towards sustainability. Hence are these major issues to work with to ensure sustainability and an ongoing process of public participation. Empowerment appears to be extremely important if a bottom-up strategy as public participation in project planning will succeed. Though, how this empowering is going to be promoted and made possible by top-down management and implementing organisations is a topic that needs to be discussed.

There is an interest to obtain project sustainability by using public participation, but to make theory operational more effort has to be put on how to make planning feasible and existent. There is also an expressed need for an improved and increased use of public participation in project process planning from experts and national legislation. To outline policy documents on workable public participatory approaches in project planning, evaluations where participants’ experiences are taken into consideration would be regarded as useful. Finally, project assessments is one step in the process in identifying and understanding of how public participation can be used in the practice of sustainable project planning and implementation in the present and future.
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