

SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN SOUTH ASIA



2011

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SaciWATERs and SOPPECOM

2011

Correct citation

SaciWATERs(South Asia Consortium for Interdisciplinary Water Resources Studies) 2011 .
Situational Analysis of Women Water Professionals in South Asia. SaciWATERs, Hyderabad

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Foreword

This report is the result of a study that was undertaken as part of the Crossing Boundaries (CB) project, a concerted, sustained educational, research and advocacy effort in Integrated Water Resources Management across South Asia. One of our main interests is Women Water Professionals (WWPs) within the theme of Gender and Water. It is well known that In South Asia, women are often at the periphery in water management and other domestic and commercial decision making concerning water. However, what is less understood and not really studied is the area of WWPs - both in terms of their numbers and their concerns.

Thus, the main aim of this short exploratory study was to look at the situation of WWPs in South Asia. The book contains specialised case studies from Bangladesh, India, Nepal and Sri Lanka and Pakistan.

I would like to express my heartfelt gratitude to Seema Kulkarni, SOPPECOM for coordinating the study and also authoring many cases and for compiling and editing this volume.

Thanks are due to all the independent researchers - Sayeda Asifa Ashrafi, Swati Sinha, Sneha Bhat, Sutapa Majumdar ,Vanaja Kankrala, Pranita Bhushan Udas, Kamini Vitharana and CENWOR , who carried out this research for us. Their consistency in using traditional research methods are well appreciated and have added fresh insight.

Special thanks to Dr. Shaheen Ashraf, who did the small but complete study in the Sindh area of Pakistan in a relatively short period of time. This made this volume a truly South Asian one.

This book has been about painstaking research that is entirely field based and has been analysed and given statistical treatment down to the last numeral. We hope to initiate more such studies that would give us an idea of the conditions in which women water professionals work in South Asia.

We hope that this report will pave way for a sustained interest in this issue.

A handwritten signature in black ink, appearing to read "C. Goodrich", is written over a thin, slightly curved horizontal line.

Dr. Chanda Gurung Goodrich,
Project Director, Crossing Boundaries Project,
SaciWATERs, Hyderabad

SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN SOUTH ASIA* (2009)

Seema Kulkarni

*This Chapter is being published by Zubaan (2012) and another version of this is also coming out in e-journal SAWAS (December 2011 edition) at <http://www.sawasjournal.org>

List of Abbreviations

• AP	Andhra Pradesh
• APSIDC	Andhra Pradesh State Irrigation Development Corporation
• BCAS	Bangladesh Centre for Advance Studies
• BWDB	Bangladesh Water Development Board
• CADA	Command Area Development Authority
• CBO	Community-based Organisation
• CEGIS	Centre for Environmental and Geographic Information Services
• DPHE	Department of Public Health Engineering
• FGD	Focused Group Discussion
• GSDA	Groundwater and Survey Development Agency
• GWD	Ground Water Department
• HMWSSB	Hyderabad Metropolitan Water Supply and Sewerage Board
• IWM	Institute of Water Modeling
• IWRM	Integrated Water Resource Management
• LGED	Local Government Engineering Department
• MJP	Maharashtra Jeevan Pradhikaran
• NGO	Non- Government Organisation
• RSPMU	Reform Sector Project Monitoring Unit
• SIDA	Sindh Irrigation and Drainage Authority
• TOR	Terms of Reference
• WARPO	Water Resources Planning Organisation
• WRD	Water Resources Department
• WSSD	Water Supply and Sanitation Department
• WUA	Water Users Association

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Section I:Introduction

In the last decade or so there has been an increasing interest on the question of gender and water. The interest emanates partly because women's movements and struggles have made a mark and equally because many funders have come to insist on its inclusion. It is these reasons that compel the state to address some of the inequities and disadvantages that women face. However there is little attention given to the theoretical treatment of this issue in the water sector and hence most of the efforts at making the water sector inclusive becomes mere lip service or remains partially addressed. This is evident from the knee jerk introduction of programmes in the sector, which seek women's participation in community-based domestic water programmes. Moreover, most of these programmes remain focused on the poor rural women and their collectives to regenerate and effectively manage the resource. Little research has been done in the area of the professionals who are in the key decision making or implementing organisations/ posts in both the bureaucracy and otherwise and how their actions or inactions set the agenda for policy and programme in the water sector. Further, there is little thought given to the women who work as water professionals in the different sub sectors of water and their constraints and positive influences on the sector as a whole. By women water professionals (WWPs) we simply mean women who are employed in the water sector in different capacities.

Are these institutions/organisations at the macro level democratic? Is the environment in these organisations congenial for women to participate effectively? - these are some of the questions that largely remain out of the debates on gender and water.

Our insights from the literature on gender and water point to a clear sectoral divide, which separates the domestic from other productive uses of water. Women's participation in the water sector is therefore synonymous to their participation in the domestic arena, which in fact is an extension of their domestic roles. This clearly points to a thinking, which is strongly embedded in the male culture of the sector. However it is then important to carry these insights further to understand how it shapes the water sector as a whole. It also strongly points to the inadequacy of action at the community level alone. It builds a case for engendering the water sector as a whole.

It is in this context that a study on WWPs becomes critical. While reiterating the need for a much deeper theoretical treatment of the question, we feel there is a need to look at women at various levels in the water sector. As a first step this means unpacking the sector and developing a typology of women as users and planners.

The present study is an effort to do just that. It is part of a larger project initiated by SaciWATERs called 'Crossing Boundaries' (CB), which focuses on education, research/innovation, knowledge-based development and networking, in a combined effort to contribute to a paradigm shift in water resources management in South Asia. This focus on longer duration education input (as opposed to short term training) derives from the fact that shaping attitudes and perceptions, and teaching the skills of interdisciplinarity and more comprehensive analysis and intervention requires time. The project is implemented by a group of institutions with a proven interest and track record regarding integrated, interdisciplinary and gender-sensitive approaches to water resources management. The project duration is five years and will run from 2006 to 2010.

The general objective of the project is to strengthen integrated and gender-sensitive water resources management policy and practice in South Asia by means of a regional, collaborative, partnership-based capacity-building programme for active water professionals through higher education, innovation-focussed research & knowledge base development, and networking.

The present study is located in Bangladesh, India Nepal, and Sri Lanka and Pakistan. It is primarily of an exploratory nature to understand the profiles, numbers and constraints of WWPs in the South Asian region. Although the focus has been to primarily look at women professionals in the water bureaucracy, we have spoken to a few WWPs from NGOs and academic groups as gender water advocates.

The South Asian Water Scenario

Both droughts and floods characterise the South Asian water scenario. The question of water scarcity and better governance looms large across the region. All of these countries have, in the recent ten years, introduced various reforms and policies in the water sector. Many of these policies mark a shift of the water sector paradigm from a techno-centric supply driven model to a demand driven and participatory model. With this shift in thinking, questions of participation, accountability, inequity have come to the fore and inadvertently, 'politics of water' has gained currency.

Interestingly while many of these policies and reforms have provided spaces for resource poor groups to participate in decision making and planning around the water resources at the micro level, the picture seems just the opposite at the macro level with large numbers of poor being displaced from their habitats or dispossessed of their resources including water. Goals of decentralised planning and management and that of privatisation are being pursued simultaneously in this region with varying impacts.

Integrated water resources management (IWRM) as a concept has gained currency in the last decade or so and this model is being strongly advocated in the region, but hardly creating the desired impact on the water bureaucracy. The 'best outcomes' of this advocacy have been in the form of renaming of the sectoral departments as water resource departments in some countries. However, the water bureaucracy largely continues to function, as it did in the past, with its various sub-sectors barely seeing eye to eye with each other.

Admittedly new reforms and policies have at least paid lip service to gender concerns at the micro level, however they have not gone into the detailing of how that would be feasible. Despite these policy spaces, gender mainstreaming in the sector has become mere lip service and the answers for this have to be sought at different levels.

In all these countries, water is clearly a male dominated sector and the manifestation of this is in the low numbers of women found in the water sector as a whole, both in the bureaucracy and otherwise

Much of the policy analysis from a gender lens shows us that gender justice receives little attention at macro-meso-micro levels. Much of the unpacking of how gender justice can be brought about in the sector would increasingly reveal just how much of work is needed at the level of those who design and implement water programmes or respond or act as civil society groups.

In this study, we try and look at the less studied sector of WWP in the water bureaucracy. What are their numbers and why are they so few? What are their concerns and does their presence make any difference to the gender mainstreaming agenda? Does reform in policy bring any more visibility to their concerns, does it provide them any more space than it did in the past and does this space lead to fruitful outcomes in terms of gender equity? These and other related questions define the scope of our study.

Section II: Objectives and Scope of the Study

This is a short-term exploratory study and the main aim is to understand why there are such few WWP and what are their key areas of concern.

At the outset, we would like to mention that the study was done in two phases. In the first phase, independent studies for Nepal and Sri Lanka were done in 2008. In the second phase, a co-ordinated study was initiated for Bangladesh and India between January and July 2009 and for Pakistan between August and December 2010. The objectives and scope of studies done in both the phases were the same, but the methodology differed to an extent and this is evident in the data presentation done in the report that follows. Although a full fledged study was not done for Pakistan, we share here a few insights from one of the provinces of Pakistan where the irrigation reform process was introduced.

The study aimed to

1. Develop a broad typology of WWP working in the region.
2. Assess the numbers of these women in the area studied to give an indicative trend of the numbers in the region.
3. Understand some of the key constraints of WWP across the diverse cultures of South Asia.
4. Bring visibility to this group and their concerns.
5. State recommendations for policy and action for WWP.

Scope of the Study

The study covers a few water departments in the four countries of Bangladesh, India, Nepal, Sri Lanka and Pakistan.

In Bangladesh, the overall management of water resources related to irrigation, flood control and drainage comes under the Ministry of Water Resources. Under this Ministry, there are different institutions/organisations, which are responsible for water resources management. We have considered seven of them, i.e. Bangladesh Water Development Board (BWDB), Water Resources Planning Organisation (WARPO), Institute of Water Modeling (IWM), Centre for Environmental and Geographic Information Services (CEGIS), Department of Public Health Engineering (DPHE), Local Government Engineering Department (LGED) and Bangladesh Centre for Advance Studies (BCAS).

The BWDB is responsible for the overall planning and implementing of the Water Resource Development (WRD) projects in Bangladesh. There are seven zones, and each zone is divided in Circles and further into Divisions and Sub divisions.

The WARPO is a macro level planning organisation for WRD. Its main task is to provide a master plan for environmental-friendly WRD, and also formulate the National Water Policy and plan for scientific use and preservation for water resources. This is located in Dhaka.

The IWM is a specialized institute for water modeling, computational hydraulics and scientific research, development and capacity building. The CEGIS is a public trust in the water sector. The CEGIS provides support for environmental and social impact assessment of different water resources related projects. Both these institutes operate from Dhaka.

The DPHE comes under the Ministry of Local Government and Rural Development. It is responsible for water supply and sanitation. Other than Irrigation Water Management, the DPHE is responsible for drinking water supply to the urban and rural community. It has a headquarters office and several district level offices. The LGED also comes under the Ministry of Local Government and Rural Development. It is responsible for irrigation of 1000 ha of land or less in local level water management. It has one headquarters in Dhaka then district level and sub-district level implementing authorities.

In India, we have conducted the study in two states, Maharashtra and Andhra Pradesh. Both are large states and in some sense recognised as the leaders in water management. Maharashtra is a western Indian state and Andhra Pradesh is a southern Indian state. Both these states have a strong history of the women's movement.

For the state of Maharashtra, we have considered two departments for the study: the Water Resources Department (WRD), which is the irrigation department and the Water Supply and Sanitation Department (WSSD), which is concerned with drinking water and sanitation. Both the departments have their head offices at Mantralaya in Mumbai, the state capital.

After the recent legislation of 2005 in Maharashtra, the entire state has been divided into five river basin corporations. These are governed by the WRD. Under each river basin corporation there are different region-wise irrigation circles, project-wise irrigation circles and the Command Area Development Authorities (CADA). Including all these, there would be around 35 irrigation offices in the state of Maharashtra. Further, there are different divisions and sub divisions under each circle.

There are three main components of the WSSD, i.e. Maharashtra Jeevan Pradhikaran (MJP), Groundwater and Survey Development Agency (GSDA), and Reform Sector Project Management Unit (RSPMU). For the present study, we have considered the MJP and the RSPMU.

The MJP is responsible for designing and construction of water supply (costing more than INR 75 lakhs) in rural areas and sewerage schemes in urban areas and mobilisation of resources on behalf of State Government and the local bodies. Recently, due to various reasons, it has been criticised as being a white elephant of the government, and there are active efforts for the restructuring of the MJP. The MJP has its Head Office in Mumbai. There are five regions across the state, further divided into different circles, divisions and subdivisions under each Region Office.

The RSPMU deals with execution of the Jalswarajya (water freedom) scheme in the state. Jalswarajya is a drinking water scheme, introduced under the Sector Reform funded by the World Bank. This process introduces the change in the water sector and hence is of importance to the study. The RSPMU has their Central office at Mumbai. They have district levels team in all the districts where the Jalswarajya scheme is being executed. These teams include members of technical, social administrative and financial side.

For the state of Andhra Pradesh (AP), we have considered four departments, i.e. the Irrigation and Command Area Development Department (Irrigation and CAD), the Andhra Pradesh State Irrigation Development Corporation (APSIDC), the Ground Water Department (GWD) and the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB).

The Department of Irrigation provides irrigation facilities with the funds provided by Government under various programmes. There are different circles under the main office.

The APSIDC is a state government undertaking, formed for the development and implementation of irrigation projects in the state. This department comes under the administrative control of the Irrigation and CAD Department. The main office is located in Hyderabad, which is the state capital, and there are 12 Divisions and 2 Project Offices for implementation of various schemes in state of AP.

Like the APSIDC, the GWD also comes under the administrative control of the Irrigation and CAD Department. The Ground Water Department was established to help the scientific development, systematic management and optimal monitoring of groundwater resources for sustainability. It is a multi-disciplinary organisation. The Ground Water Department consists of a Directorate, 22 District Offices and 2 Special Command Area Offices.

The HMWSSB comes under the Municipal Administration and Urban Development Department. The Board is responsible for planning, design, construction, maintenance, operation & management of sewerage treatment works and potable water supply in the Hyderabad Metropolitan Area.

In Nepal, the study focuses on women water managers at field level, interviews with water professionals both male and female working at academia, implementing agencies i.e. irrigation department and drinking water department, society of engineers and donor agencies in the water sector.

In Pakistan, the study was conducted in Sindh province only. Sindh is the second largest province of Pakistan, managing huge water infrastructures and agricultural production of the country. The study focuses mainly on women employed in different capacities in three water bureaucracies, such as: Sindh Irrigation and Drainage Authority (SIDA), Water and Sanitation Authority (WASA), WAPDA Water Wing (WAPDA-WW).

In Sri Lanka, the study focuses on two departments. These were the Department of Irrigation and the National Water Supply and Drainage Board. The former, a government department, has an island-wide presence and possibly employs the largest number of women on and off the field. The latter is a statutory board established by the government, also with an island-wide presence, but without the same rigid structures of administration as a department.

Section III:Methodology and Tools

Definitions, Analytical Framework, Understanding of the Issue

Broadly, we define WWPs as all women working in the water sector at the meso and macro levels across different sub-sectors of water in different capacities in government as well as non-government organisations, as academicians and in the private sector.

For the purpose of this study, however, we have focused on women working as employees in the government set-up both in technical and non-technical capacities at different positions.

A combination of factors, all commonly linked to patriarchy, determines women's presence or the lack of it in the water sector. These could broadly fall in two terrains - patriarchy within organisations and the masculine character of the sector itself, which can be described both by its content and by the mode of its operation. The present study being an exploratory one hopes to only provide insights into these two broad areas.

For this study we therefore rely heavily on the foundational work in the area of feminism and science. We also draw on work around gender and organisations, and the studies on masculinities, particularly work done by Margreet Zwarteeven (2008) in the area of water and masculinities.

The low numbers of women in the water sector or for that matter, any of the 'hard' sciences, often remains an area wanting in research. The most general explanation given for this is patriarchy, without going into the nature of these sciences themselves. Most often, the question is either treated as a myth not requiring an enquiry or self-evident or non-sensical i.e., falling outside the domain of the formal knowledge systems and hence needing no attention. If we look at most other disciplines like music, art which can be termed as culturally validated endeavours too have historically been the domain of men, only few really get associated with masculinity - so large numbers of famous painters and poets are male, but the form of art is never described as masculine as against science and technology.

According to Keller (1978) this unexamined association between gender and science has been internalized as a belief system, into peoples' thinking and value systems. These values and the belief system then gets further perpetuated through the various socio-cultural practices to an extent that we stop questioning the content and the form of the hard sciences themselves and find reasons for women's absence outside of it.

Feminism and Science

The natural sciences have assumed unparalleled authority in the 20th century. The feminist critique of science has come from a wide range of disciplines. Feminists have largely seen the rise of the modern western science as a gendered process. For example the Baconian view of nature being seen within the feminine domain and needing to be controlled and gained mastery over, has come under sharp criticism from feminist scholars. It has been interpreted as a gendered process of knowledge production which is reflected in the low presence of women as the part of the scientific community.

Feminist and environmental movements have been raising these questions and demonstrated that scientific advancements and technologies have largely contributed to the subordination of women and the degradation of the environment.

What kind of knowledge do these sciences provide us and what is the basis of their cognitive authority? Feminists have questioned the idea of objectivity and subjectivity and the separation of the knower from the knowable. These challenges have become prominent in the post 60s when Kuhn (1962) and others questioned the idea of objectivity in science. They showed that science was a part of the social and cultural context in which it is developed and practised. Sandra Harding (1986) and others showed that all knowledge is produced under specific social and historical conditions and they must be understood to give us insights into more truthful accounts. She uses the three useful concepts of symbolism, structure and identities in the context of gender and science. She talks of the use of symbols or metaphors that are used to describe gender dichotomies and separate the public from the private domain. For example, the dichotomy between production and reproduction - these are used to organise a set of gendered activities. By this logic, women would do all the activities that revolve around reproduction, and men would move into the production sphere. This can thus be referred to as the structure, and finally individual identities are constructed around these activities and these are essentially gendered. These identities are internalised as part of our belief systems and determine our practices and ideas. Anything that falls in the realm of the public, for example, gets defined as male. Objectivity, rationality or technical competences thus get to be seen as male traits and its lack as a female one.

Another seminal work, which informs this study, is that of Evelyn Fox Keller (1978) who draws on psychoanalytical theories expounded by Freud, Piaget and others. Through her work she has tried to trace the origins of the gendered nature of science. Keller's main enquiry revolves around the low numbers of women in science, particularly engineering and physics. However, her concern throughout this exploration is less on the relative absence of women in science but more on the structure of science, which she argues, is in fact the cause for this absence. She therefore strongly argues for a discussion on 'beliefs' over a 'reality' (absence of women as scientists). This belief manifests itself through direct references, which until very recently were not uncommon to hear. Women, it was said, are among the most unfit species to understand science. Clarity of mind, rational thinking and rigour were all identified as male characteristics that were most suited for pursuing a scientific endeavour. They manifest through language and metaphor to describe science itself. Often objective sciences are referred to as 'hard' sciences and the subjective ones as 'soft'. Similarly, facts are always most objective and rigorous when they are 'hard' and feelings are always 'soft'. In each of these instances 'hard' obviously has a male connotation and 'soft' has a female one. What Keller effectively demonstrates is how such language, imagery and metaphor slowly but surely shapes realities.

Another useful concept developed in the 1980s is that of 'hegemonic masculinity' and it helps us move beyond a singular understanding of masculinity or femininity. The idea of hegemonic masculinity gained currency in the 1980s when challenges came up to the idea of masculinity which no longer could be understood as a singular concept. The argument that there are multiple masculinities and that they manifest themselves in different ways was acknowledged. Hegemony, a concept so powerfully introduced by Gramsci, was then used to explain certain kinds of masculinities which were linked to power derived from social locations of caste, class, race, age, religion etc. Hegemonic masculinity thus looks at masculinity from a broader understanding of the various layers that affect and intersect gender relations. This concept helps us understand why certain social groups alone and within them only men have been able to dominate knowledge production and its practice. It helps us look at patriarchy in a much more nuanced way, with the way it intersects with other social groups and creates what can be referred to as hegemonic masculinity.

Thomas Kuhn (1962) In his *The Structure of Scientific Revolution* argued that science does not progress via a linear accumulation of new knowledge, but undergoes periodic revolutions, also called 'paradigm shifts' in which the nature of scientific inquiry within a particular field is abruptly transformed. Both he and later Karl Polyani believed that scientists' subjective experiences made science a relativistic discipline and that science gets developed and practiced in a social context.

Gender and Organisations

The other terrain of patriarchy and organisations that we hope to examine here is largely informed by the work in the area of gender and organisations. Of particular importance, here is the work of Joan Acker (1990) which showed that organisations cannot be seen as gender neutral and need to be seen as sites in which the gender identities are presumed and reproduced. She defines a gendered organisation where 'advantage, disadvantage, emotion and action, control and exploitation, meaning and identity are patterned through and in terms of distinction between male and female, masculine and feminine'. Her work brought out that hierarchical organisations are an important location of male dominance and countered the view that organisations are gender neutral. Assumptions about gender underlie the documents and contracts used to construct organisations and to provide the commonsense ground for theorizing about them (Acker 1990).

Kathy Fergusson's (1984) work on bureaucratic organisations is also worth noting in this regard where she argues that ideal typical bureaucratic form is inherently gendered in that both the structure and mode of operation lead to a gendered effect. She then calls for a restructuring of the bureaucratic organisations to make them more gender sensitive and equal.

Sources of Data and Tools

Different sets of tools and methods were used to investigate this question. Here again we would like to reiterate that the studies in Nepal and Sri Lanka were done at a different time and by independent researchers, so the choice of methods did differ from the studies that were done in India and Bangladesh, where the study was co-ordinated by SOPPECOM.

In Bangladesh and in India, the study was conducted at the same time and through an intensive consultative process. In both these countries, our focus was largely on looking at the WWPs in the government set-up. We have drawn information from both secondary and primary sources. As discussed earlier, in India the study was done in the two states - Andhra Pradesh and Maharashtra. Between these two states a total of fifty-two women were interviewed and about eight focus group discussions (FGDs) were conducted with different groups. Secondary information in India was collected through the right to information channels, from the websites of different departments as well as through visits to the offices and through written correspondence with them. The details of the primary data collected are mentioned in a section on profiles of women interviewed.

In Bangladesh, thirty-two women and eighteen men from across the different departments were interviewed in detail and about four FGDs were conducted with different groups of water professionals.

In both the countries, men and women belonged to the Government departments and came from mixed social and educational backgrounds. They were also selected carefully to represent the various positions in the hierarchy they came from.

For both these countries it is important to state here that a large amount of secondary data was collected to give us a picture of how many women there are in the water sector and where they stand in the hierarchy of the sector. All of this data will not be presented in this report, as we will have individual country reports, which would be detailed. In Nepal, the study was conducted between April and May 2008. The study includes both case studies from women water managers at field level, interviews with water professionals both male and female working in academia, implementing agencies i.e., the irrigation department and drinking water department, society of engineers and donor agencies in the water sector. Very specifically, the women interviewed for the study were as follows:

- a) Women graduates who have studied water resources at Bachelor, Diploma and at higher levels in formal education that opens an opportunity to work in the water sector;
- b) Women who do not have an academic background in water resources as such, but were/are involved in water activities in later phase of their career;
- c) Women involved during water policy formulation and implementation;
- d) Women researchers in the water sector and;
- e) Women educators teaching water resources at universities and colleges.

Most of this information collected was part of the Ph. D work of the researcher in Nepal. Data collection tools, such as open-ended interviews, e-surveys, FGDs and tracing out WWP from college to work at present, were used. Both qualitative and quantitative data were collected.

In Pakistan, the study was conducted from August to December 2010, based on both quantitative and qualitative information, collected through secondary sources, interviews and focus group discussions. In order to learn about women's experiences, knowledge and perceptions, 15 in-depth semi structured interviews and five FGDs only with women working for three water bureaucracies were done.

In Sri Lanka too, an independent researcher conducted the study. The study was based on published and unpublished sources of information, interviews with key stakeholders and FGDs. Information was obtained from public sector organisations, private companies and local and international NGOs in the water sector employing women professionals.

Twenty-five in-depth interviews were conducted with water professionals in universities, public sector institutions, an international agency and a private sector company. Both women and men involved with the work of women in the water sector were interviewed

Four FGDs were conducted in Colombo (Western Province), Anuradhapura (North Central Province), Peradeniya (Central Province), and Ratnapura (Sabaragamuwa Province). The participants included engineers and technical officers working in the field, supervisors, academics, sociologists, economists, and NGO and CBO activists. Both men and women participated. There were 38 participants at the FGDs. The selection of the participants gave particular attention to capturing a diversity of viewpoints.

The findings and analysis that follows is based on these diverse sources of data.

Section IV:Typologies

One of the main aims of the study was to work on the typology of WWP. WWP, as we have seen in the definition earlier, are all the women who work as employees in the water sector in different capacities. WWP are categorised in a very broad typology and these include the technical as well as the non-technical types. In each of countries studied, we can see some uniformity and some differences. A typical exercise in typology would involve a detailed classification of WWP working in different organisations such as NGOs, INGOs, the government, the academics and even the private sector.

Society for Promoting Participative Eco-system Management (SOPPECOM), Pune, India is an organisation working in the area of rural livelihoods and natural resources. Its prime focus is on water in which it does policy advocacy, research and capacity building.

The study was done by Pranita Bhushan Udas who is currently completing her PhD work under the guidance of Margreet Zwartveen in Wageningen University, Netherlands.

That would be an important and interesting exercise where we could map the extent of WWP_s and nature of their work and the problems they face across these sectors. While doing this mapping it would also be important to see the caste, class and other social differentials that determine exclusion alongside of patriarchy.

In an NGO set-up or an academic set-up for example, we would find women professionals largely outside the technical domain and more as social experts (gender, community participation etc) or researchers/teachers.

For the present study, we have not been able to do a detailed mapping of this kind across the different sectors and have focused on the water bureaucracy alone. Our classification therefore would be applicable to this category only.

In the government set-up, we would typically find the technical and administrative classification as an explanatory one for preparing a typology. However, with the introduction of reforms in the water sector, we see a changing scenario in which a few non-technical and non-administrative professionals, such as sociologists, biologists or chemists are coming into the sector in active roles. In most countries, they are still outside of the state apparatus.

While compiling the secondary data, we found the following categories of women water professionals, with some variations in each of the countries.

1. Technical: Engineers (both who are working on site and who do table work like designing, scrutiny, sanctioning etc.), hydrologists, geo-hydrologists
2. Technical Type 2: Professionals who are not qualified as engineers but do support in their technical work - like draftsman, assistant draftsman, tracers and lab assistants.
3. Non-technical Experts/permanent or Contractual: With the introduction of the sector reform process, an effort to bring in a multi-disciplinary team is seen. Therefore, there are non-technical social and natural scientists. In each of the countries, their position in the state government differs. In India, for example, all the social sciences employees fall in the contractual category and are not part of the mainstream government set-up. This is also true of Pakistan. In Nepal, Sri Lanka and Bangladesh, they are part of the mainstream government set-up.
4. Administrative: Those who do administrative work (desk work) like accounts office, clerk, steno, typist, store superintendent etc.
5. Service staff: Employees who are not doing administrative work but provide different services (most of these would be what is called Class 4 employees) like sweepers, drivers, cleaners, watchmen, labourers, electricians, gardeners, linemen, pump operators, wiremen etc.

There are further classifications possible for each of these categories and in every country that has been different. These depend on the sub-sectors in the water sector, the departments within the sub-sectors, hierarchy of position, educational qualifications, and whether they are permanent or temporary/contractual employees of the government.

However, for presenting the trends we have not gone into each of these separately. In each of our country reports we will give a detailed typology of women as water professionals, but in this report we present before you broadly two categories i.e. technical and administrative. Technical here includes all experts from the natural sciences including engineers, hydrologists, geologists, agricultural scientists (1, 2, 3 combined) and administrative includes all clerical jobs and other support staff (combining 4 and 5 categories). The main reason for clubbing this data is the non-availability of segregated data in Nepal and for some departments in Bangladesh and India as well.

Low Numbers

All of the countries show that a very small number of women are working WWP in South Asia. The table shows us that except for three departments in India and Bangladesh, the percentage of women in technical posts is not more than 5% and in some departments like the irrigation department in Maharashtra and Nepal, it is as low as 1.9 and 1.5% respectively and in Pakistan it is 2.3% only. While it might be interesting to pursue this difference across sectors separately, what we see here is the consolidated picture of the water sector in south Asia. The percentages are just slightly better for women in the administrative sections in the water sector. The Bangladesh data for the BWDB includes among its technical staff, sociologists and other non-technical experts as well. Interestingly these are included as part of the mainstream government staff. However, in Maharashtra and Andhra Pradesh in India and in Sindh, Pakistan, we see a complete absence of sociologists or any other social sciences experts in the mainstream government departments. In a later section, though, we discuss the changing nature of the sector and the introduction of social scientists in contractual capacities, which also marks the entry of more women in the sector. This is also true of Pakistan as is evident from the data on SIDA, which we shall see in a later section.

In Sri Lanka although we do not have a complete data base for the entire country for any of the departments, at the time of the study in the irrigation department the Director General was a male, two of the eight Directors, and seven Deputy Directors were women.

Table I: Department Typology of Women Water Professionals for India, Bangladesh and Nepal

Country	Department	Technical Employees			Administrative Emp.			Total Employees		
		No. of Total Emp.	No. of Female Emp.	% of Female Emp.	No. of Total Emp.	No. of Female Emp.	% of Female Emp.	No. of Total Emp.	No. of Female Emp.	% of Female Emp.
India (Mahara-shtra)	MJP (entire state)	1429	74	5.18	5122	502	9.80	6551	576	8.79
	Irrigation (5 circle Offices of the state out of about 35)	933	18	1.93	1390	157	11.29	2323	175	7.53
	APSIDC (entire state)	267	11	4.12	300	36	12.00	567	47	8.29
	GWD (entire state)	81	10	12.35	979	72	7.35	1060	82	7.74
	HWSSB (Hyd city)	323	13	4.02	53	7	13.21	376	20	5.32
Bangla-desh	BWDB (entire country)	1400	46	3.29	6060	399	6.58	7460	445	5.97
	BWDB (entire country)	1400	46	3.29	6060	399	6.58	7460	445	5.97
	CEGIS (entire country)	108	17	15.74	22	1	4.55	130	18	13.85
	IWM (entire country)	72	12	16.67	15	0	0.00	87	12	13.79
	LGED-SSWRDP (entire country)	1696	30	1.77	0	0	0.00	1694	30	1.77
Nepal	Department of Drinking Water and Sanitation (central office only)	35	0	0.00	82	9	10.98	117	9	7.69
	Department of Irrigation (central office only)	66	1	1.52	80	10	12.50	146	11	7.53

Out of 231 irrigation engineers, 41 or 17.4 per cent of engineers were women. The majority of engineering assistants were women. The Department is primarily staffed by engineers and other technical personnel and has no multidisciplinary team even though among its functions are community interface and interaction. Like in most government departments, there is no gender policy although statutory entitlements are available to women workers.

The Glass Ceiling

Charts I–3 show the posts at which women are currently employed. These are representative charts of one department each in India and Bangladesh showing women in the technical hierarchy in the MJP (Water Supply and Sanitation Department, Maharashtra, India), the Bangladesh Water Development Board in Bangladesh and the Irrigation and Command Area Development in AP, India. In all these departments we see that women are not present at the topmost level. In no country do we see women at the Chief Engineer level. Except in AP in India, we do not see women even at the Superintending Engineer's posts. In Maharashtra, we see two women in the Executive Engineer's position of which one was promoted just as she was about to retire and the other one is a very dynamic young professional in charge of a division. In Bangladesh too we do not see women in these two posts but we see five of them as executive engineers, which is certainly a positive change.

Chart I WWPs in BWDB Technical Hierarchy, Bangladesh (Entire Country Data)

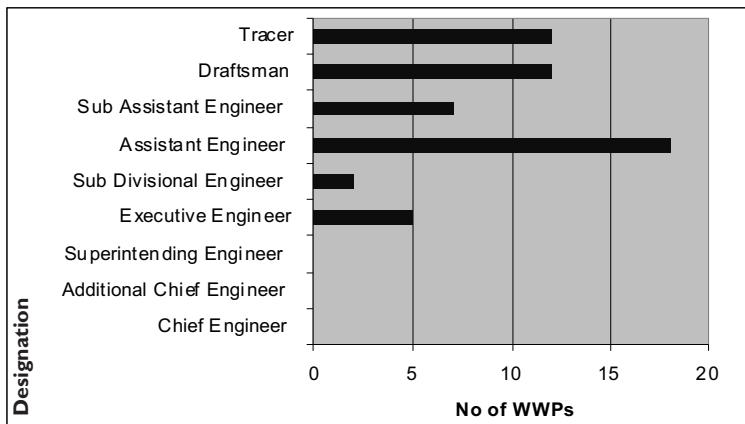
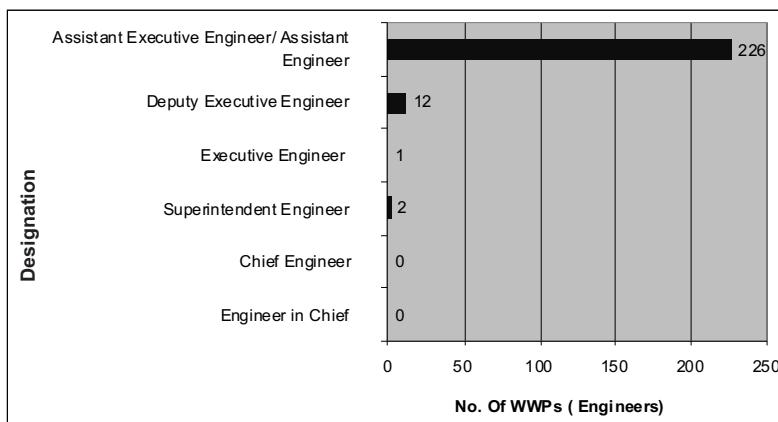


Chart 2 WWPs in MJPTechnical Hierarchy, Maharashtra, India (Entire State- level Data)



Chart 3 WWPs in APSIDC Technical Hierarchy, Andhra Pradesh, India (Entire State-level Data)



It is interesting to see the differences across the three different locations. Andhra Pradesh in India has a large number of women as assistant engineers in the irrigation department and it is the only place which has women in the senior post of Superintending Engineer.

However, this is still only 5% of the total employees in the Irrigation and CAD department. Maharashtra is also one of the progressive states in India and as we have seen, it has recently introduced a progressive policy of 30% reservations for women in government employment, but the numbers do not reflect that in practice. The main reason cited for this is that there were no recruitments in these departments since the policy was introduced in 1997.

Hesitant but Changing Profile of the Water Bureaucracy

As we can see, our typologies for the water bureaucracy fit into the categories of technical and administration and hardly have any space for non-technical experts from the social sciences. This is a comment on the nature of the sector, which despite the recent promises of integration and multidisciplinarity is characterised by technocentrism. Changes are being introduced in small and cautious ways and the examples of this are seen in the SIDA, Pakistan as well as the Jalswarajya programme of Maharashtra, India. This is also seen in Nepal, Sri Lanka and Bangladesh where one does see sociologists and other social scientists being employed in the water sector now. In some ways it does open up spaces for women to be employed in the sector though in the current scenario they are more likely to be social scientists than civil or water engineers.

Below we present two tables, one from Pakistan and the other from Maharashtra, India, which is indicative of the changing scenario in the sector.

Table 2: No of employees, SIDA - Secretariat 2008-09

Type	No of female employees	No of male employees	Total no of employees
Technical Type 1-2 including NTE	01	28	29
Administrative and service staff	05 (all Social Organizers)	83	88
Service Staff	01	23	24
Total	07	134	141 (Women are 4.9% of total employees, based in secretariat)

Source: SIDA Office

Table 3: No of employees, SIDA Secretariat November 2010			
Type	No of female employees	No of male employees	Total no of employees
Technical – I	2	12	14
Technical - 2	0	7	7
Non Technical Experts	0	36	36
Administrative	0	2	2
Service Staff	1	70	71
Total	3	127	130 Now women are 2.3% of total employees, based in secretariat

Source: SIDA Office

The above tables for Pakistan show a very small number of women employed in the Irrigation department in 2008-09 mainly as NTEs(social mobilisers). Women's presence further decreased in 2010, as SIDA funding and project implementation arrangements changed.

In Maharashtra in India, however, we see a hesitant change in this regard. A whole new set-up is in place, where social scientists are brought in but all of them are on contractual or temporary posts. The technical persons are mainly deputed from the different water departments. The table below indicates the change in the profile of the water department, but this is only a temporary set-up and after a seven-year experience, the state government is thinking of dismantling the entire structure of Jalswarajya, retaining therefore only their technical and administrative staff.

Table 4: Women's Employment in the Sector Reform Process in Drinking Water in Maharashtra, India			
Status of Employment	Details	Technical & Non Technical Experts	Administration & Accounts Professionals
Permanent Employees	No. of total posts	208	208
	No. of female employees	7	21
	Percentage of female employees	3.37	10.10
Contractual Employees	No. of total posts	182	26
	No. of female employees	22	3
	Percentafe of female employees	12.09	11.54

(Data for 26 districts of the state where the programme is currently implemented)

Section V: The Women We Spoke To

From across South Asia about one hundred WWPs working in different set-ups were interviewed in detail. The table below gives a quick profile of these women. These women were selected on the basis of their hierarchy, nature of work and in the Indian context, on the basis of their caste. Each of the country reports will provide the details in terms of the diversities captured in the study.

Table 5: Typology of WWPs Interviewed, South Asia

Country	Technical	Administrative	Non Technical experts	Academicians	Total
India(Maharashtra)	18	10	7	0	35
India(Andhra pradesh)	13	8	2	0	23
Bangladesh	11	14	4	3	32
Nepal	NA	NA	NA	NA	7
Sri Lanka	NA	NA	NA	NA	25
Pakistan	4	6	5	NA	15
Total					137

Table 6: Department-wise Number of WWPs Interviewed, South Asia

Country	No. of WWP	Department
India (Maharashtra)	11	MJP
	15	Irrigation
	9	Jalswarajya
India (Andhra Pradesh)	10	Irrigation & CAD Department
	2	CDO
	1	APILIP
	2	APSIDC
	4	GWD
	4	HMWSSB
Bangladesh	10	BWDB
	6	IWM
	3	CEGIS
	3	WARPO
	3	LGED
	3	DPHE
	1	BCAS
	3	Others (Academician, Research org.)
Nepal	7	Government, NGO, Academic
Sri Lanka	25	Government departments, academicians, private sector and NGOs
Pakistan	7	SIDA
	5	WASA
	3	WAPDA-WW
Total	122	

Age and Education Profiles

Table 7: Department-wise Number of WWPs Interviewed, South Asia

Age	India (Maharashtra)	India (Andhra Pradesh)	Bangladesh	Pakistan	Total
20-25	0	3	0	0	3
26-35	16	6	21	3	46
36-45	9	5	9	7	30
46 and above	10	9	2	5	26
Total	35	23	32	15	105

Table 8: Department-wise Number of WWPs Interviewed, South Asia

Education	India (Maharashtra)	India (Andhra Pradesh)	Bangladesh	Total
SSC	0	0	2	2
HSC	0	2	0	2
Engineering Diploma	4	0	0	4
Engineering/Technical Graduation	13	9	13	35
Engineering/Technical Post-Graduation	2	2	0	4
Pure Science Diploma	0	1	0	1
Pure Science Graduation	0	0	0	0
Pure Science Post-Graduation	1	1	11	13
Social Science Graduation	7	6	1	14
Social Science Post-Graduation	8	2	3	13
PhD	0	0	2	2
Total	35	23	32	90

After speaking to more than one hundred WWPs in the region and conducting several group discussions with a diverse set of people we feel that the study does point to two major constraints that determine women's low presence in the water sector as professionals:

- (i) Constraints that come from the type of work women do and are expected to do.
- (ii) The related but distinct category of content and structure of engineering science itself.

The two constraints are intertwined and cannot be separated from the other, but here we present some of the findings in two separate sections – one, which deals with the socio-cultural issues that determine women's presence or absence in the bureaucratic organisations and the second, which speaks of their absence as a result of the nature of the sector itself.

While saying so we would like to make it clear that neither of these categories are distinctly separate from each other and that each of these categories also have the interplay of other layers of class, caste, religion, education, age and hierarchy of position etc. determining presence or absence.

Section VI: Culture of the Water Sector

The culture of a sector can be defined in several ways that relate to the form the organisation takes, the content of work and mode of governance, work relations and task allocations, to name a few. In this section, we present findings that can be sifted out from the general organisational issues, although, as we have discussed earlier, the separation is fine.

Making Educational/Career Choices

Looking at both our secondary and primary data, we see that there are very few women in the sector and fewer still in the higher positions. One of the major reasons cited by women for the low numbers in the sector is that very few women opt for a career in civil or water engineering and secondly, the water sector does not look beyond recruitment of engineers.

A deputy engineer puts this very succinctly, 'teaching, health and education are considered as the most suitable options for women. Teaching because you are teaching values - children are moulded and that work is seen as women's work. There is no male interference there'.

Another woman who finally opted for an M.Sc in hydrology says, 'I aspired to do Civil engineering, wanted to join but was told that Civil engineering is a course suitable for boys and would require site works which a girl can't do'.

An assistant engineer from BWDB Bangladesh says, 'Nursing and teaching are respected as women's profession, but WATER is something traditionally different; it is technocratic, and discourages women'.

Other views show a determination: 'I opted for the job in Engineering because I felt proud that I was an Engineer', Sectional Engineer, WRD, Maharashtra. 'I accepted Irrigation because it is a public sector and it creates national assets. I knew I was going to work in a good department'.

Most of them said that they opted for civil engineering as a last choice. Most of them also considered settling down in either teaching jobs or some part time arrangements, which would not involve too much mobility.

Secondary data for Nepal as of 8 December, 2003, shows that there are 4524 registered engineers in Nepal Engineering Council, out of which women engineers are 195 (4.56 percent).

Enrolment of female students in Civil engineering courses is very low as compared to male students in Nepal. There is a strong preference for architecture as a course. Interviews with students indicate that among the engineering courses, architecture is considered the most feminine. It has more desk work than fieldwork which suits women's biological responsibility to be a mother and take care of children.

Chart 4 Students Enrolment in BE Civil, Western Engineering College, Nepal

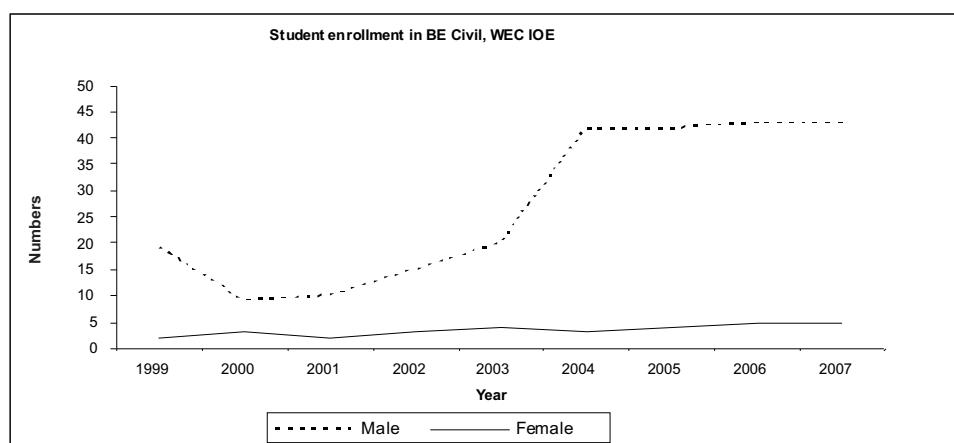


Table 9: Students Enrolment in Bangladesh University of Engineering and Technology (BUET) From 1991 to 2001

Undergraduate			
Session	Male	Female	Total
1991-92	524	83	607
1992-93	528	77	605
1993-94	546	59	605
1994-95	559	60	619
1995-96	608	68	676
1996-97	610	121	731
1997-98	650	112	762
1998-99	637	111	748
1999-00	614	120	734
2000-01	637	168	805
2001-02	657	162	819
2002-03	678	136	814
Postgraduate			
Session	Male	Female	Total
1993-95	502	64	566
2001-02	593	54	647

Table 10 Admissions for Engineering Course by University, Sri Lanka

	Peradeniya			Moratuwa			Ruhuna			Total		
	Total No.	Female No.	Female %	Total No.	Female No.	Female %	Total No.	Female No.	Female %	Total No.	Female No.	Female %
2001/2002	320	52	16.25	562	105	18.68	107	23	21.49	989	180	18.20
2002/2003	315	67	21.26	548	69	16.24	104	15	14.42	967	151	15.61
2003/2003A	329	59	17.93	535	102	18.37	116	23	19.82	1000	184	18.40
2003/2004	320	58	16.56	554	82	14.88	96	23	23.95	975	163	16.72
2004/2005	348	53	15.20	647	127	19.60	94	21	22.30	1089	201	18.45
2005/2006	364	71	19.50	801	177	22.10	205	32	15.60	1370	280	20.4

Source: Statistical Abstract 2006, Dept. of Census and Statistics

A similar pattern can be seen for both Sri Lanka and Bangladesh in the educational institutions. Bangladesh University of Engineering Technology shows only a marginal increase over the years in girls' enrolment for the undergraduate engineering courses. For the postgraduate course, it shows a downward trend. In Sri Lanka too a similar picture is seen in all the prime universities. In case of Sindh, engineering university data show low numbers of women pursuing water and civil engineering. Women are mainly concentrated in fields like computer and software engineering. The gender gap in enrollment and declining number of women in civil engineering is alarming.

Nature of Work Women Engage in

Of the hundred odd women interviewed across South Asia, a majority of them, especially those from the engineering field, are involved in deskwork of varying nature. They find this very unchallenging but agree that it is a choice that they have made for several reasons beyond their control. Our data shows that most of the technical women are either working as sectional engineers or assistant engineers in different departments. Almost all of them felt that their skills were highly underutilized due to the unchallenging nature of their jobs. Most of them are stuck in administrative work and feel that their knowledge and understanding is not put to use here. The important question is why are women into these types of tasks?

Site Work and Financial Transactions Not Your Cup of Tea?

In making choices of the kind/type of work they do once in the department, women cited domestic responsibilities as the major reason for not opting for site work. But this was not always true and some women early in their careers were seeking site-related experience, but were deliberately kept away from it. This convenient labeling of women never wanting site work was used to keep women away from a rich learning experience and also away from the corrupt politics of the organisation/sector. A Bangladeshi professional says 'mostly women are working in less important places, like drafting letter, and other communications, dealing with administrative problem etc. My case is different, as I have already proved my capability so no one bothers me now. I had to fight the culture of the organisation which only made women work at the office, but tell me what design work is complete without implementation at site?'

Images, Symbols and Metaphors

Any description of a good water sector officer started with a 'he'. Most thought that technical competence was very important for success in the sector as was the ability to think rationally and take instant decisions. Mostly men were seen to possess these qualities, although women too were confident of their own abilities in some instances.

One of the very capable senior officers in Maharashtra says, 'Women face problem in this sector because we lack somewhere in knowledge and, daring compared to men. We should be tough to survive in this.' Another one added, 'But women lack the capacity to take instant practical decisions on site. Because they have not received that kind of exposure they are always confined to the desk'.

A sectional engineer from irrigation department says, 'an attendant in an adjacent office always thought I was a clerk in the Irrigation office. She was shocked when she got to know that I was an engineer' - a telling comment on how can women be engineers.

Many of the women described their relationships with their male seniors as fatherly, brotherly and one senior engineer says, 'My boss once introduced us in one public gathering as "these are my daughters". This created a sense of attachment towards office, and it motivated me to do my best and live upto his expectations', which becomes a very patronising relationship. Another officer said that survival for women in this sector is tough because one has to 'possess the masculine and feminine qualities'.

In Pakistan, the scenario is different and all of the women described the water sector officer as male, engineer, corrupt, dominant, having support of influential/political people, field-based professional.

However, recent changes in the sector undoubtedly have brought out other voices as well. They describe the ideal officer as not one with technical competence alone but also one who has ability to communicate with people and establish a rapport with communities. These are voices largely of social scientists in the sector but also increasingly of sensitive women engineers.

Men's Collectives and Women's Collectives

Usually most crucial decisions are taken after office hours and this was voiced very strongly by the Assistant engineers in AP. They add saying that women find no time to be part of these informal collectives. They are too preoccupied on both the fronts and find it very uncomfortable to interact with men in these informal decision making spaces.

One of them says, 'I think my work was not noticed because I am not able to be part of the informal meetings with the boss'.

Women too try to form their collectives, but these are more in the nature of sharing platforms - sharing of injustice done to them in terms of promotion, appreciation of work etc. They also meet to discuss their personal lives and relieve themselves of the stress. In offices where women are in greater numbers these collectives get formed otherwise it is most often a solitary struggle.

In some places like in AP, women said that there were efforts to register a formal organisation, but it never really took off. All of them felt that formal spaces would be more useful and that they should be initiated.

One of the deputy engineers of the MJP in Maharashtra says, 'Women were shifted to a project office because there was little work there. I demanded a transfer to a sub-division office, as I was interested in doing some actual engineering work, but our boss was of the opinion that we should be transferred to less challenging project (tap drinking water supply) office as he would not be able to take the risks associated with sending women to the remote villages'.

She regrets today that she did not fight her way through and today at the age of almost 50 she continues to be a Deputy Engineer, and works as Personal Assistant (PA) to an Executive Engineer.

Several of the young professionals spoke of their struggle to get jobs of their liking and shared how they were continuously under pressure to prove their mettle without falling prey to their various tactics. A Deputy Executive Engineer at the CADA AP, says, 'There are more women who joined as Executive engineers but they don't have any work in the department right now. Therefore, they are assigned the tasks like drafting letters, correspondence that has no relation with their education so most of the new employees are very disappointed with the job'.

In Bangladesh, male bosses thought it to be a liability to recruit women for field work, but women have fought nonetheless. A gender specialist in the BWDB challenged the decision of the senior to not send her to the field.

Apart from site work, which is said to require hard technical knowledge and competency and physical strength, women were also kept away from any financial dealings. Women narrated how different strategies were sought to keep away women from giving financial sanctions to projects. Men used their informal channels and collectives to decide on the share of the money.

Senior Administrator, Maharashtra WRD says, 'It is difficult for a person who does not take bribe to survive in the system as he/she is continuously pressurised by others and as a result, work suffers. Women are recruited on Establishment department's desks because they are aware that they are usually not corrupt in nature. They look at this as one person less from the chain of corruption. Task allocations are thus based on these criteria, not on the work they do or are capable of doing. This work culture has to change'.

Renegotiating and Redefining Work or Fighting the System

Most of the professionals are caught in these situations and do not know if they should fight the system or come to terms through a redefinition of their work and find meaning in it. Like an MJP engineer says, 'Financial tasks are not given to women but neither are we interested in them'. Or 'we are also happy with desk work'. She continues, 'I have learned to find meaning in things beyond the water sector like teaching poor children which is more philanthropic than sitting at the desk'.

But there are others who fight it out, like for example a Bangladeshi professional says, 'I do not want to bind myself in designing; rather I want to build myself as an all-rounder. Who knows I may have to manage the entire organisation in future?' A similar feeling is voiced by many professionals in India as well. One of them presently working as an Executive Engineer is clear that in 10 years' time she will be heading the organisation.

It is indeed difficult to interpret which of the two options can be considered as women's agency?

Difference in Thinking and Understanding of Water Issues

Understanding this was crucial from the point of view of getting insights into what the belief systems of men and women are and how they shape their understanding of issues and subsequent actions. We were not able to talk to men to assess the difference in thinking, so this set of data is largely based on women's self-perceptions about the differences.

Women work with a social understanding. They think about people and have a micro perspective which men are not conditioned to have. A sectional engineer in the Irrigation department in Maharashtra says, 'Men think more about themselves. They give more importance to proving their capacities. But women think about others - at the household level women think about relatives, which men don't. At the office women think about other colleagues. Men don't think like that. If somebody comes late, woman thinks about why it would have happened. But a man says that don't give excuses. Superiority of men is also legitimised by the society.'

If a man is doing something wrong then nobody tells him so. But similarly if a woman does there are so many people who point it out. So women are always under pressure, if they do anything wrong'.

A senior administrative officer in CADA AP says, 'Yes, there is difference in the way men and women think. Women are more committed to their work, they are seen on their seats working right from morning to evening and deliver better outputs while men feel insecure when women outperform.'

In an FGD in Pakistan, women said, 'There are differences in the way men and women think, because they experience different realities based on different types of attitudes they face in society. Women's interests are usually discounted in their absence in decision making. Apart from this women bring different set of values and perspectives to work'.

The understanding around water issues was largely dominated by the current departmental understanding. However, women are far more sensitive to micro planning and gender issues than what one would hear otherwise. In an FGD in the WRD headquarters in Maharashtra, a group of women engineers had the following to say, 'Water scarcity is an important issue and we cannot think about this in fragments. All the concerned departments like watershed, irrigation etc should have a think tank at the "mantralaya" (state) level'.

A Deputy Engineer at the same place says, 'I think government should initiate in building rapport with the people. I think the WUA would be instrumental in doing so. The benefits of WUA should reach people...'

Addressing the concerns of women at the grassroots level was also articulated by the women professionals as an important but missed out area in the water sector.

Making a Difference: Women as Active Agents in the Organisation

In the changing face of the sector we do see some women taking very bold steps and making a difference to the sector and specifically to the cause of women. Women professionals said that some of their qualities have proved to be assets in the water sector as well as within the organisations. In an FGD in Nepal, women said that for conflict resolutions women were better. An example from a WUA was cited where a woman sociologist made a difference. There her role as a social scientist and being a woman proved to be an attribute, which she used effectively. Another insight from Nepal shows that gender mainstreaming becomes more feasible if a women engineer is involved in designing, it helps to change the discourse on women as uneducated and weak.

It represents women as an expert, and knowledgeable. Not only this, women colleagues can help the fellow male colleagues to internalise the gender issues better with her experiences.

A sectional engineer from Maharashtra says, 'In fact there are double advantages being a woman professional, because being a woman, villagers take extra care and they also respect out of admiration'.

In the Sri Lankan experience women engineers from the Irrigation Department who worked in the field stated that they had the ability to communicate better with both men and women farmers and they were accepted in the community and at field level. For example in walk-through surveys, women responded better to women engineers than to men as they could discuss their problems with them. In projects that demand women's participation in large numbers such as the community water projects of the Water Supply and Drainage Board the community actually preferred to have women engineers and technical assistants deal with them.

A consultant with the Irrigation and CAD, AP, said, 'Being a woman, I can influence other women to come in the sector e.g., a women who was project staff cum teacher in the Musi Project, was the only village woman in the entire group, I used to take her in programmes like exposure visits or project committees. Since I am there, she feels comfortable to participate. A women officer's presence effects the participation of women in the field'.

SectionVII:Gender and Organisation Related Issues

In our study, we have specifically focused on the bureaucratic organisation, which emanates its own culture. In this section, we would look at a range of organisational issues from physical infrastructure and facilities to rules, hierarchy, work atmosphere and relations.

Gendered Spaces and Infrastructure

In all of the countries what comes out clearly is that basic facilities like clean separate toilets are missing. Most of these offices continue to be housed in old buildings, which were constructed at a time when it was not conceived that women could be employed in the water sector.

There are of course significant variations across countries and states in India. In some of the newly set up offices in the capital city of AP in India we see that these basic amenities are provided for and maintained as well. However, some older offices in AP too face similar problems and in the words of Deputy Director Hydrology department, 'There are toilets but the maintenance is too bad. There is no water. Most of such issues which are very basic necessities are not talked or raised because of shyness'.

In the Sindh region of Pakistan, at most offices women said that there are no separate toilets for women and mostly they use common toilets which are very unclean and unhygienic. Interestingly the location of the toilets in the office is also a hindrance to use them.

In Maharashtra, India, of the thirty-five women interviewed, only four of them mentioned a separate toilet facility in their own office. Many others had to work out some arrangements with other offices or with staff who lived in the staff quarters in the campus.

The other major lack of facilities came in the form of transport and accommodation during fieldwork.

In Pakistan, all of the women employees mentioned a significant lack of facilities for fieldwork for women like transportation, lodging and boarding facilities. Evidence shows that women themselves have to pay for fuel and transportation. Although this is reimbursed later, it is not a part of ToR and therefore involves a struggle each time women are out on fieldwork. In India and Bangladesh too the overall availability of transport is not conducive for women's travel. This is strongly stated by an Assistant Executive Engineers in the Irrigation and CAD, AP where she says at her level too vehicle facility is not provided and then it becomes tiring and this is one of the reasons that women avoid field visits.

Another striking problem that most women face in the field is the lack of security and this was voiced by women from all the countries in SA, but more so in Pakistan and Bangladesh.

Evidences from all these countries bring about how space and infrastructure facilities too are gendered and how raising a demand for these facilities too is seen as a 'non issue'.

Maternity Leave and Other Benefits

Women are often seen as a liability and more so women who become pregnant. In different countries, the experience of rules for maternity and childcare varied. None of the contractual employees had the facilities of maternity benefits, which are due to other permanent government employees. In most of the countries, the maternity leave is not more than three months and women are demanding for at least six months of leave. In India the central government rule does grant a six month paid leave, but neither of the two states studied have accepted that rule.

In the SIDA office in Pakistan, women are not entitled for maternity leave with pay and it is a herculean task to get approval for leave. In this office women are not considered as professionals if they ask leave for maternity/reproductive health problems or deny working late hours.

In Nepal, the leave granted is only forty-five days and women think it is very difficult to get back to work so soon. As per the government rules here, women staff can have leave for forty-five days on paid basis for two pregnancies. In addition women can have unpaid leave for an extended period. Interestingly, women feel quite pressurized to use this extended unpaid leave. In fact women in Nepal say that they prefer not to go for extended period of unpaid leave when they are located in a better place job-wise such as the ministry and department in Katmandu, the capital. An agriculture officer, who looks after small irrigation projects of the government, said, 'I was scared to take extended leave, because many officers would have liked to be based in my position which became vacant when I went on leave. If I rejoin later than forty-five days then I would have been posted in some remote districts'. So she resumed work after forty-five days of her leave, leaving her child at home and tried for alternate feeding arrangements besides regular breast-feeding.

Most offices do not have a childcare facility. There is no facility for bringing infants or for breast-feeding them in the office premises. Such a condition not only affects the mother's health but also has an adverse effect on the child. In Bangladesh, of the thirty-two women interviewed only seven said that their office has a day care. In the Irrigation and CAD, AP, India, almost all women talked about the need for childcare facility in the office. Not only this, some of the women came forward and filed a requisition to the ENC (Engineer-in-Chief) Administration, for providing a space in the office premises for a childcare facility. The request was ignored by saying that there is no vacant room for childcare.

Maternity is not just the act of delivering a baby but involves much more than that. Women would need support in every way during that period.

An irrigation engineer in Maharashtra located at the state office says, 'pregnant women are often seen as problems - but the nine months given by the women should be seen as an investment for the future'.

Rules and policies within an organisation clearly reflect the gender dichotomies, which separate the productive sphere from the reproductive one. Organisations are seen as gender neutral and hence problems of pregnancy and child care should be handled at the domestic level and not brought out into the organisational or public domain.

Sexual Harassment at Work Place and Related Supports

Most of the women were not too forthcoming about discussing sexual harassment at the work place. However, in Pakistan women were extremely articulate and narrated their experiences regarding men's behaviour towards them. Majority of women here reported cases of harassment, and some of them left their jobs due to the same reasons: 'Yes we are asked by male bosses to dress in a particular way. In fact many appointments too are done looking at women's faces rather than their work expertise ...' 'Often men ask us to come to their cabins when some of their male friends come to visit them'. 'We are also asked to perform their personal tasks not related to office jobs. For example writing/Preparing assignments of their children or writing personal papers/articles/book chapters for them'.

In Maharashtra a woman employee says, 'During the Gadgebaba Swatchata Abhiyan (Total Sanitation Programme) one woman sanitation expert had made a complaint to us about the Chief Executive Officer (CEO) of a district who would often call her to his cabin after the office hours. She was on a contractual employment so was scared to give a written complaint... We sympathized with her, and suggested that she should take a drop until this CEO is in-charge, and when he is transferred we will recruit you back. But then she got same work in different district'.

A community development expert in Maharashtra says, 'a lot of harassment is done in subtle ways - like transferring a woman to a difficult field area, allocating her tedious tasks not related to her brief'.

In the HMWSSB, Andhra Pradesh, a retired officer shared a case of sexual harassment in the office premises targeting a woman attendant. Women's Welfare Association protested and took this issue to the Managing Director. The accused was threatened with suspension from his job.

This case was discussed with other employees informally and secretly to spread the message that stern action will be taken if such an act is repeated again.

Interestingly very few women shared their personal experience and said that they had heard that there are problems with other women, but they themselves have never actually faced this. A woman from Bangladesh says, 'This has never happened to me. I think it all depends on a woman and how she portrays (behaves) herself'.

All of them agree that it is best not to cross their limits either in dressing, having social relations at work or anything not acceptable to the society. If they want to dress the way they want, they fear that men would pass comments on them.

Many of the offices in India do have a grievance redressal cell or an anti-sexual harassment cell, but none of them said that it was active. In fact, no cases get reported there so there is no activity. None of the other countries reported that such a cell is mandatory.

Normative Woman

Most women, whether engineers or otherwise, enter the so called gender neutral organisations with the normative behaviour expected of them. In Pakistan, women said that they couldn't shout or laugh loudly in offices, they should be good looking, smart and well dressed and caring as well. Politeness is valued. 'I was shocked when during the interview one of the members of the interview committee asked me not to apply makeup or dress up the way he thinks unsuitable'. In the Irrigation and CAD, and GWD, AP too, most of the WWP accepted that women should wear decent and appropriate clothes: Salwar kurta or saree with half or full sleeves as wearing sleeveless might warrant unnecessary attention and gossip.

If a woman is dynamic she is seen as very egoistic and stretching herself a bit too far. An Assistant Engineer from BWDB, Bangladesh is rightfully agitated about this and says, 'Always women are thought typical. This is not the fact! This is time to re-think.'

Women as Preferred Subordinates

In most of our FGDs and individual interviews across the region women spoke of themselves and other women as being very sincere and hard working. They also reiterated that they were non-corrupt and did not indulge in power politics within the organisations.

In Nepal men said that women brought decency to the office space - in other words, legitimacy to the otherwise corrupt place.

Many of the male bosses and colleagues we spoke to, also reiterate this point of sincerity and hard work. Women do not leave their desks until office hours are over, as against men who continuously need to move around, go for a cup of tea or a smoke.

Male bosses in fact were very proud of their female subordinates and seemed to see them as an asset. A DFT team leader, Maharashtra said, 'women do their tasks with dedication, we specially like to give them tasks that have to be completed in a particular time and need rigorous follow up.' As a woman from Pakistan rightly commented, 'Women's issues are not their priority; they want to see women as subordinate to men'.

Most women recognise these qualities in themselves and also the fact that they get to do the most tedious of the tasks while the men fritter away their time.

Women said they hardly have the time to engage in the organisational politics and neither the initiative or the values system to involve themselves in corruption. So more than lauding these as inherent feminine qualities, one must see them in the context of women's over burdened life which does not permit them to engage in these activities and the societal expectations of them. But nonetheless these are qualities that need to be nurtured as part of a progressive value system.

Women as Leaders

Most men find it difficult to accept women in leadership roles. They are always more comfortable in brotherly, fatherly roles to women (of course they do not miss any opportunity to make passes at them as well in these roles too!).

Deputy Engineer, Maharashtra MJP: 'Men are not ready to accept women as their boss. Age is another constraint. A junior who was senior as a worker found it difficult to accept me as a boss. Then it becomes difficult to take decision.'

Often men oppose women's seniority as that curtails their chances of sharing in the corruption that takes place.

Women had a mixed response to women bosses. Some were sensitive to women's timings and allowed for more flexibility in work hours, but some were very rigid and refused to budge on the rules. In fact, women said that sometimes male bosses were more considerate in this regard.

Gender Neutrality with Seniority

A typical finding across the countries was how seniority and moving up in the hierarchy affects women professionals. Many of these engineers have struggled their way to reach the posts they have but when we spoke to them, they have this to say: Senior Executive Engineer CADA, AP - 'I have good relations both with my boss and my juniors. One should focus on work and the outputs but not the gender. I don't discriminate on the basis of gender. There should be positive relations among each one of us to deliver good outputs.' A similar experience can be shared from Maharashtra as well where a woman who started out as an assistant engineer is now a deputy engineer, but feels that gender should not come into the organisation.

A different example was seen of an Executive Engineer leading an entire division in Maharashtra; of how an individual actor can change the culture of the organisation/ sector. With her innovative ideas of disciplining, she has made a difference to work culture and has made many of the women feel secure. Examples are cited by some of the other women members who worked under her which talk of her sensitivity to women and their roles and responsibilities. Most men, who were not too happy to see a young woman boss, were seen to give her the most respect and support in her work. Usually women in power tend to become gender neutral and start advising women to become tough, leave their private spheres at home etc., but she seems to be different and it is this difference that is important. There is no struggle for being equal to men or being like men, but just being a woman and yet succeeding by your own definitions.

Section VIII: Changing Gender Relations at Work and Home

As working women and as water professionals, women have had to undergo several changes in their lifestyles. Many of them are over stressed because of several responsibilities on different fronts and lose out on any meaningful relations with both their families and work colleagues. Different women water professionals shared the following:

'One of them says, 'After doing all the housework I am not given due status in the house. I am always taken for granted and decisions are always taken excluding me. My role is that of executing the decisions'.

'Women cannot fully dedicate to their work also because of the patriarchal system. Home becomes their first priority. They look at the work as an employment and not as a social concern'.

'As a woman I had to struggle to prove my mettle. Whereas my male colleagues were encouraged to take on new responsibilities, they got more exposure, and so they matured faster. They easily get

sites, but for me I got it late. There is a protective attitude towards women which is not always positive'. 'At office level, I continuously have had to prove myself. The seniors always seek opportunities to find faults. A smallest of the mistake is not spared.'

Woman Engineers are expected to be perfect but the same is not expected of male Engineers who are allowed to make mistakes'.

At work, women are often ridiculed for getting all the privileges in terms of leave, desk work etc, but women think differently and say that builds tremendous pressures on them. They need to prove their mettle and therefore demand exposure to a wide range of activities, but never have that opportunity. So both at home and at work, women are seen to escape work.

Caste and Other Forms of Social Discrimination

Patriarchy coexists with the other forms of social discrimination. In the Indian context the interplay between caste, class and patriarchy needs to be examined far more carefully than it is done here. One of the senior administrator's says, 'I am not a dominant kind of a senior, may be because of my caste (SC), I have always taken a submissive role. So even as a senior I am not bossy'.

A young civil engineer belonging to the scheduled caste in the head office of the Mantralaya says, 'I never faced caste related discrimination. People may feel or express their jealousy but it is among themselves, I do not know and have never experienced it on the face because people are aware that it could be termed as harassment'.

Section IX: Way Forward and Recommendations for Government Policies

Before we begin on this section, we need to reflect on our findings, which show that two sets of issues determine women's presence in the sector. The first relates to the educational choices women make and the second relates to the major constraints that women face after entering the sector where the struggle between the public and the private sphere becomes significant. Challenging the notion that hard sciences are for men and soft disciplines for women therefore becomes an important ideological struggle. At another level, a change in the understanding of women's work too becomes important in changing our existing belief systems that determine women's absence in this sector. Reconceptualising science, here the water sector and women's work, would definitely go a long way in making it more conducive to gender equity. Moving with this understanding, the study then proposes the following recommendations.

Need for a Gender Policy in the Water Sector

Almost all the women we interviewed said that there is no specific gender policy for the organisation and it would be important to have one. This should outline specific rules regarding organisational facilities, allocation of tasks etc. However, in the case of Sindh, SIDA is the only organisation that has developed its gender strategy but little is done to ensure its implementation at all levels

Changing staff composition may have greater impact as women's interests are discounted in the absence of women at all levels, mostly at the policy and decision making level. Women will also bring in a different set of perspectives than men on many issues.

It therefore becomes important to bring in a policy of reservation in government recruitment. Maharashtra has introduced such a 30% reservation on all new recruitments and this will change the composition of the sector in the coming years.

A view from Sri Lanka stressed the need for including non-engineering experts in the water sector. The integration of sociologists, social workers, graduates in environment science and professionals from other disciplines is very important to bring in a socio-technical perspective. The graduates of environmental science (with 'water resources' as an elective paper) complained that they did not find a job in the water sector. They complained that their credibility of working in the water sector is considered less as compared to engineers.

Basic Amenities and Benefits

All the countries almost universally asked for improvement in sanitation facilities at the work place. Apart from this, they asked for increase in the duration of maternity leave up to 6 months and introduction of a childcare centre at the work place. Women engineers in AP narrated an experience of following up on these demands and yet not succeeding.

Women also spoke of some flexibility in work hours especially those with younger children as that becomes a major constraining factor for women to continue performing effectively. Women who have to take a break after marriage and children need some incentives in terms of fellowships to get back into their careers. Some of these benefits have been introduced by some state governments like Maharashtra in India

Training and Capacity Building

The Sri Lankan study prominently highlights the need for bringing in multi disciplinarity in the water profession. Training on bringing in a socio-technical perspective of water management, is thus seen as important. Apart from that, several women said that they need regular refresher courses on engineering subjects. A lot of their knowledge does not get utilised and hence they feel stagnated. Many of them said that they underwent no training after the induction training.

A few of them who had attended training in communication skills, building rapport with communities etc., found it very useful and were keen that more such courses take place. Women in Pakistan underscored the need for gender sensitivity sessions for the male staff and said that no change would be possible without that. In Bangladesh, all the WWP's emphatically stated the need for capacity building as a major requirement, for themselves as well as to sensitise the men in the office.

Networks and Regular Meetings of these Networks

In most countries women felt the need for regular meetings through networks that can liaison with other women's groups as well. The interviews clearly showed that women are looking for an articulation of their concerns and want visibility to their concerns.

In conclusion, we see that the challenge is formidable but requiring attention. The challenge for us then is the creation of new forms of organisation, education and practice through which scientific knowledge and technique will become more representative and inclusive.

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SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN BANGLADESH

Syeda Asifa Ashrafi

List of Abbreviations

- BHWDB Bangladesh Haor and Wetlands Development Board
- BPDB Bangladesh Power Development Board
- BUET Bangladesh University of Engineering and Technology
- BWDB Bangladesh Water Development Board
- CEGIS Centre for Environmental and Geographic Information Services
- DPHE Department of Public Health & Engineering
- EPWAPDA East Pakistan Water and Power Development Authority
- FCDI Flood Control, Drainage and Irrigation GoB Government of Bangladesh
- GPWM Guidelines for Participatory Water Management
- IPSWAM Integrated Planning for Sustainable Water Management
- IWFM Institute of Water and Flood Management
- IWM Institute of Water Modelling
- IWRM Integrated Water Resources Management
- JRC Joint River Commission
- LGED Local Government and Engineering Department
- MOLGRD Ministry of Local Government and Rural Development
- MOWR Ministry of Water Resources
- NWMP National Water Management Plan
- NWP National Water Policy
- RRI River Research Institute
- SDO Social Development Officer
- SSWRDP Small Scale Water Resources Development Project
- UN United Nations
- WM Water Management
- WMCA Water Management Cooperative Association
- WARPO Water Resources Planning Organisation
- WWP Women Water Professionals

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Section I: Introduction

There has been growing concern about the need to integrate gender perspectives into development programmes since the late 1970s. But the issue of gender and water has not gathered momentum yet. Women are considered as mere beneficiaries for water projects; their involvement is often restricted to becoming care takers for hand pumps, health educators, users of waste water for kitchen and garden. This concern has its roots in both practical and ethical considerations. As community participation increased, emphasized by development funders, some of the inequities and disadvantages in gender and water management minimized with the acceleration of real community participation in development process.

In the water sector, all government departments and other organisations have already initiated the tasks working through and with the National Water Policy (NWP, 1999), Guidelines for Participatory Water Management (GPWM, 2000) and National Water Management Plan (NWMP, 2004). These offer basic and broad guidelines for addressing gender equity issues and for bringing about the changes needed by providing support for specific approaches. The NWP highlights the multiple uses of water and associated problems including women's central role in providing, managing and safeguarding water resources. The GPWM 2000 mostly speak about women's participation in water management, while NWMP 2004 further emphasizes women's participation in water management (WM) through creating an enabling environment for planning, capacity development on water management and operation of local water supply and sanitation schemes, increased involvement in financial matters of local level water schemes. But these are all about stakeholders' participation rather the professional groups'.

The issue of water management and women has thus far been exclusively focused on women's responsibility for the provision and management of water at the household level (Ashrafi, 2007). Their presence in managerial and decision making level has received little attention in the past. However, the way gender friendly planning and designing is being designed and implemented is largely dependent upon who is planning, how is it planned and for whom it is going to be implemented.

All the national level policies and plans talk more about the equity at the user level. They mostly cover micro level gender mainstreaming, like participation of poor rural women. No attention has been given to gender consideration at the professionals' level i.e. key positions in water resources decision making and planning. Like other South Asian countries, absence of attention to gender equity at the organisational level is observed in Bangladesh as well. Gender equity at the professionals (who are in key planning and decision making processes) level get less attention as a part of sectoral development. Nevertheless, the causal relationship between gender equity at the professionals' level and water user level should be considered as a prerequisite. In this case understanding the situation of women water professionals as compared to the total workforce, differential capacities, aspiration within organisation and sector itself is crucial.

Compared to other sectors, women are remarkably few in the water sector, and they are working in different positions with different capacities. Though Integrated Water Resources Management (IWRM) has been introduced in Bangladesh, no potential steps have been taken to enhance women professionals' contribution to this sector. It has remained limited to rural women's participation and that too in a limited way. No such research has been done about women water professional in the water sector before. Thus an ambiguous situation prevails on gender mainstreaming at the meso and macro level planning and management in the water sector.

Therefore, the study looked at the gender gaps at the organisational level, answering questions like what are their numbers, why there are few women in this sector, what their concerns are, what difference does their presence make to the gender mainstreaming agenda, whether reform in policy brings any more visibility to their concerns, whether it provides them any more space than it did in the past and, whether this space lead to fruitful outcomes in terms of gender equity.

Section II: Scope of the Study and Methods

Water resources management in Bangladesh does have a fairly multidisciplinary representation in the decision making process. However, many people across the country currently lack a voice in the decision making over water management. National water policy has setup exhaustive numbers of direction for decentralization of and participation in water decision making, but still it is not fully geared to tackle the emerging pro-gender development challenges.

Transforming policies to plan and further to implementation is still a big challenge for the country. Working in partnership, like water user associations, community based organisations and non-government organisations, is common in Bangladesh while making their roles and responsibilities clear in water management. Civil society groups are strong particularly in their knowledge of and link to national level needs where further enhancement in local level skills and capacities is needed. Such links and knowledge are important in determining the applicability of solutions in local context, which can contribute to local level sustainable water management. Trans-boundary river water management is also a prime area of concern for the country, but due to the nature of cooperation on shared water resources as critical especially from upstream is not functioning practically. Corruption remains one of the least addressed challenges in relation to water resources and services.

National water policy eloquently clarifies the role of different water institutions which leads to a number of social, economic and environmental benefits. It has also emphasized to keep the holistic concerns of the environment in mind without jeopardizing the rights of the future generations. In Bangladesh, overall management of water resources related to irrigation, flood control and drainage comes under the Ministry of Water Resources (MoWR). Under this ministry, there are different institutions/organisations, which are responsible for water resources management. These are as follows:

- Bangladesh Water Development Board (BWDB)
- Water Resources planning Organisation (WARPO)
- River Research Institute (RRI)
- Joint River Commission (JRC)
- Bangladesh Haor and Wetlands Development Board (BHWDB)
- Institute of Water Modeling (IWM)
- Centre for Environmental and Geographic Information Services (CEGIS)

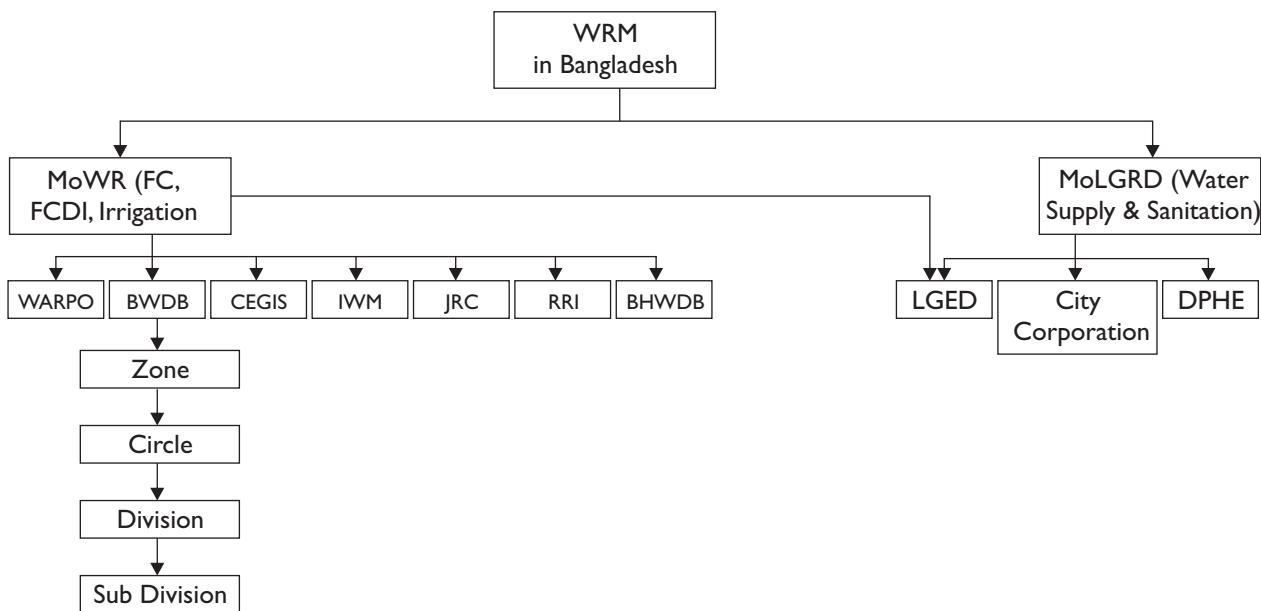
The Secretary is the administrative head of the ministry, and she/he is responsible for overseeing the whole performance of the above mentioned institutions. The MoWR has three departments – administration, development and planning (MoWR, 06). Other than the MoWR's jurisdiction, water supply and sanitation is under the Ministry of Local Government and Rural Development (MoLGRD). The local government department is designated for WatSan. Similarly the water supply and sanitation system is governed by the Department of Public Health Engineering (DPHE) and different city corporations. Different development partners, INGOs, NGOs, research organisations are working in the water sector in Bangladesh. Six different water organisations/institutions have been considered for this study i.e. the Bangladesh Water Development Board (BWDB), the Water Resources Planning Organisation (WARPO), the Institute of Water Modelling (IWM), the Centre for Environmental and Geographic Information Services (CEGIS) and the Department of Public Health Engineering (DPHE). Since most of the other water institutions' work is somehow linked with or related to the Bangladesh Water Development Board, more emphasis has been given to this organisation. Both field and headquarter base analysis has been made during the study. Considering the huge volume of administrative zones and circles, and thereafter divisions, subdivisions accordingly for water management, one circle of Bangladesh water development board was considered as representative of the field.

This circle was considered for several reasons: huge volume of work, different dimensions of BWDB work is present in this circle and also various types of water-related projects are being implemented right now. More than fifty percent of the current population is living in rural areas and struggling with domestic water supply every day - as a case in point, the DPHE has been taken into consideration for drinking water supply system for the agrarian community.

The BWDB is responsible for the overall planning and implementing of the WRD projects in Bangladesh. There are seven zones, and each zone is divided into Circles which are further divided into Divisions and Subdivisions. After the most devastating flood in 1954 and 1955, the East Pakistan Water and Power Development Authority (EPWAPDA) was formed for development, usages and management of water resources as recommended by the Crag Commission, under the leadership of American Secretary of Interior J.A. Crug. In 1972, EPWAPDA was divided into the Bangladesh Water Development Board (BWDB) and the Bangladesh Power Development Board (BPDB). Presently under BWDBAct 2000, the water board is working for all water resources development and management in Bangladesh. It is especially responsible for implementing all WRD projects. In addition it also takes part in micro planning.

According to the BWDBAct 2000, actions and operation policy have been separated. A very strong executive committee of 13 members, chaired by the minister of MoWR, is designated to formulate and implement any institutional mandate and overall work supervision. On the other hand, all the staff members of the BWDB are responsible for all types of project formulation, implementation, monitoring and supervision lead by the director general of the BWDB.

Figure 1 WRM in Bangladesh through different organisations and departments



The Director General is the chief executive of the board next to five Additional Director Generals recruited by the government. The whole of Bangladesh is considered as the working areas of the water development board. For effective and efficient water resources management entire Bangladesh is divided into seven zones. Each of the zones is headed by a Chief Engineer. Every zone is then divided into circles, then into divisions and sub-divisions. An Executive Engineer heads a circle, an assistant engineer a division and sub-divisional engineer is responsible for a sub-division. The existing staff members of the BWDB are around 8,935 (MoWR,06).

The WARPO is a macro level planning organisation for water resources development. Its main task is to provide the master plan for environmental-friendly water resources development, and also to formulate national water policy and plan for scientific use and preservation of water resources. This is located at the centre.

The IWM is a specialized institute for water modelling, computational hydraulics and scientific research, development and capacity building. The CEGIS is a public trust in the water sector. The CEGIS provides support for environmental and social impact assessment of different water resources related projects. Both the CEGIS and IWM have their office at the centre level only.

The DPHE comes under the Ministry of Local Government and Rural Development. It is responsible for water supply and sanitation. It has a Head Quarter office and further the district level offices. Other than the Irrigation Water Management and Flood Control, Drainage and Irrigation (FCDI), the Department of Public Health Engineering is responsible for drinking water supply to the urban and rural community.

The Local Government Engineering Department (LGED) also comes under the Ministry of Local Government and Rural Development. It is responsible for irrigation of 1000 ha of land or less at the local level water management. It has a head quarter in Dhaka then district level and sub-district level implementing authorities.

Definitions and Methods

Broadly, women water professionals are defined as all women working in the water sector at the meso and macro levels across different sub-sectors of water in different capacities in government as well as non-government organisations, as academicians and in the private sector. The study has focused purposively on women working as employees in the government setup both in technical and non-technical capacities at different positions.

In Bangladesh, the study was conducted through an intensive consultative process. The focus was largely on looking at the women water professionals in the government setup. Both secondary and primary data was collected from different departments through visiting organisations, accessing websites, consulting with development planners, talking with individuals, focus group discussion (FGD), case studies etc.

Different secondary data was collected through visiting organisations, verbal and written correspondence to authorities and also some data from websites. Details of the primary data collected are mentioned in a section on profiles of women interviewed. A total of 32 women and 18 men from across the different departments were interviewed in detail and about 4 FGDs were conducted with different groups of water professionals. Apart from this, faculties and students from different technical universities and institutes were consulted for this study purpose to understand preferences of women students and why they make certain kinds of choices.

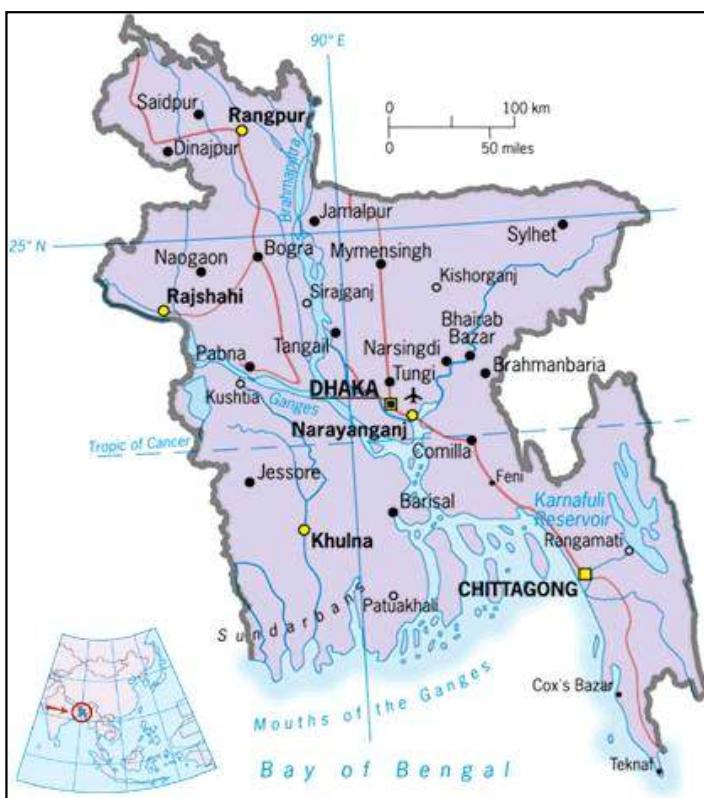
Both men and women belonged to the government departments and came from mixed social and educational backgrounds. They were also selected carefully to represent the various positions in the hierarchy they came from. A large amount of secondary data was collected to get a picture of how many women are there in the water sector and where they stood in the hierarchy of the sector. This data will be used for understanding the broad typologies of women professionals in the water sector in country.

The findings and analysis that follows is based on these diverse sources of data

1. Quick Policy review
2. Detailed in-depth interviews with WWP
3. Individual or groups discussions with men senior officials at policy level

Data collection tools, such as open-ended interview, e-survey, focus group discussion, case collections were used. Both qualitative and quantitative data was collected. Interviews were taken both at the individual and organisational level.

Figure 2 Map of Bangladesh



Limitations of the Study

Time and resources constraints and the lack of data disaggregated by sex at the institutional level were major limitations for the study. Sometimes it is difficult to access information of the government, even though very recently the GoB has adopted the right to information policy. There was no data related to the number of persons in water management in the country. Few organisations selected for the in-depth study did not maintain data systematically, making analysis difficult. The limited time frame of three months did not allow more time to be spent at the institutions sorting through administrative records and statistics. Further, financial resources were also too limited to undertake such an exercise. In the study, which concentrated on the government setup, interviews with professionals in bodies like UN and INGO/donor agencies and higher level policy makers were not possible.

Section III: Typologies

Women water professionals as we have seen in the definition earlier are all the women who work as employees in the water sector in different capacities. In a very broad typology these include the technical as well as the non-technical. A typical exercise in typology would involve a detailed classification of women water professionals working in different sectors such as NGOs, INGOs, Government, the academia and even the private sector. That would be an important and interesting exercise where we could map the extent of women water professionals, nature of their work and the problems they face across these sectors. While doing this mapping, it would also be important to see religion, economic class, education and other social differentials that determine exclusion alongside patriarchy. In an NGO setup or an academic setup, for example, we would find women professionals largely outside the technical domain and more as social experts (gender, community participation etc.) or researchers/teachers. For the present study, we have not been able to do a detailed mapping of this kind across the different sectors and have focussed on the water bureaucracy alone.

Our classification therefore would be applicable to this category. In the government setup, we would typically find the technical and administrative classification as an explanatory one for preparing a typology. However, with the introduction of reforms in the water sector, we see a changing scenario in which a few non-technical and non-administrative professionals, such as environmental scientists, agriculturists, sociologists, and soil scientists are coming into the sector in active roles.

The following broad categories of women water professionals are found working across different organisations.

- 1. Technical:** Engineers (both who are working on site and who do table work like designing, scrutiny, sanctioning etc.), hydrologists, geo-hydrologists
- 2. Non-technical experts/Permanent or Contractual:** with the introduction of the sector reform process, an effort to bring in a multi-disciplinary team is seen. Therefore, there are non-technical social and natural scientists who provide support to water work like soil scientists, sociologists, geologists, agriculture experts, environmentalists, etc. They are part of the mainstream government setup.
- 3. Administrative:** Those who do administrative work (table work) like human resources, accounts, finance office, clerk, steno, typist, store superintendent etc.
- 4. Service/Support Staff:** Employees who are not doing any administrative work but provide different supports and services like draftsman, khalashi (sluice operator), tracers, sweepers, drivers, cleaners, watchmen, labourers, electricians, gardeners, linemen, pump operators, wiremen etc.

It should be mentioned that professionals other than class 1 and 2 like draftsman, tracers etc., who provide technical support in engineering works are also considered as support staff in government departments (e.g. BWDB, WARPO, LGED).

To understand the existing status of the women water professionals across the country the typology will be discussed in different manners. Firstly, a very broad category will be presented to understand the generic overview of the status, where there are two categories i.e. technical and administrative. Technical here includes all experts from the natural sciences including engineers, hydrologists, geologists, agricultural scientists (Category 1, 2) and administrative includes all clerical jobs and other support staff (combining 3 and 4 categories) - as mentioned earlier, the draftsman, estimator etc. are included in this category. The main reason for clubbing this data is heterogeneity of the organisational structure, functions and also the non-availability of segregated data in some institutions.

Table I: Organisation-wise typology of women water professionals in Bangladesh

Organisation/Inst.	Technical	Non-Technical Experts	Admin (HR, Finance & Accounts, Logistics)	Support Staff
BWDB	2.49	11.97	15.36	6.54
WARPO	4.17	14.29	33.33	0.00
CEGIS	13.33	16.13	25.00	0.00
IWM	17.19	12.50	0.00	0.00
LGED-SSWRDP	0.48	5.14	0	0
DPHE	1.69	10.53	47.83	1.76

Low Numbers

DPHE(entire Country)	925	19	2.05	5950	126	218	6875	145	2.11
DPHE(entire Country)	925	19	2.05	5950	126	218	6875	145	2.11

Table 2: Percentage of WWPs in different categories across the country

Organisation /Institution /Project /Department	Technical Employees			Administrative Employees			Total Employees		
	No.of Emp.	No.of Female Emp.	% of Female Emp.	No.of Emp.	No.of Female Emp.	% of Female Emp.	No.of Emp.	No.of Female Emp.	% of Female Emp.
BWDP (entire country)	1400	46	3.29	6060	399	6.58	7460	445	5.97
WARPO (Central office/entire country)	38	3	7.74	16	1	6.77	54	4	7.41
CEGIS (Central office/entire country)	108	17	15.74	22	1	4.55	130	18	13.85
IWM (Central office/entire country These are all single building office)	72	12	16.67	15	0	0.00	87	12	13.79
LGED-SSWRDP (Central office/entire country)	1696	30	1.77	0	0	0.00	1696	30	1.77

All the departments show that a very small number of women are working as women water professionals in Bangladesh. The table shows us that except for three departments, women in technical posts are not more than 5% and in some departments like the Local Government Engineering Department and Department of Public Health Engineering, it is as low as 1.77 and 2.05% respectively. It might be very interesting to investigate the details of this broad category separately in the following analysis of this section for the water sector in Bangladesh.

The technical staff for the IWM and the CEGIS is slightly higher than other govt. setup which is 15.74 and 16.67% respectively. The third highest number of women professionals working in the technical category is 7.74% for the WARPO, which is also a headquarter based office and not involved in large scale implementation work.

As mentioned, the category technical staff also includes sociologists and other non-technical experts. Interestingly these are included as part of the mainstream government staff. Even though the percentage of women water professionals in these departments is not satisfactory, especially for the BWDB and the DPHE, which is less than 5%. It might be a very interesting hypothesis that there is a relationship between the nature of work and the percentage of women in the organisation. This will be clearer while discussing the following sections in details like the culture of water sector and the gender dimension. Table 2, shows that compared to the technical type, the number of women in non-technical and administration is high for all of the departments with an exception of the IWM, where it is 17.19%. Most of these professionals are junior by position and have recently joined the organisation. Among the eleven engineers, only one woman is a senior engineer within the organisation.

Figure 3 Comparison of typologies of women among different organisations

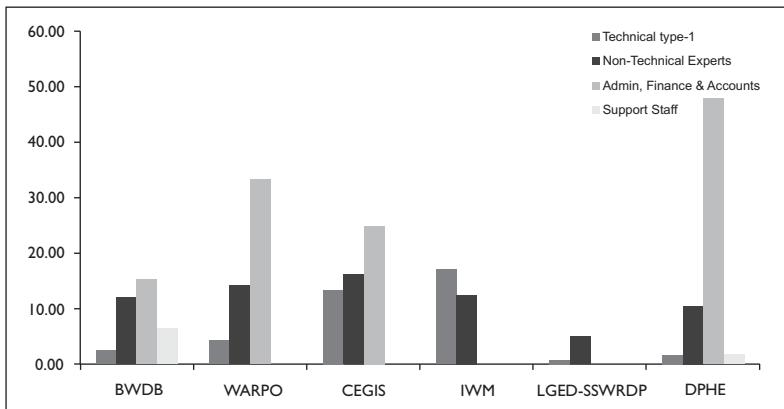
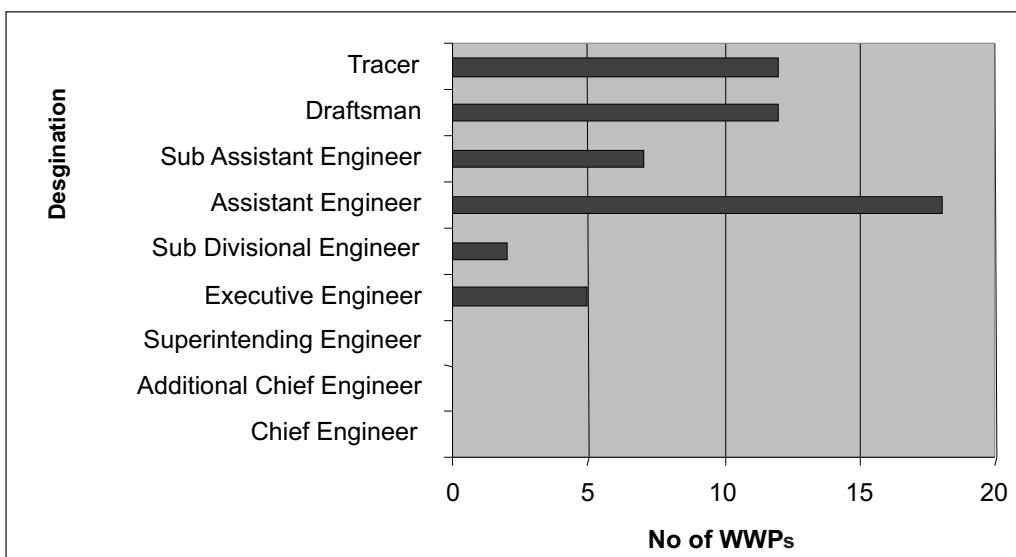


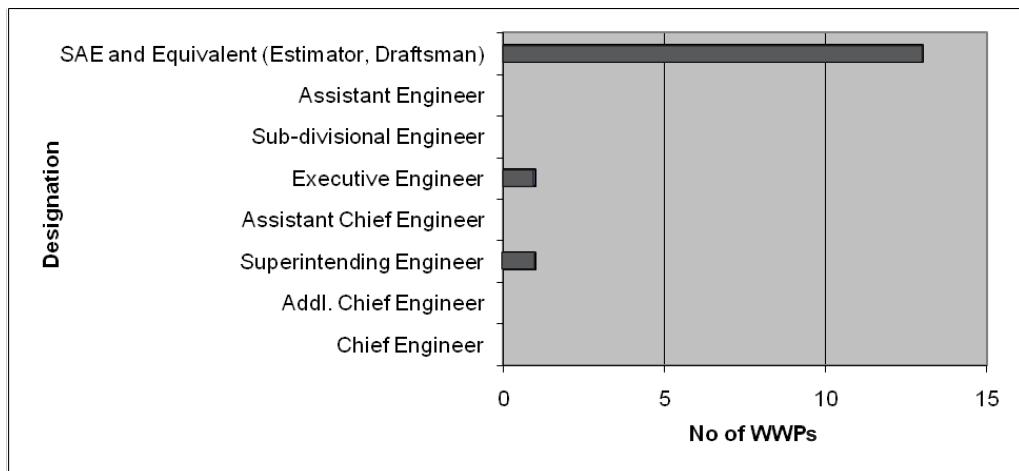
Figure 3 and table I show that, specifically women in the technical position are very few in the water sector, especially in macro level implementing organisations and departments. It might offer an indication of how skewed the gender sensitivity of the organisation is in water resources development.

Hesitant But Changing Profile of the Water Bureaucracy

Figure 3 shows that women are in very low numbers in the technical type I category. This is a comment on the nature of the sector, which shows how the technocratic the sector is and also rigid enough to not allow many women to be there as part of a combination of reasons. Fortunately, off late, things are changing for the better. In some ways it does unlock gates for women to be employed in the sector as in the current scenario they are more likely to be natural and social scientists than civil or water engineers.

Figure 4–5 show the technical posts women are currently holding. These are representative charts of two departments: one for irrigation and flood control drainage (BWDB) and another for drinking water and sanitation system (DPHE), showing women in the technical hierarchy. In all these departments we see that women are not present at the topmost level. In no department do we see women at the Chief engineer level or even at the additional chief engineer level. In the DPHE we do not see any women even at the junior position like assistant engineer, but found one superintending engineer and an executive engineer. In the entire country there are only two of them and one is about to retire. Women are mostly found in the posts which support technical work, like drafting, tracing etc. But we can see five executive engineers which is certainly a positive change.





Section IV: Profiles of the Women Interviewed

From across the country, 32 women water professionals working in different setups were interviewed in detail. There were 14 technical staff, 10 non-technical experts, 4 administrative staff and 4 academician/researchers. The table below gives a quick profile of these women. These women were selected on the basis of their hierarchy, nature of work and educational profile.

Table 3: Number of department-wise WWPs at different typology interviewed (academician/researcher are not included)				
Organisation/inst.	Technical experts	Non-Technical experts	Admin/finance/Accounts	Total
BWDB	2	5	3	10
WARPO	1	1	1	3
CEGIS	2	1	0	3
IWM	6	0	0	6
LGED-SSWRD	2	1	0	3
DPHE	1	2	0	3
Total	14	10	4	28

Table 3 shows that emphasis has been given to the technical and non-technical staff more to understand the situation going on with the women water professionals, however interviews were also conducted with some administrative professionals to compare their nature and volume of work and organisational attitude towards them as well. As the following table shows most of the respondents were between 26–35 age group were enthusiastic, proactive and sincere to their work. This was also true for the age group of people from 36–45 years of age.

Table 4: Age profiles of women interviewed	
Age	Bangladesh
20-25	0
26-35	21
36-45	9
46 and above	2
Total	32

Table 5: Education profiles of WWP_s interviewed

Education	Bangladesh
SSC	2
Engineering/Technical graduation(BSc)	14
Pure science post graduation (MSc)	10
Social Science Graduation(BSS)	1
Social science post graduation(MSS, MCom)	3
PhD	2
Total	32

Total 32 respondents from diverse backgrounds have been interviewed purposively to have an essence of multidisciplinary approach and their experience in working with water sectors. The table shows that Engineering/technical graduation is the higher (14) most degree for the respondent followed by post graduation in different specialized subjects.

Table 6: Marital status of the WWP_s interviewed

Marital Status	Percentage of WWP
Married	62.5
Unmarried	37.5
Total	100.00

Around 60% of the respondents were married while the rest were single. The study observed some interesting experience from the respondent which will be discussed in later section.

After speaking to around 32 women water professionals and conducting several group discussions with a diverse set of people, like female students, academicians, researcher and men water professionals the study found two major constraints that determine women's low presence in the water sector as professionals; constraints that come from the kind of work women do and are expected to do and the other is related but distinct category of content and structure of engineering science itself. Both are intertwined and cannot be separated from the other, but here we present some of the findings in two separate sections one which deals with socio-cultural issues that determine women's presence or absence in the bureaucratic organisations and the second which speaks of their absence as a result of the nature of the sector itself.

While talking about the issue, it should be clear that neither of these categories are distinctly separate from each other and that each of these categories also have the interplay of other layers of class, caste, religion, education, age and hierarchy of position etc. determining presence or absence.

Section V: The Culture of the Water Sector - Women at Water Work

This section deals with diverse analysis from the broader perspective of sectoral priority, women's understanding about their water work, underlying assumptions about women's capacities and performance, mode of governance etc. which is something beyond organisational issues.

Making Educational/Career Choices

Looking at both our secondary and primary data, we see that there are very few women in the sector and fewer still in the higher-up positions. One of the major reasons cited by women for the low numbers in the sector is that very few women opt for a career in civil or water engineering and secondly that this is not considered a woman's sector at all.

AWWP in the WARPO said that 'Women mostly like teaching, medical science as first career choice, because these jobs are very secured, less risky as one has to deal with mostly children, patients, who are not so furious, no male domination is there. However, in the water sector, one would find male domination rather common place for example the contractors, side-workers, tenders and it is an agony to deal with them'.

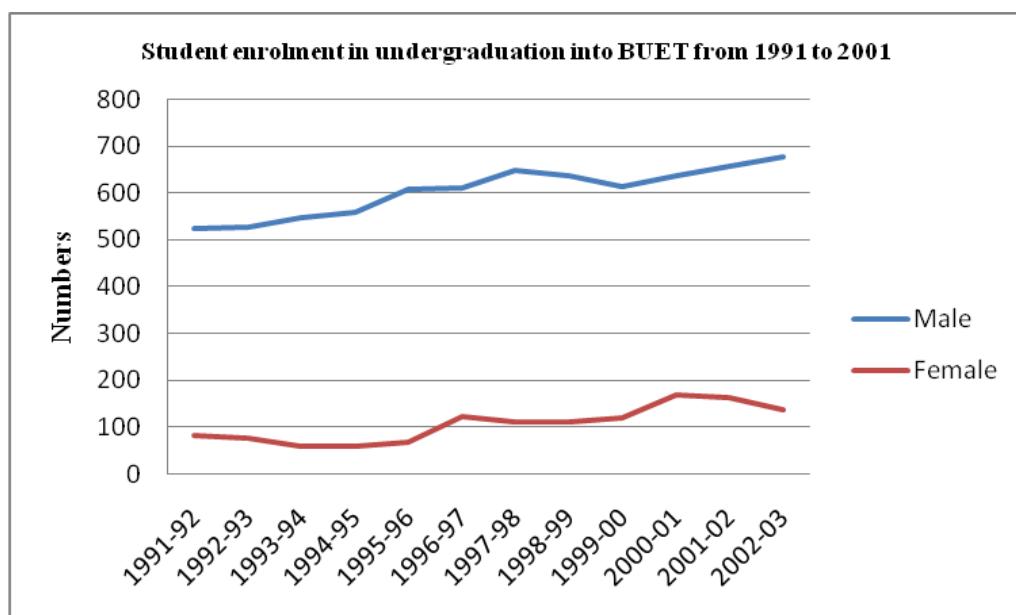
Another woman who is working on hydraulic structure says, 'It was my dream to be a hydraulic engineer, but getting jobs for a woman is tough. Nevertheless, I am lucky; I am working in the design section. I was considered and assumed that it is the best posting for me, while I was treated as a woman, not a civil engineer'.

An assistant engineer from the BWDB Bangladesh says 'Nursing, teaching is respected as women's professions, but "water" is something traditionally different - it is technocratic, and discourages women to join'.

Another assistant engineer from the LGED said, 'I opted for Civil Engineering, my dream was to be an ENGINEER, but I feared that I might not endure in the race, as I perceive working as a community worker is better than to be a CLERK'.

When asked that why she chose teaching rather than working with the BWDB, being a civil engineer, an academician in BUET answered promptly, 'Making career choice by women is regulated by a number of factors. I am sure my family is happy with my current position rather than working with any irrigation department'.

The first choice for most of the students interviewed in different technical institutions was medical science, then the second option was civil or water engineering. The enrolment of female students in undergraduate courses is still not significant compared to male. Figure 6 shows that from 1991 to 2001, there are no significant changes in female students' enrolment, whereas as, it gets momentum for male students.



Changing Profile of Student Enrolment

A marginal increase in female undergraduate students' enrolment in Bangladesh University of Engineering Technology (BUET) is observed from 1991 to 2003. Very few female students were seen to get admitted for engineering education in the past.

Post-graduate female student enrolment in different disciplines shows that Civil, Water Resources and Mechanical Engineering have low numbers of female students over the period of 2004 to 2007.

It is high for Architecture and Planning, 35% followed by the IWFM. Again within a year we see the change in percentage for the same - it is gradually increasing for the IWFM. While discussing the issue with faculties of postgraduate study in the IWFM, it came out that the positive change is due to different reasons. Introducing and prioritizing multi-disciplinarity is one of the most important reasons, which provide space for female students from other disciplines apart from engineering to also join the water sector.

Table 7: Percentage of discipline-wise male-female postgraduate student enrolment from 2004 to 2007 in BUET

Discipline	Male	Female	Total
Engineering Faculty	79	21	100
Water Resources Engineering	83	17	100
Civil Engineering	85	15	100
Mechanical Engineering	89	11	100
Electrical Engineering	82	18	100
Architecture and Planning	65	35	100
Institute of Flood and Water Management	77	23	100

The following Figure 7 gives an account of the female students' enrolment in civil engineering compared to male in two technical institutes in Bangladesh. In both cases a plateau is seen for female students but a very sharp rise for male students - again it provides an indication of educational and career choices for females in Bangladesh.

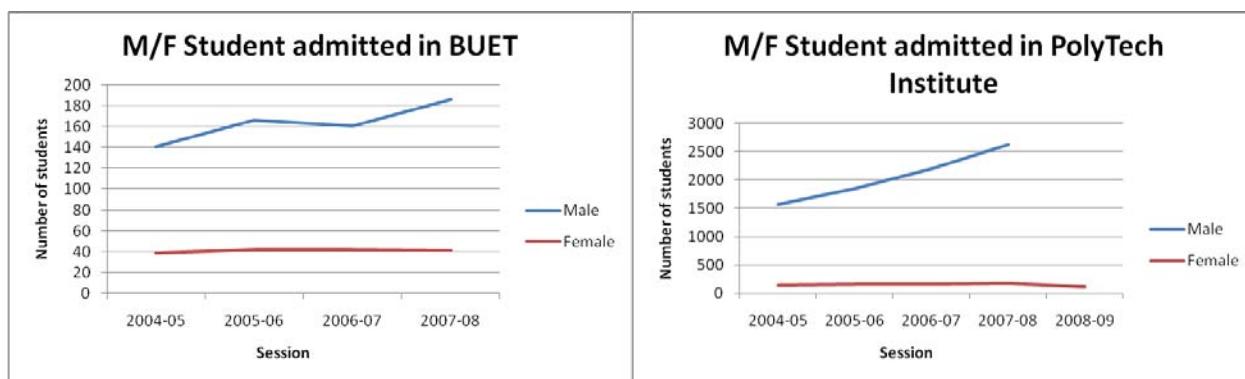


Figure 7 Comparative picture of M/F student admitted in BUET and PolyTech Institute

The WWP working in different hierarchies, capacities and age groups identified that socio-cultural factors that regulate women's entry into the water sector have a major impact over the nature of the water work and the sector itself. Table 8 shows that around 32% of the total response is about the first category whereas, the predominant category is 66%. While talking about the culture, education choice is the central argument especially for women to be an engineer.

Less access for women as water professionals is an outcome of the perception dominant in society that women have to face factors like field insecurity, vulgarism, financial anomalies, threats and less logistics at work. Other than the socio-cultural factors, a huge percentage of response belongs to the reason: sectoral black-holes to accept woman as a water professional. The water sector is predominated by men, and women are considered less capable of doing better in executive positions compared to them. This will be discussed at length in the section later.

Table 8: Why Women are Less? FGD Findings

Factors	Frequency of Response
Socio-cultural factors (Category-1)	
Family or society decides women's choice	5
Most of the engineers come from middle and higher income, so do not like field work	5
Less access to information/Lack of orientation about water sector work	4
Double burden, huge work load at home	8
Low number of students opt for engineering	10
Break in life due to marriage	4
Lack of decision making and hence see themselves as powerless	4
Subtotal for category 1	40
Nature of water sector itself hindered women's participation (Category-2)	
Comparatively slow career development opportunity and low financial benefits	4
Water sector work is different and challenging environment in field	36
Misperceptions about women's capability	6
Perception about less execution power of WWP	20
Posting in different places rather home district	2
Less logistic support for field	15
Subtotal for category 2	83
No comments	3
Total	126

Nature of Work Women Engaged In

The majority of WWPs, especially those from the engineering field, are involved in deskwork of varying nature which they find very unchallenging. Though some are happy, they agreed that it is a choice that they have made for several reasons beyond their control. Data shows that most of the technical women are working as assistant engineers, and are mostly designing structure, doing desk-oriented work. Almost all of them felt that their skills were highly underutilized due to the unchallenging nature of their jobs. Most of them are stuck in administrative work and feel that their knowledge and understanding is not put to use here. The important question is why women are only into these kinds of tasks? Table 9 shows the broad categories of work undertaken by women in different departments.

Table 9: Percentage of response regarding types of work engaged by women

Type of work	Percentage
Table work like, designing projects/structures etc.	22
Going for field visit	9
Administrative supports	52
Proposal writing	7
Attending meeting and training	7
Reporting commenting on report/papers	4
Total	100

I was quite happy, but ...

Nahid Sultana (29) is working as a Research Officer in the WARPO. After completing her M.Sc in Soil Science from Dhaka University, she had joined in a macro level water resources planning organisation. She was very enthusiastic to devote herself for water work, 'it was my first job application, my family was also very eager to see their daughter in a Dhaka based Government service. Finally I was selected through a rigorous process. Most of the candidates were male'.

Due to policy reform in this sector, a multidisciplinary approach has been prioritised, which opens door for the non-engineers to work for the water sector. According to Nahid, 'I was quite happy; I thought that I am in an appropriate place, where I can contribute a lot. But, in the course of time I discovered myself doing various types of administrative work, commenting on reports, accompanying colleagues in different training and workshops'.

Like her, most of the junior women water professional are doing desk work with less responsibilities. Still, they do question themselves about their job descriptions.

Challenges in Field/Site Work

In making choices of the kind of work they do once in the department, women cited domestic responsibilities as the major reason for not opting for site work. But this was not always true and some women early in their careers were seeking site related experience but were deliberately kept away from it. This convenient labelling of women never wanting site work was used to keep women away from a rich learning experience and also away from the corrupt politics of the organisation/sector. A woman water professional says 'mostly women are working in less important places, like drafting letters, and other communications, dealing with administrative problems etc. My case is different, as I have already proved my capability so no one bothers me now. I had to fight the culture of the organisation which only made women work at the office, but tell me what design work is complete without having the idea about site?'

In Bangladesh, male bosses thought it to be a liability to send women to field or even recruit them for field work, as he has an alternative choice for that. This discrimination is found even for any training selection. Even though the woman employee is capable, she is not selected, whereas a non-qualified or subject irrelevant male colleague might get the chance.

Apart from site work, which is said to require hard technical knowledge, competency and physical strength, women are also kept away from any financial dealings. Women narrated how different strategies are sought to keep women away from giving financial sanctions to projects. Men use their informal channels and collectives to decide on the share of the money. A woman Deputy Director dealing with finance expressed her challenges as, 'it is difficult for a woman to survive in the system as we are not like men, more interesting game is in the field. I prefer women to go to field, even though by forced posting to learn something from there'.

Images, Symbols and Metaphors

Most of the response regarding ideal officer gave priority to hard work, having good knowledge and readiness to take challenges and prompt decisions. Male professionals are seen more overconfident about their qualities while women are not ready to take up challenges. But some women are bold and confident enough to prove their potentials. One of the officials in the BWDB directly comments 'some women fear to take challenges, but they can do if they get chances!' Many of the women described their

relationships with their male seniors as fatherly and junior or compared as brotherly. One of the senior scientific officers said that their male colleagues are always cooperative with them as they consider them their sisters. Some of them also expressed fear about seniors, commenting on the mode of the behaviour of the male boss, but experienced difference with women senior professionals. Few responded very critically and differently. One research officer from the BWDB says 'so many structures have been developed in the water sector in the past. This is the time to stop and rethink more about managing the water in a sustainable manner. So mobilization is a must and also meaningful participation by all, which needs not only engineering knowledge but also, knowledge about how to communicate with community, rapport building, understand them properly and to be accountable to them as well'.

Men's Collectives and Women's Collectives

Few of the women professionals have engaged with some sort of formal collectives, but most have informal collectives for sharing. They discuss about different facilities they are not getting, or about their working environment. They talk less about their right to work, but they often discuss their family issues, sorrows and joys, and release their family stress. In the case of male professionals, they actively participate in some of the collectives, like different associations, forums, which are a means of information, knowledge and rapport building for availing different organisational facilities, promotions, postings etc.

Some of the women engineers have formal platform to collectivise, but they don't regularly get involved with it due to time constraint. Of course this is also male dominated, so those who are part of these platforms lose interest in going there. Few are talking about the women engineer association which is still in its nascent form and is not working well. Most of the WWP felt that formal spaces would be more useful and that might make them more united and powerful.

Making a Difference: Women as Active Agents in the Organisation

In the changing face of the sector, some bold steps by women have been seen and also they are making a difference to the sector and specifically to the cause of women both at the user and professional level. Women professionals said that some of their qualities have proved to be assets in the water sector. Some of the male colleagues also prudently admire the qualities, especially the accountability to work. One of the assistant engineers says 'men are always preoccupied with various agenda, but women have less, and perform their job with more accountability than men. They are more caring about work, comparatively more serious about their duties'. An engineer expresses that, if the organisation or the office management had been perfect, output from a woman would have been more than that of a male professional because of the multiple qualities that women have. Some of them have commented that as women are less capable of doing things, they get privilege and also more cooperation from male colleagues.

'At last, I have had the reward'

Dr. Nilufa Islam (54) is working as Director-Technical in the Water Resources Planning Organisation (WARPO), the apex macro level planning organisation for water resources in Bangladesh. Nilufa has broken the barriers - she is one of the few senior most Women Water Professionals who is heading a technical department in a so-called technocratic water world.

Dr. Nilufa started her career in the water sector with River Research Institute in 1982. After that she joined the WARPO. 'When I started my working life in Faridpur, I was impulsive enough to join in the water sector. I was a non-engineer personnel and at that time I had never seen water management as a technical issue at all.'

'Nowadays women are comparatively more interested to engage in the water sector, but this is not enough. More women should come into this sector; we would not want to see this sector as male-dominated. Even though I was promoted to such a senior position, it should have happened long before. But being a woman, I had to wait quite long for my promotions as well.'

According to Dr. Nilufa, women should be more independent in thinking, aware and articulate about their own rights, equity issues in the household and society. Otherwise they will not be able to cope up with family and profession. She is a successful woman in terms of household and office management.

Dr. Nilufa dreams for gendered water management in Bangladesh. She is always supportive and caring towards her junior female colleagues in the WARPO.

Women can play a significant role while forming the water management cooperative association (WMCA) as well as within the organisations. Emphasizing on their contribution to social mobilization, a gender specialist from the IPSWAM says 'we need more women in the water sector to access the community and for real water resources planning and management'. Women have easy access to community; if it is a woman, people do not bother, in fact in a sense welcome her. If women are in designing the project they will consider the issue in a more gender sensitive way than men. In projects which demand women's participation at a large scale, like the community water projects of the drinking water supply and sanitation, women engineers and technical assistants are preferred.

A scientific officer from the WARPO said 'Now we have a voice in management as well - one of the three directors is a woman, which is a blessing for us. Now we feel comfortable as she takes care of our issues and concern if there are any'. Like her, most of the women believe that if there are more women in the water sector that would be better for them and further generations will be more encouraged to join this sector which will be influenced by women.

Water Sector: A Differential View

This section tries to understand the water sector as perceived by men and women who work in the sector. It is important to get insights into the belief system, understanding and how it differs from individuals to groups and subsequent actions for the sector. We have talked both with men and women to assess the difference in thinking, so this set of data is largely based on understanding from both groups.

Good governance should be the first priority...

Mahfuzur Rahman (33) is working as a research officer in the BWDB for the last 5 years. During his professional engagement, he viewed water resources as public goods with high economic value.

According to him 'most of the water resources related problems are related to transparency and accountability of the projects. Huge corruption has made efficient and effective water management unreachable.'

He blamed the existing system, policy structure which allows little space to ensure transparency. He also mentioned that transparency should start right from individual's responsibilities to society. Most of the time work load within the department is not equal at all. Men had to work more, as the women are not mentally ready to take responsibilities, and office management allows this system, which needs to be changed. 'This does matter when governance is absent, I would not say this is gender blindness', he added.

As a responsible officer, he is confident that a drastic change in the larger level of policy and practice like pro-gendered and pro-poor water management for sustainable development can tackle the subsequent problem.

Men work with a macro perspective of water management, emphasizing mostly the economic dimension. They always talk about the national drivers and their performance for water sector management; they always try to portray problems faced by them while dealing with water. On the contrary, women mostly work with a social understanding. They think about people and have a micro perspective which men are not conditioned to have. Most of the respondents concentrate their discussions around the benefits to poor from the water sector and related issues. Equity was major area of discussion among them, probably they had to face this issue frequently and hereafter emphasize for all within this sector. Men professionals mentioned that the sector needs women to work for decision making and planning, while some women described this sector as very male dominating, having little scope for them to contribute.

A high official from the BWDB said 'women don't have spare time like men. You see many of the men roaming outside during office, but no one bothers. But if a woman is late for the office it becomes an issue for discussions'.

The understanding around water issues is largely dominated by the current departmental understanding. However, women are far more sensitive to micro planning and gender issues than what one would hear otherwise. In an FGD with a group of women in the IWM an engineer said, 'mostly our water work is patch work for short term solutions to avoid sectoral integration. Conflict among different water user groups should be prioritized'. Most women gave priority to addressing the water use related problems of grassroots women and shared their experience. Other than this, women don't talk about other issues, while most of the men were found interested in discussing about water sector issues like technical perspective, corruptions, bureaucracy etc.

Section VI: Gender and Organisation Related Issues: Women, Water, Contemporary Issues

As emphasized in the earlier section, gender and organisation related issues which impact women's entry into the water sector, have to be understood in the context of the culture within this sector. Existing situation analysis could further facilitate a congenial environment for women at work. In this section we will try to understand the existing practices in terms of facilities, work atmosphere, rules, work relations, hierarchy etc.

Meagre Sanitation Facilities

Most of the BWDB office buildings including the WARPO are old constructions and have very poor toilet facilities. Though recent renovation, which is done through a donor funded budget, has facilitated setting up of a few toilets for women in the BWDB, the locations are not proper and the allocation is not enough. This is because of the thinking that women will not work in the water sector. A senior official said that even BUET which is the best educational institution for technical education do not have such facilities. Some new interventions are being considered for this issue. Because most of the engineers working and planning in the water sector are males, this issue has not got as much attention it deserved and was left as it is. A positive recent change in the gendered nature of water work has been observed in most of the organisations apart from the BWDB and the WARPO, where these facilities are quite good and appreciated by the respondents as well.

Demand for Congenial Work Environment

Office accommodation for women professional is again a concern for the government offices. One of the respondents from the BWDB said, 'I had to struggle with my sitting arrangement for a long time. This post is newly introduced and there are two of us. It was proposed I share a cabin with another male colleague, but it was quite impossible for me. And now I have to sit downstairs with another female colleague, away from my own department, which disturbs me'.

Women in a focus group discussion in the CEGIS put emphasis on congenial environment and facilities, 'Women had to spend quite a significant period of time in the office, they don't spend time outside like their male counterparts, they spend all their time only on their desks. So we should get facilities like a ladies room and canteen where we can exchange with each other'. Other than the WARPO and the BWDB, most of the departments have good facilities for women, and the number of women employees is also very significant in those organisations compared to others that have fewer facilities for women.

Insufficient Transportation

For women transport to come to office is a great concern across the country. In some departments there are transport facilities for women but not enough compared to men. A deputy director from the Water Board says 'few women like us who are in the top position can avail this facility, but the other staff have to suffer quite a lot...the organisation should do something about it'.

Other than the LGED, which has a good office setup at every sub-district level, logistics for women during field work is quite unsatisfactory. This has quite a significant impact for women's willingness to go for field work. Another striking problem that most women face in the field is the lack of security and this was voiced by women from all the departments.

One of the divisional head from the CEGIS responded, 'Our work is mostly Dhaka based, field work is less and we try not to send women to the field. But it will not work for other departments which are into implementation, so the CEGIS is preferable to female employees.'

The issues discussed above give a clear indication that work space, organisational support are key to attract employees to the sector.

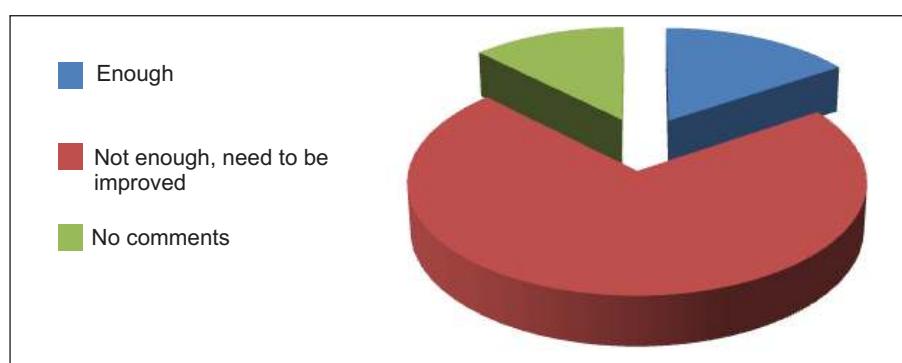
Table 10: Existing problems that women are dealing with

Response	Frequency
Some people are not ready to send women to the field	8
Transport support for women staff	3
Job description is not defined	3
Poor office accommodation	4
Men's attitude is irritating or not candid	5
Poor logistics during field visit	9

Less important work is mostly given to women. Lack of a sharing attitude in the male colleagues is a concern for the women, which hinders their efficiency at work.

About 23 women out of 32 felt that the facilities and supports were not enough for them and there was a need to improve them, while 4 refrained from commenting.

Figure 8 Survey on existing facilities and support provided to women.



Maternity Leave

Currently four months of maternity leave is available for the female employees working in all departments of the government setup. There is a strong voice of the women to increase it at least up to six months. Flexibility of work timings is not possible within the government setup. Some of the women shared their experience of flexible work timing and felt happy, but they were not sure how this would be implemented in the water sector.

An SDO from the DPHE shared, 'while on the field we have no timetable, we had to work more with no office timing, but working within office time is a must.' The question about need of facilities of day care received very interesting responses - some felt very strongly about the need, whereas some opposed it straightaway.

Most of the women felt uncomfortable about discussing the issue of sexual harassment. In fact no one has shared such experiences. But they have shared experiences of scolding. One of the officials said, 'I do not have much problem as the environment and culture is not new to me, but new women professionals have to face some uneasy experiences. Every boss is not good like mine had been. Sometimes my juniors share experiences of grievance and I always cooperate with them, help them to release their mental agony'. Few of the respondents urged for a grievance readressal cell and a gender policy to ensure that it is working.

Most women whether engineer or not, enter the so-called gender neutral organisations with the normative behaviour expected from them. One of the senior female professionals in the BWDB says 'women should be considered as human beings and not as female officers'. If a woman is dynamic she is seen as very egoistic and stretching herself a bit too far. An assistant engineer from the BWDB is rightly agitated about this and says 'women are always thought typical. This is not the fact. It is time to re-think...'

Most of the men professionals consider women professionals as sincere, more cooperative, but less capable, privileged group, very inactive and sometimes afraid to take responsibilities. A few have a very good experience working with women colleagues as they are sincere and dedicated to their work. Such type of an attitude is seen among male colleagues who are working at the same status, but experiences of women with their subordinates are very awful. An assistant engineer from the LGED said, 'Some behave very indecently, but I think it depends upon the person, and specially tackling the peon and other support staff is awful. Sometimes I just keep away from them'.

Section VII: Gender Relations at the Household

Working in a challenging field like water and at the same time, tackling the household work, has an impact on women's lives. Most of the women were found to be frustrated about their own existence as human beings. The married women were more burdened than the single women, who expressed that they have got a very good support from the family. Most of them feel that household chores and responsibilities is a push factor which discourages them to take up challenges. The partner's attitude towards a woman has a significant impact on her career.

A working woman is still seen as an income earning partner in a family, but on the other hand, talking about sharing workload remains like building castles in the air. As women have huge workloads at the household front, they are always thought to be less productive, escapist, and incapable in office work. A male official from the CEGIS mentioned, 'both me and my wife are working in the water sector. After office I usually see movies, different news channels - without this I cannot think that my day is complete. But my wife always rushes to the kitchen; she has no interest to join'. Is this a question of lack of interest or burden of work?

Section VIII: Training Needs

The nature of diversified work has made the water sector a multidisciplinary one, where women's contribution is mandatory. However, due to the masculine nature of work, women's contribution goes unrecognised. Despite the fact that women are advancing in this sector, they still require different types of trainings which can boost their voice and choice.

Women professional networking build up⁶ Management training for women in the water sector increases efficiency and effectiveness and enhances self-confidence. Training in participation and communication skills equips staff to formulate and express their views and participate in decision making at all levels. Training in gender issues makes staff more sensitive about the workplace needs of both men and women.

Most of respondents chorused and believed (Table II) that it builds and creates understanding about gender inequality otherwise there can be violations of women's human rights which subsequently have negative impacts on women professionals within the organisations. Technical trainings ensure that the staff has the skills to carry out their job effectively and efficiently with the possibility of career advancement.

All training and development should build on and take into account Bangladeshi social and cultural contexts. It will be important to develop employment related training programmes that contribute to women's career advancement. Along with suggestions regarding women's capacity-building requirements, women also emphasize the need to sensitize the men in the office as well.

Table II: Response about Capacity Development

Type of capacity development	Frequency
Technical capability	4
Motivational training to women	3
Gender training to all irrespective of whether you are a male or female	9
Management level training on gender relations	6
Office management training	3
Public dealing	4
Administrative management	2
Public procurement rule training	2
Financial training	1
Professional communication	2
Working platform	2
Simulation or drill types of training	3
Leadership training	5
Women professional networking build up	6

Capacity Enhancement

Most of the respondents emphasized on capacity enhancement of the existing women staff on various issues like leadership development, public dealing, financial training, office management. They feel that these are some important areas where women are still absent in terms of decision making and playing active roles. These arenas are the key wheels of an organisation, and the presence of Bangladeshi women water professionals in them is a must for pro-gender water management. Different types of training, orientation and workshop will help them to make exercises and learn from each other.

Gender and Organisation

Other than capacity gap, the gender dimension of the organisation was a very vital point raised by many respondents. According to them, capacity matters when equity does not persist. Lack of practical experience and sometimes gender blindness of the management, hinders women's advancement or disprove their efficiency. So, proper gender orientation for all professionals and management for effective practice should be arranged in Bangladesh.

Strengthening Women's Network

Communication and sharing information among the professional group is seen as another crying need by the respondents. Some women feel that men are up-to-date in terms of knowledge and politics, which is due to their strong sharing network that usually women do not have or fail to maintain due to dual responsibilities. Formal networks might be of great help to coordinate women, to raise their demands, and also to fight against the disparity.

Section IX: Recommendations

As the study tried to portray the situation of the women water professionals, broadly two factors are seen as gate keepers: one, the educational and career choice and secondly, different facts that they face while entering the sector. The respondents strongly recommend that gendered water management would require changes both at the structural and the non-structural level.

Increased Quotas

Increasing the job quotas for women can be an option to increase the number of women water professionals. At the same time, the age limit for female students should be slightly more than males, as due to marriage women have to take a break and that hinders further career developments.

Organisational Policy and Practices

There is an absence of gender policy. A fully operational gender policy was a crying need cited by most of the women professionals. At the same time, an open sharing meeting might be an option for exchange and learning among colleagues.

Provision of a certain level of power delegation to women working at the field level is crucial, so that they might not get scared to do field work.

Organisations need to work more on developing the practice of equal work sharing among men and women professionals. Also clear job descriptions and accountability in this regard is a must.

Gender sensitive budgeting and gender auditing can be very effective to measure the changes with time and can be introduced on a pilot basis in some departments.

Developing networks of the women water professionals and regular meetings of the networks would be a good step to be united and address the gendered issues of the water sector.

Logistic and Other Facilities

Ensure improved work atmosphere for women both at desk and field, by proper logistical arrangements and strengthening the security system.

Introduce day care and extended maternity leave especially for the working mothers.

Motivation and Orientation

Creating awareness in the society for women to enter the water sector is necessary. Especially importance should be given to job preference and sectoral needs to influence academic and career choice.

Staff Development and Incentives

Assess training needs for women professionals and ensure capacity development to minimize the existing gender gap within the organisational system. As a case in point, separate women development units might be developed for the time being.

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Acknowledgement

I feel privileged to be given the responsibility of writing the Bangladesh section, by SOPPECOM and SaciWATERs. I would like to acknowledge all the respondents for their valuable time and insights on the issue of women water professionals in Bangladesh, especially women and men professionals from the different water departments - WARPO, BWDB, CEGIS, LGED, DPHE, and IWM who have spared their valuable time for the study. Thanks are also due to the Deputy Director, BWDB Khulna Zonal Office for making the field trip to the South-Western Zone on with limited budget for this study.

My sincere and profound gratitude and appreciation to Seema Kulkarni and Chanda Gurung Goodrich for their cordial guidance, suggestions, comments and continuous support throughout the study. My sincere thanks are due to the academicians from Dhaka University, BUET and Dhaka Poly Technique Institute for their cooperation during the study.

I hope that the report will explore some interesting issues in the water sector in Bangladesh.

**Sayed A. Ashrafi
Dhaka, Bangladesh**



SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN ANDHRA PRADESH

Swati Sinha

List of Abbreviations

• AE	Assistant Engineer
• AEE	Assistant Executive Engineer
• AP	Andhra Pradesh
• APFMIS	Andhra Pradesh Farmers Management of Irrigation systems Act
• APILIP	Andhra Pradesh Irrigation and Livelihood Improvement Project
• APMAUDD	Andhra Pradesh Municipal Administration and Urban Development Dep.
• APMIP	Andhra Pradesh Micro Irrigation Project
• APREGs	Andhra Pradesh Rural Employment Guarantee Schemes
• APSGWD	Andhra Pradesh State GroundWater Department
• APSIDC	Andhra Pradesh State Irrigation Development Corporation Ltd.
• APWALTA	Andhra Pradesh Water Land and Trees Act
• APWRDC	Andhra Pradesh Water Resource Development Corporation Act
• BCM	Billion Cubic Meters
• CAA	Constitutional Amendment Act
• C&DOM	Commissioner and Directorate of Municipal Administration
• CE,IS&WR	Chief Engineer, Inter-State & Water Resources
• CE,NSP	Chief Engineer, Nagarjuna Sagar Project
• CGWB	Central GroundWater Board
• CLDP	Comprehensive Land Development Project
• DEE	Deputy Executive Engineers
• DGW	Directorate of GroundWater
• DRDA	District Rural Development Agency (DRDA)
• DWMA	District Water Management Agency (DWMA)
• EE	Executive Engineers
• ENC,Adm	Engineer-in-Chief (Administrative Wing)
• ENC,PH	Engineer-in Chief (Public Health)
• GOAP	Government of Andhra Pradesh
• HMWSSB	Hyderabad Metropolitan Water Supply and Sewerage Board
• JBIC	Japan Bank for International Cooperation
• I&CAD	Irrigation and Command Area Development Department
• IDE	Institutional Development Expert
• MCM	Million Cubic Meters
• NFFWP	National Food for Work Program
• NREGA	National Rural Employment Guarantee Act
• RDD	Rural Development Department
• RTIA	Right to Information Act
• RSAD	Rain Shadow Area Development
• RWS	Rural Water Supply Department
• SHG	Self Help Group
• TMC	Thousand Million Cubic Feet
• ULBs	Urban Local Bodies
• WUA	Water Users Association
• WWP	Women Water Professional
• WP	Women Professional

Section I: Introduction

Andhra Pradesh Water Scenario

The State of Andhra Pradesh was formed in 1953 by separating the Telugu-speaking areas from the old Madras State. Later in 1956, Greater Andhra Pradesh was formed by the merger of the Telangana area of old Hyderabad State with Andhra. Andhra Pradesh (AP) is the fifth largest state in India with an area of 27.4 million ha having a population of 76.21 million. The state is divided into three major agro-climatic zones – the Telengana region, the Rayalseema region and the coastal region along the Bay of Bengal. The average normal rainfall in the state is 940 mm. The state receives its rainfall both from the South-West (SW) and the North East (NE) monsoons. The total estimated quantity of water received by Andhra Pradesh through its normal annual rainfall of 940 mm is 24.4 mha. Andhra Pradesh is blessed with many major rivers, the most important being Godavari, Krishna, Pennar and Vamsadhara, contributing almost 90% of the state's surface water resources. The total water available for use in the state is 2746 TMC of which only 1753 TMC water is utilization leaving a balance of 993TMC to be utilized.

The Central Ground Water Board (CGWB) has estimated that Andhra Pradesh has about 32.95 BCM of replenishable groundwater. However, the actual utilizable groundwater is different from the available groundwater as this may occur in areas where it may not be utilized. A recent estimate by the Andhra Pradesh State Ground Water Department (APSGWD, 2008) suggests that 13.2 BCM of this 18 BCM is in command areas of major projects. Another 1.3 BCM or so could be in forested areas and other non-cultivable areas. It leaves just about 3.5 BCM as the actual balance resource available for further utilization in the State. This is just about 10% or so of the available potential. The total water resources (surface and ground water) of Andhra Pradesh are estimated to be 108,200 MCM, of which about 65,169 MCM are currently utilized for drinking (601 MCM), irrigation (64,252 MCM), industry (288 MCM) and power generation (28 MCM). Therefore, of the total water utilized in the state, water supplied for drinking, industrial and power generation purposes constituted only 0.9%, 0.4% and 0.04%, respectively. The remaining utilized water is all supplied for irrigation (98.66%). However, by 2025, the total water requirement for the drinking, industrial and power generation purposes is estimated to reach 3,468 MCM, 1,445 MCM and 56 MCM, respectively. At the same time the estimated requirement of water for irrigation is 108,050 MCM. That would mean a total water requirement of 113,019 MCM, i.e. about 4,819 MCM more than the total water presently available in the state.

New Reforms and Policies

The Government of Andhra Pradesh (GOAP) has taken some steps in this direction wherein a number of state policies and laws related to water have been initiated. Some of them are - State Water Policy (Andhra Pradesh), Andhra Pradesh Water Resource Development Corporation Act, 1997 (APWRDC, 1997), Andhra Pradesh Water Land and Trees Act, 2002 (APWALTA, 2002), Andhra Pradesh Farmers Management of Irrigation systems Act, 1997 (APFMIS, 1997). The Andhra Pradesh Water Resources Development Corporation, 1997 seeks to consolidate efforts to manage all water resources through a single window agency i.e., the Corporation and this includes construction and operation of irrigation and command area development, flood control, drinking water and industrial water supply schemes, and promotion of water related activities like fisheries, floriculture, sericulture, tourism, water sports. The Andhra Pradesh Water Land and Trees Act (APWALTA) was enacted in 2002 to check the growth of wells and groundwater extraction in the state. The Act was further improved in 2004 and 2005 by introducing features such as insurance

<http://www.apwaterreforms.in/WaterResources/rainfall.aspx>

scheme for failed wells and single window system for permissions to drill new wells. The Andhra Pradesh Farmer Management of Irrigation Systems (APFMIS) Act, enacted in 1997, provides for the establishment of water users associations in the irrigation sector. The Act classifies the irrigation projects as minor (less than 2,000 hectares), medium (2,000 to 10,000) hectares, and major (more than 10,000 hectares) for the purposes of setting up Water Users Associations (hereinafter referred to as WUAs). The Act divides the area of operation of a WUA into four to ten 'territorial constituencies' determined hydrologically in order to provide for fair representation of all farmers in the WUA.

Gender Scenario

The state has witnessed the anti-arrack movement in 90s when a group of women participating in a literacy programme in Dubagunta village, Nellore, one of the poor drought prone districts of southern Andhra Pradesh, organized and agitated to force the closure of the arrack (liquor) shop in the village. The media, contributed in spreading the story to other parts of the state - as a result women all over the state marched to arrack shops and sought to stop the auction of contracts to sell arrack. This also led imposition of total prohibition in the state for some time. The state is a pioneering state in empowering women through SHGs, organizing them, promoting micro-enterprise and economic empowerment of women. At present the state has the Women Development, Child Development and Disabled Welfare Departments which works on empowering women in various ways. Following the 73rd and 74th Constitutional Amendment Act (CAA), the State Panchayati Raj Act has provision of 1/3rd reservations for women in Panchayat.

Rationale for the Study

Women's role in water resource management at the local level has been discussed widely. Women's role in the management of domestic water has been recognized. Efforts have been made to increase participation of women in water resource management for irrigation purposes too. Water is fundamental to life and a scarce resource that demands its judicious management at various levels - local, district, state, national and global. In light of these demands, efforts have been made to set up water related institutions and agencies, frame policies and enact laws to regulate water management at all levels. Water related institutions at national and state level execute water related programmes with the help of technical and non-technical personnel. These institutions are also responsible for framing various policies and enacting laws as per the specified objective. Therefore these institutions play a very significant role in judicious and equitable water management.

In this backdrop, the study tries to map the typology of women water professionals in these institutions. It tries to see the participation level of women in decision making, the reason for the low number of women water professionals and the constraints of these professionals causing hindrance in their participation. The study confirms the assumption that the lesser number of women, especially in decision making positions in these water related institutions, affects directly or indirectly the lesser participation of women at the local level in water management, the non-inclusion of gender related aspects in policies and laws at various level.

Section II: Scope of the Study and Methods Used

Water Bureaucracy in Andhra Pradesh, India

In India, water is a state subject with union's role limited to inter-state rivers. The roles and responsibilities of the centre and the state in water management have been clearly defined in Article 246 of the seventh schedule of the Indian Constitution. The article deals with the subject of laws to be made by the Parliament and by the Legislature of the state. It has categorized subjects into three categories namely the

Union List - List I
the State List -List II
and the Concurrent List -List III
In the context of water, the lists read as follows:

List I: Union List (Entry 56) - Regulation and Development of inter-state rivers and river valleys to the extent to which such regulation and development under the control of the union is declared by Parliament by law to be expedient in the public interest.

List II: State List (Entry 17) - Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of entry 56 of List I.

List III: Concurrent (Entry 20) Economic and Social Planning.

By virtue of the provision for economic and social planning in the concurrent list, major and medium irrigation, hydropower, flood control, and multipurpose project are required to seek clearance of the central government for inclusion in the national plan.

As per Article 246, the Parliament can make laws with respect to any matter enumerated in List I and any matter for any part of the territory of India not included in a state; the state can make laws with respect to any matters enumerated in List III and List II. It implies that the state can make laws of water related aspects mentioned in List II (Entry 17).

There are various ministries and departments that look after water management of the state namely the Ministry for Major Irrigation & Medium Irrigation, Ministry for Minor Irrigation, the APSIDC, Ground Water Development and Rain Shadow Areas Development, Ministry of Rural Development, Ministry of Rural Water Supply, Ministry of Municipal Administration and Urban Development. The key departments under these ministries and the subjects that the department deals with are described below.

Irrigation and Command Area Development Department (I&CAD) – This department provides irrigation facilities to small and marginal farmers and other weaker sections of the society with the funds provided by the government under various programmes. The work of the department is divided in three groups - major, medium and minor irrigation, depending upon the magnitude and purpose. The department presently has 80 project-related circles and 25 institutions/agencies/organisations at state level under its administrative control. It has more than 7000 technical employees working in the department.

Rural Development Department (RDD) – During 1994, a separate commissioner of rural development was posted as the head, de-linking it from the Panchayati Raj wing. The vision of the department is to eradicate rural poverty and secure better quality of life for the rural poor. The department also implements programmes related to watershed areas development in rural areas through its agencies at the district level i.e. the District Water Management Agency (DWMA). The DWMA has been created as a separate establishment in 2001, bifurcating from District Rural Development Agency (DRDA) exclusively to look after the development of human resources and natural resources on watershed basis. The agency is also monitoring the CLDP, the NFFWP, the APREGs under NREGA, and Food for Work Programme, the APWALTA, Biodiesel, and the APMIP in the districts.

Andhra Pradesh Municipal Administration and Urban Development Department (APMAUDD) – This is a state level agency that deals with all subjects and functions (including water supply and sanitation) enlisted in the 12th schedule of (74th CAA) the Constitution of India. It works under the administrative control of the Ministry of Municipal Administration and Urban Development Department.

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- URL:<http://www.aponline.gov.in/aportal/departments/portallistoforgsbydeps.aspx?i=3>
 - Prior to 1985 the department was part of Forest and Rural Development Department. From 1985 to 1994 the department was part of Panchayati Raj and Rural Development Department.
http://www.rd.ap.gov.in/RTI_act/PDF's/RD_RTI_Info.pdf
 - <http://www.rd.ap.gov.in/> click institutions/then DWMA.
 - <http://aprwss.gov.in/html/about-org.htm>

A total of 16 institutions/agencies/organisations work under its administrative control, directly or indirectly related to water supply and sanitation services in urban and rural areas. (Please see flow chart no. I). The C&DOM, ENC, PH and HMWSSB are institutions directly linked with matters related to water supply and sanitation in urban areas and to some extent in rural areas. A short introduction of ENC, PH is given below. The introduction of other agencies, C&DOM and HMWSSB has been explained in the methodology section.

Engineer-in-chief (Public Health) – The Public Health & Municipal Engineering Department is under the administrative control of the Municipal Administration and Urban Development Department at the secretariat level. The department is in charge of investigation, designs and execution of water supply and sewerage schemes in all the 101 municipal towns in the state and six municipal corporations besides the technical control over all the engineering works in these municipal towns and corporations. After completion, the water supply and sewerage schemes are being handed over to the concerned municipal corporations and municipalities for operation and maintenance.

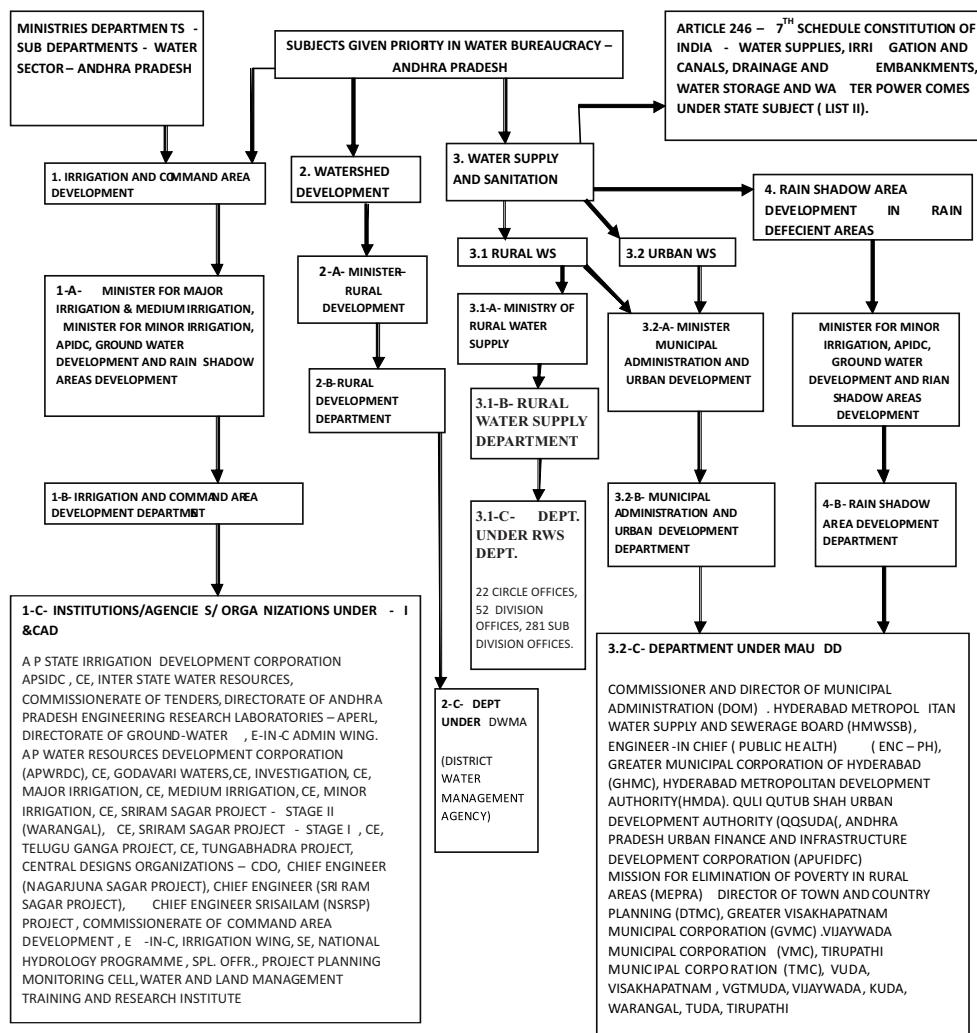
Rain Shadow Area Development Department (RSAD) - This department deals with the matter related to cloud seeding, use of bio-diesel, lift irrigation, micro irrigation, watershed development, desalinization of sea water and any other programmes connected with the development in rain deficient areas. The department focuses its activities in Ananthpur, Chittoor, Kadapa, Kurnool, Mehboobnagar, Rangareddy, Nalgonda, Medak, Prakasham, Nellore districts of AP. These departments have sub departments/organisations/institutions under the administrative control of the main department as shown in Flow Chart No. I, Water Bureaucracy, Andhra Pradesh, India (page no. 10).

Methodology of the Study

The study on WWP in South Asia is aimed to explore broad typologies and assess the trend of WWP in the water bureaucracy. This would also bring out constraints of WWP in the water sector and facilitate them to be visible and speak out their concerns. The study proposed a mapping of the water bureaucracy, identifying key areas and departments in the water sector, organisational structure, total number of staff and position of women staff in a particular department. In Andhra Pradesh, irrigation and domestic water supply were identified as major sectors followed by selection of departments engaged in these two areas. Secondary as well as primary data was collected for the study. Information related to organisational structure, various sub-departments, total number of employees, total number of women employees and WWP was collected from the official website of the state government and by using the Right to Information Act, 2005 (RTI). The RTI Manual, prepared by the department as a part of proactive disclosure of information under section 4(i) (b) of the RTI Act, provided the details of all employees and in some cases their contact numbers, their roles and responsibilities as an officer. Secondary data helped in assessing the trend of WWP in various departments and provided a base for selecting departments and identifying WWP and higher officials to collect primary data for interview and focus group discussion (FGD). Meeting with higher officials in the Irrigation and CAD Department, the APSIDC, the Department of Ground Water was a learning in itself. The purpose of the meeting was to brief them about the study, to share existing data on WWP and discuss the trend of WWP in their department, request them to facilitate undertaking of interviews and FGDs of WWP in their departments. It has been observed that they were reluctant and found no relevance of such a study. For them women are best suited to desk jobs. Technical and field level job is not meant for women. The findings of the meeting would be elaborated in a subsequent section i.e. the culture of the water sector.

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- <http://apmaud.gov.in/hodmaud.html>
 - <http://www.aponline.gov.in/aportal/departments/PortalListofOrgsbyDepts.aspx?deptdesc=Municipal%20Administration%20and%20Urban%20Development>,
 - <http://www.aponline.gov.in/aportal/departments.asp?dep=26&org=172&category=Faq>
 - <http://www.aponline.gov.in/aportal/departments/departments.asp?dep=26&org=174&category=About>
 - <http://www.aponline.gov.in/Quick%20Links/Departments/Rain%20Shadow%20Areas%20Development/RTI%20Act/G.O133.doc>

Flow Chart No.1, Water Bureaucracy – Andhra Pradesh, India

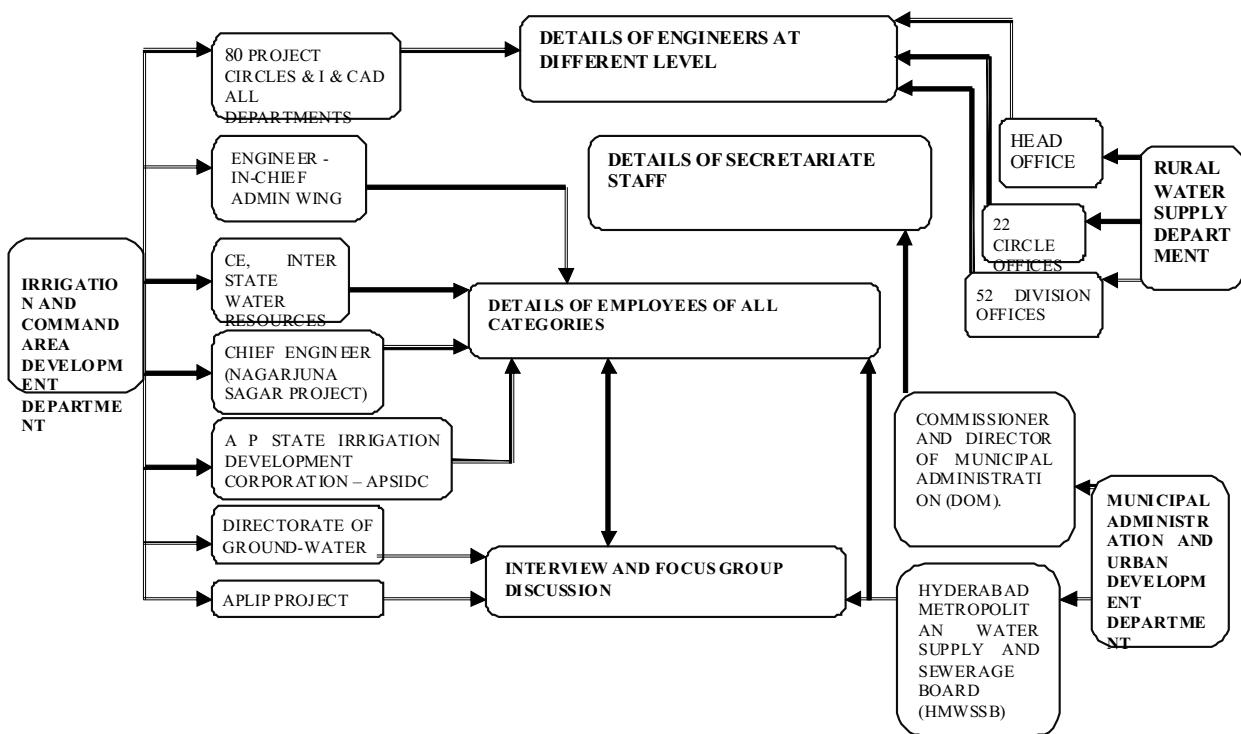


The mapping of the water bureaucracy brought out that the Government of Andhra Pradesh (GOAP) has set up a separate department which exclusively deals with irrigation management; drinking water supply in rural and urban areas; watershed management and rain shadow area development (see flow chart no.1). The Irrigation and Command Area Development Department is the largest department dealing with water resources. It has more number of sub-departments/institutions/agencies/organisations with more than 7000 technical employees as compared to other departments. Considering the vast canvas of the department, it was not possible to take the department as a whole for the purpose of this study. Therefore, its various wings and few organisations have been selected for the study (please refer to flow chart number 2 to get the details of institutions considered for the study). Another department this study has focused on is the Municipal Administration and Urban Development Department that deals with urban water supply and sanitation. The C & DOM and the HMWSSB are directly related to the provision of water supply and sanitation in urban areas. From the Rural Water Supply Department (RWS) information related to the number of employees has been collected. Please see Flow Chart no. 2, Details of Department Considered for WWP Study, (page no. 13), to get the detailed information on the departments considered for the study.

Brief of the Departments Considered for the Study

Irrigation and Command Area Development Department – Please see section 2, Irrigation and Command Area Development Department.

Flow Chart no. 2, DETAILS OF DEPARTMENTS CONSIDERED FOR WWP STUDY



Engineer-in-Chief (Administrative Wing) (ENC,Adm) - The office of the Engineer-in-Chief (Admn.Wing) is in charge of all Establishment/Service matters of entire A.P. state staff of the Irrigation & C.A.D. Department. The ENC,Adm is the Head of the Department for Irrigation & CommandArea Development Department.

Chief Engineer, Inter-state & Water Resources (CE, IS&WR) - The Inter-state & Water Resources Wing/Organisation of Irrigation & CAD Dept. will endeavour to protect the rights and obligations of the state of Andhra Pradesh and its inhabitants over the matters of inter-state rivers. It protects the interests of the state against the commission or omission of other riparian states.

Chief Engineer, Nagarjuna Sagar Project (CE, NSP) - The multipurpose Nagarjuna Sagar Project is located on the river Krishna near the then Nandikonda village (now Hill Colony), Peddavooro Mandal, Nalgonda District, in Andhra Pradesh. The Project was originally conceived by the erstwhile Government of Hyderabad and put forth under the name Lower Krishna Project (Nandikonda site).

Andhra Pradesh State Irrigation Development Corporation Ltd. (APSIDC) – The APSIDC is a state government undertaking formed for the development and implementation of irrigation projects in the state. The main functions of the corporation includes implementing lift irrigation schemes, bore wells, tube wells and infiltration wells, providing irrigation facility to upland areas of small and marginal farmers and other weaker sections of the society with the funds provided by the government under various programmes either directly or through the district administration and handing over the same to beneficiaries/agencies for operation and maintenance. It's registered office is located at Hyderabad. There are 12 divisions and 2 project offices for implementation of the various schemes in Andhra Pradesh.

The RTI Manual prepared under section 4 (1) (b) has seventeen chapters, and one of the chapters details the names and designation of employees working in the particular department.

Directorate of Ground water (DGW) - The Ground Water Department was established to help the scientific development, systematic management and optimal monitoring of groundwater resources for sustainability. The Ground Water Department has been declared as the nodal agency for all ground water related activities in the state. The department co-ordinates with organisations related to ground water development. Of late, the emphasis of the department has shifted from groundwater development to management for scientific planning and systematic development.

Andhra Pradesh Irrigation and Livelihood Improvement Project (APLIP) - The Government of Andhra Pradesh has initiated the Andhra Pradesh Irrigation and Livelihood Improvement Project (Phase I from 2007 to 2013) with support from Japan Bank for International Cooperation (JBIC). The objective of the project is to increase the agricultural production in the state by constructing new minor irrigation tanks in water surplus basins and rehabilitating medium irrigation projects, improving water management and agriculture practices, and thereby increasing agricultural income.

Andhra Pradesh Municipal Administration and Urban Development Department (APMAUDD) - Please see section 2 Andhra Pradesh Municipal Administration and Urban Development Department (APMAUDD), (page no.8).

Commissioner and Directorate of Municipal Administration (C&DOM) – The department has 109 municipalities and 14 municipal corporations under the administrative control of this office. There are 6 regional offices and 2 project offices to monitor administration at the municipal level and to monitor the projects namely Andhra Pradesh Urban Services for Poor (APUSP) and Andhra Pradesh Urban Reforms and Municipal Services Project (APURMSP). Regional offices are located at Hyderabad, Warangal, Guntur, Anantapur, Rajamundhry and Vishakhapatnam. It has set up service centres and has set norms and regulations in all municipalities to expedite the process of service rendering (including sanction of water supply house service connection) to the citizen in a time bound manner.

Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) - The board was constituted on 1 November 1989 under the provisions of the Hyderabad Metropolitan Water Supply and Sewerage Act 1989. Due to this, all the engineering personnel working in the Hyderabad Metro Water Supply & Sewerage Board including the Chief Engineers came under the cadre of the Public Health Engineering Department. This department looks into the supply of potable water including planning, design, construction, maintenance, operation & management of water supply system, sewerage, sewerage disposal and sewerage treatment works in Hyderabad Metropolitan Area. (Rural Water Supply Department – Please see section 2 Rural Water Supply Department)

Scope of the Study

This study focused on typology of women water professionals in the water bureaucracy for which data related to organisational structure, position of women in particular designation, the total number of staff to find out percentage of women in the department was the requirement. It has been experienced that the availability of secondary data in the official website of the department saved time of the researcher. Secondly, provision of proactive disclosure of information section 4 (1) (b) under RTI has helped in getting details of all employees in the department.

<http://www.aponline.gov.in/aportal/departments/departments.asp?dep=20&org=257&category=About>
<http://www.aponline.gov.in/aportal/departments/departments.asp?dep=20&org=154&category=About>
<http://www.aponline.gov.in/aportal/departments/departments.asp?dep=20&org=148&category=Introduction>
<http://apmaud.gov.in/hodmaud.html>

As per the requirement of the study, the researcher interacted with the higher officials of the government to brief them about the study and to ensure cooperation from the staff in undertaking interview of women employees. This also helped in getting their perspective on existing typology of WWPs in respective departments. The interview and FGDs of WWP has widened the scope towards change in the perspective and attitude of the women towards making career choices. Some of the WWPs took it as a thought provoking exercise. It helped them to think in the direction of the need for women to be in key positions for making the department gender sensitive.

Limitations of the Study

It was not possible to gather data on all employees of the department due to the large number of employees. For e.g. at the I&CAD (Main Department), we were able to get data of all technical (engineers at various levels) employees and the number of women employees fall in this category only. Gathering data of staff in all categories viz. administration, technical 1, technical 2 and support staff was not done. In some cases data categorized by the researcher did not match with the data categorization available in official format. This had limited the researcher's flexibility and thus analysis was done as per government data. For instance data related to various categories of employees were categorized into total number of employees falling into the category of Technical 1 and Technical 2. However details of employees engaged in administration and service category as per the category developed by the researcher has been put in one category such as support staff. In some cases the researcher heavily relied on the data available on the official website of the department. It was not possible and also not relevant to update data due to quick transfer of employees from one department to another department in the government set-up. Due to time constraints and other constraints, the interviews of WWPs working in the field could not be done. In the process of primary data collection, the researcher met interviewees once and briefed them about the purpose of the study and then interviewed them. It was observed that due to time limitation, extensive rapport building with the interviewees was not done and so the interviewees may not have been able to speak out on sensitive issues like the case of sexual harassment in their department.

Section III: Typologies

As mentioned in the South Asia report, five types of WWPs - technical, technical type 2, non-technical experts, administrative and service staff - have been considered for the study. In Andhra Pradesh, these categories include following:

Technical: Engineers

Technical type 2: Professionals who are not as qualified as engineers but do support in their engineering work like draftsmen, assistant draftsmen, tracers and lab assistants. Non-technical experts: Social scientists, who are included in the water bureaucracy as the result of sector reform, and are contractual employees.

Administrative: Those who do administrative work like accounts officer, clerk, steno, store superintendent etc.

Service staff: Employees who provide different services. E.g. drivers, sweepers, watchmen, electricians, labourers etc.

This section presents the secondary data about number of WWPs and their typology in Andhra Pradesh.

Department-wise Typology of Women Water Professionals for Andhra Pradesh

- The Directorate of Municipal Administration has fixed the time period for the ULBs to perform certain task in relation to provision of services to the people. It has also set norms to pay compensation to the applicants by ULB's @ Rs.50/- per day 19 if the work is not or completed in the given time period.
- <http://www.aponline.gov.in/Quick%20Links/Departments/Municipal%20Administration%20and%20Urban%20Development/Directorate%20of%20Municipal%20Administration/RTI%20Act/RTI%20Act.doc> pg no.5
- <http://www.aponline.gov.in/aportal/departments/departments.asp?dep=26&org=174&category=About>

Table I: Department - Irrigation and CAD Development Department

Department under Main Department	Administration	Technical-I (Engineers)				Technical-2				Type 3 Service Staff				NA	Total			
		Total	Female	% of female Employment	Total	Female	% of female Employment	Total	Female	% of female Employment	Total	Female	% of female Employment					
80 Project circles and I & CAD other Department	NA	4794	241	5.02	NA	NA	NA	NA	NA	NA	4794	241	5.02					
ENC (ADM)	100	27	27	10	2	20	2	0	0	16	5	31.25	-	-	130	34	26.15	
CE, IS & WR	27	2	7.4	37	4	10.81	2	0	0	4	0	0	-	-	70	6	8.57	
CE NSP CAMP OFFICE	11	5	45.45	9	2	22.22	0	1	0	0	2	0	-	-	-	23	7	30.43
APSIDC	192	35	18.22	208	10	4.80	59	1	1.69	1.69	1	0.92	-	-	-	567	47	8.28
DGW	5	0	0	6	1	16.66	75	9	12	12	72	7.39	-	-	-	1061	82	7.72

The data table indicates lowest and highest Percentage of WWP in all categories across departments. Brown shading highlight no representation of WWP; Yellow indicates low percentage; and green indicates high percentage of WWP across departments.

Department having no representation of women – ENC (Adm), CE, NSP Camp Office, CE Is & WR in Technical 2 and CE, NSP Camp Office, CE Is & WR in Type 3 service staff category.

Highest Percentage of WWP including all Categories – CE, NSP Camp Office, Hill Colony, Hyderabad (30.43%)

Highest Percentage of WWP Administrative Categories – CE, NSP Camp Office (45.45%) – (Out of total male employees in the same category)

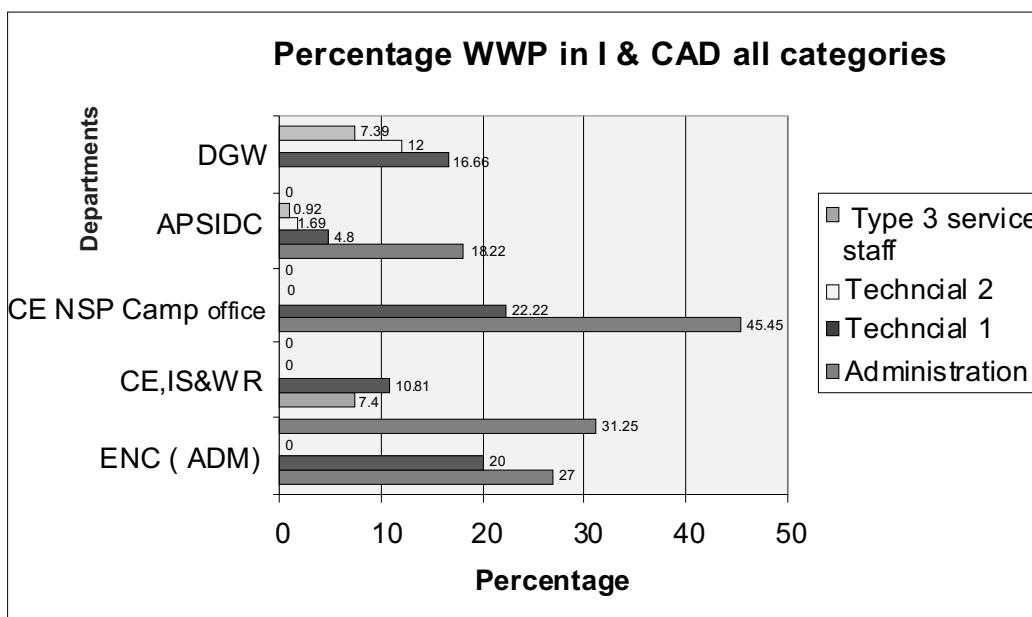
Lowest Percentage of WWP including all Categories – Project circles of the department and Project wings of the department (5.02%)

Lowest percentage on WWP in Administrative categories other than DGW - CE, IS&WR (7.4%)

Lowest percentage on WWP in Technical I categories – APSIDC (4.80%)

Lowest percentage on WWP in Technical 2 categories – APSIDC (1.69%)

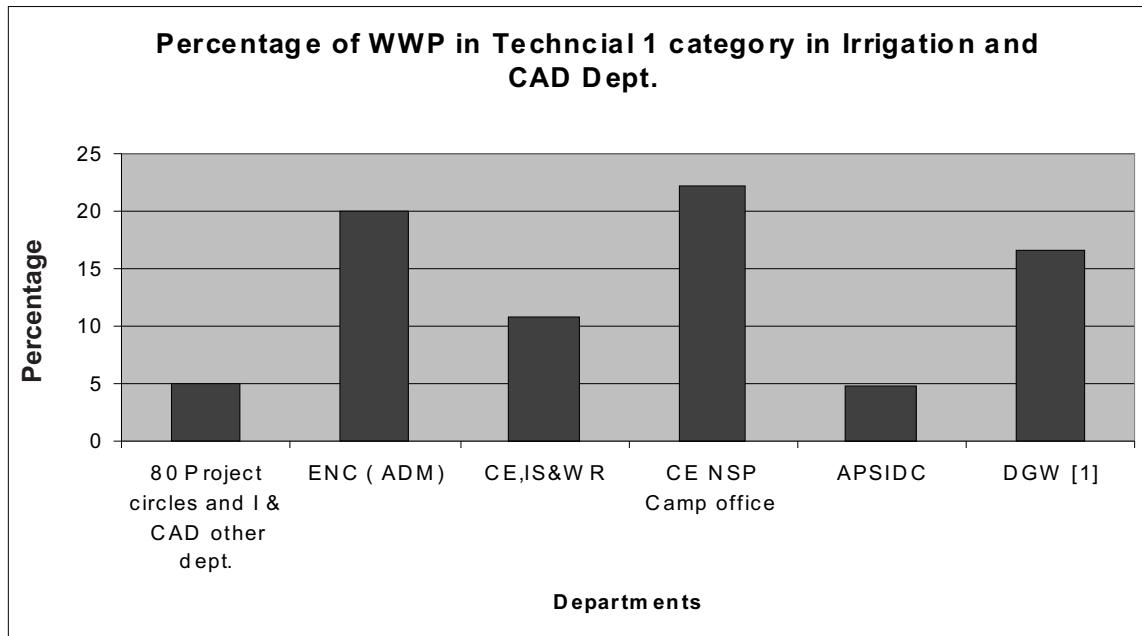
Lowest percentage on WWP in Type 3 Service staff categories – APSIDC (0.92%)



In the majority of departments, the percentage of WWP in the administration category are more as compared to other categories mainly technical 1 and 2. In CE, NSP camp Office it's more than 40 %, (total employee working in the administration). However if we look at the total number of employees in this wing it is 21.73 % (total employee in the department and percentage of WWP in administration). As compared to the staff strength in other office like the APSIDC and Dir. GW, the staff strength of CE, NSP Camp Office, Hill colony is very less.

Only designations like administrative officer and assistant accountant officer has been put in the category of administrative staff. Other staff which comes in this category, for example, typist, attendant, junior assistant all have been put in the category of support staff. This is because the total number of male employees working under this designation or under Type 3 (Service staff category) is not available. However the total number of support staff is available in the data provided by the Ground Water Department. Therefore from the data analysis point of view it is convenient to put all such designations in support staff category. Thus the support staff category contains both technical and non-technical staff, however key technical staffs have been put in the category of Technical and Technical 2 as per the typology developed for the study.

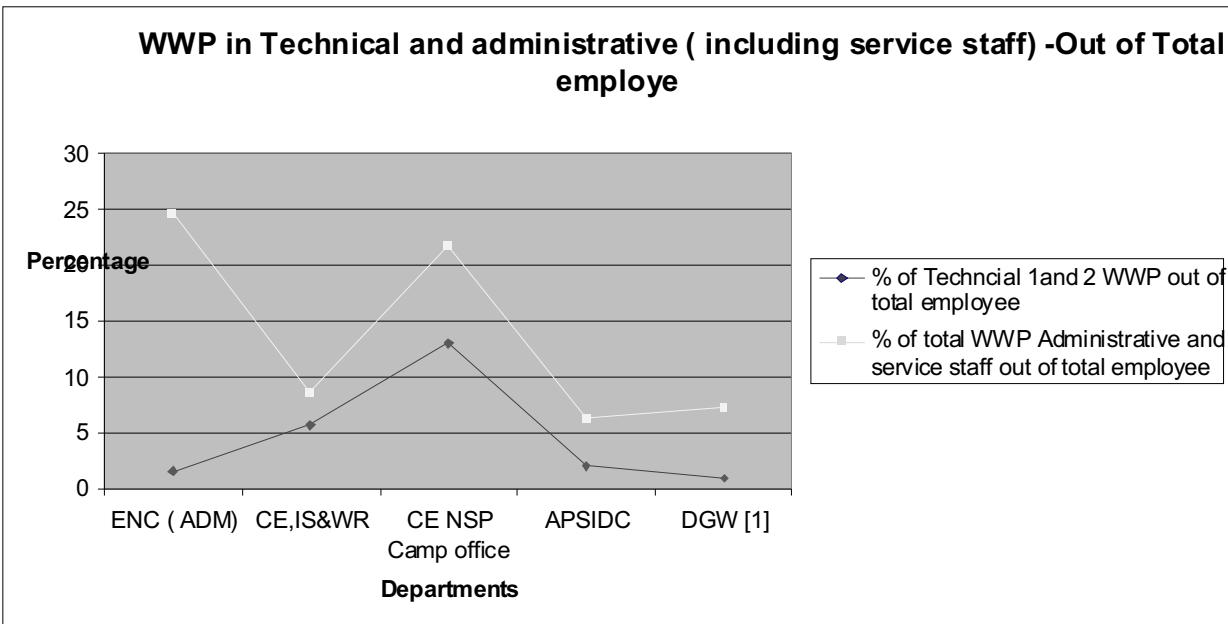
Lowest percentage on WWP in Type 3 Service staff categories –APSIDC (0.92%)



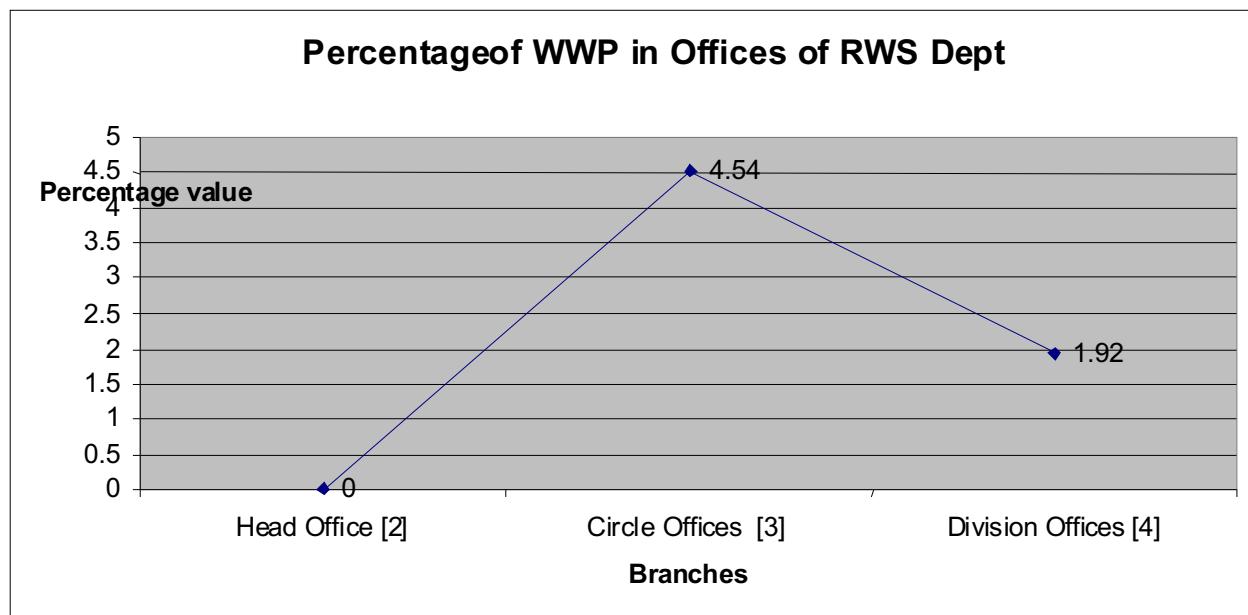
There are no wing/department/institutions where WWPs have at least 33% representation in the technical category (out of total male employees in the same category). The highest percentage (22.22%) is in Hill colony, Hyderabad office of CE, Nagajuna Sagar Project, Camp office followed by ENC (Administrative Wing). As stated above, the later deals with all administrative matters and technical employees are also involved in administrative matters. This indicates low representation of women and even women having technical qualification are engaged in administrative matters with no use of their technical qualifications.

Table 2: Irrigation and CAD Department

	% if Technical I and 2 wwp out of total employee	% of total WWP Administrative and service staff out of total employee	Total employees (all categories)	Female Employee Technical I and 2	Administrative and service staff
ENC (ADM)	1.53	24.61	130	2	32
CE, IS & WR	5.71	8.57	70	4	6
CE NSP CAMP OFFICE	13.04	21.73	23	3	5
APSIDC	1.94	6.34	567	11	36
DGW[I]	0.94	7.25	1061	10	77



In all departments, percentage of WWP in administration and service staff combined is higher as compared to technical employees.



As per the data available on <http://aprws.gov.in/html/about-org.htm>, in head office the total number of ENC - I, CE – 3, Project Director – 2 and Superintendent Engineer – 1

As per the organizational structure available on <http://aprws.gov.in/html/about-org.htm>, all 22 Circle Offices in 22 districts are headed by Superintendent Engineers. Here total number represents the number of Superintendent Engineers only.

As per the organizational structure available on <http://aprws.gov.in/html/about-org.htm>, all 52 Division Offices in 22 districts are headed by Executive engineers. Here total number represents the number of Executive Engineers only.

Table 3: DEPARTMENT - MUNICIPAL ADMINISTRATION AND URBAN DEVELOPMENT DEPARTMENT

Department Under Main Department	Administration		Technical I (Engineers)		Technical 2		Type 3 Service Staff		NA		Total	
	Total	Female	Total	Female	% of female employees	Total	Female	% of female employees	Total	Female	% of female employees	Total
Commission rate and Directorate of Municipality	90	8	8.88	NA		NA	6	0	0	1	0	97
Hyderabad Metropolitan Water Supply and Sewerage Board - HMWSSB	47	7	14.89	309	11	3.55	14	1	14.28	6	0	9
												11.11
												8
												8.24
												20
												5.45

Commissionerate and Directorate of Municipality is an administrative wing.
 Percentage of WWP out of total employee in the same category – 8.88%
 Percentage of WWP out of total employee including all categories – 8.24%. This is very low.

HMWSSB

Total Percentage of WWP including all categories – 5.45%
 Lowest Percentage of WWP among various categories - Technical I
 Highest Percentage of WWP among various categories – Administration
 No category having more than 15% of WWP.

Department having no representation of women in Technical I category – Rural water supply, Head Office
 Highest Percentage of WWP Technical I Categories – CE, NSP Camp Office, Hill Colony, Hyderabad (22.22%)
 Lowest Percentage of WWP Technical I Categories – Division office, Rural Water Supply Department

Table 4: WWP in Technical I Section in all Departments			
Department – Irrigation and CAD Development Department	Total employee in same category	Female	% female employee Out of total employee in the same category
80 Project circles and I & CAD other department	4794	241	5.02
ENC (ADM)	10	2	20
CE,IS&WR	37	4	10.81
CE NSP CAMP OFFICE	9	2	22.22
APSIDC	208	10	4.80
DGW ¹	6	1	16.66
DEPARTMENT – RURAL WATER SUPPLY DEPARTMENT			
Offices in the Department			
Total			
Head Office ²	8	0	0
Circle Offices ³	22	1	4.54
Division Offices ⁴	52	1	1.92
Department – Municipal Administration and Urban Development Department			
Total			
Hyderabad Metropolitan Water Supply and Sewerage Board - HMWSSB	309	11	3.55

- The department monitors administration at municipal level , it consists of administrative staff and service staff only. <http://www.aponline.gov.in/Quick%20Links/Departments/Municipal%20Administration%20and%20Urban%20Development/Directorate%20of%20Municipal%20Administration/RTI%20Act/RTI%20Act.doc> pg no. 15 <http://www.aponline.gov.in/Quick%20Links/Departments/Municipal%20Administration%20and%20Urban%20Development/Directorate%20of%20Municipal%20Administration/RTI%20Act/RTI%20Act.doc> pp 19–21
- Total number of employees in the head office is 97 and there are six regional directors in six regional offices.The sanctioned Ministerial strength of each Regional office is one Superintendent, 2 Senior Assistant, 1 Junior Assistant, 1 Typist, 1 Stenographer, 1 Attender and one Driver; total 8 staff. Here we have included six regional directors as data of other staff in the regional offices are not available.

Percentage of WWP Technical I Categories (below 20%) – 80 Project circles and I & CAD other dept. CE, IS&WR (I & CAD), APSIDC (I & CAD), DGW (I & CAD), Circle Offices(Rural water supply) ,Division Offices (Rural water supply), Hyderabad Metropolitan Water Supply and Sewerage Board – HMWSSB(MAUDD)- Total 7 department Out of 10 department. That means in 70% of departments the percentage of WWP in technical I category out of total employees in the same category is less than 20 %.

Lowest percentage on WWP in Administrative categories other than DGW - CE,IS&WR (7.4%)

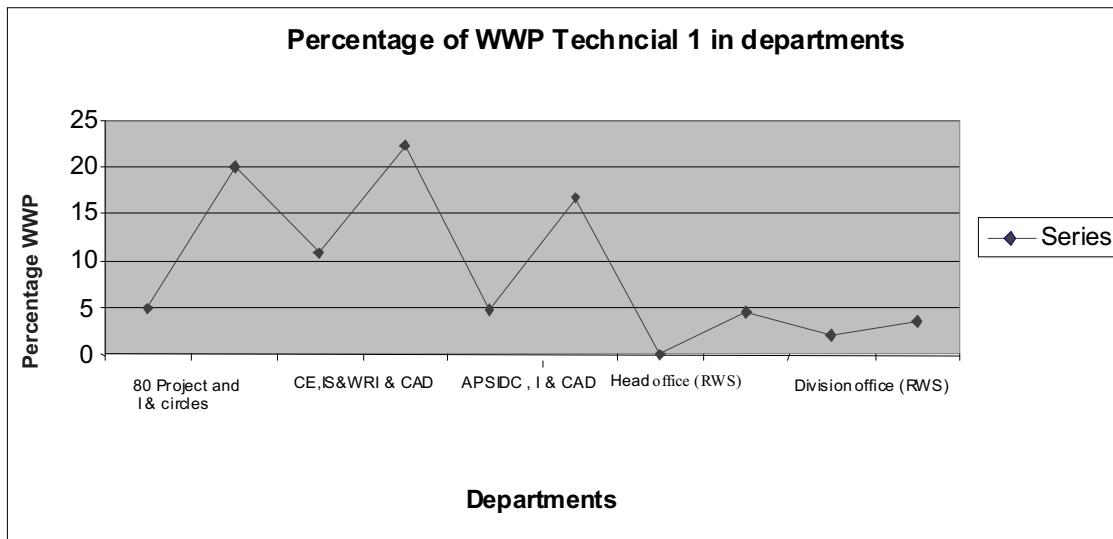
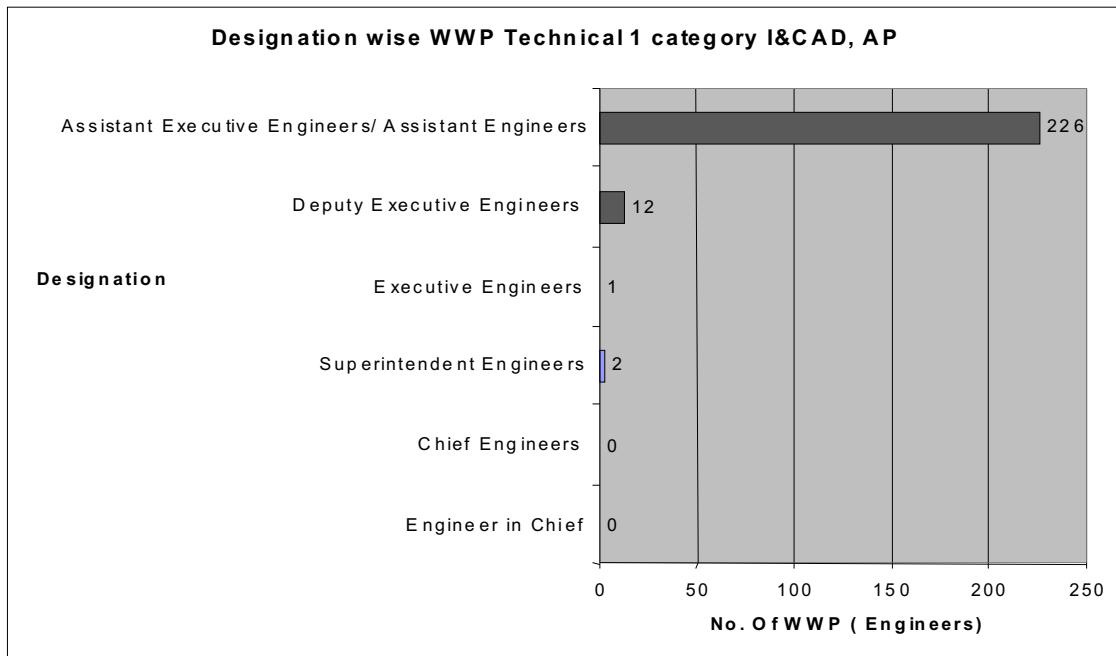


Table 5: Designation-wise list of all engineers working at various levels (high to low) in Irrigation and CAD Department, AndhraPradesh

Designation	Total No. of Female	Total No. of Male	Total No. of Engineers
Engineer in Chief	0	5	5
Chief Engineers	0	22	22
Superintendent Engineers	2	74	76
Executive Engineers	1	332	333
Deputy Executive Engineers	12	1254	1266
Asst. Executive & Executive Engineers	226	2866	3092
Total	241	4553	4794

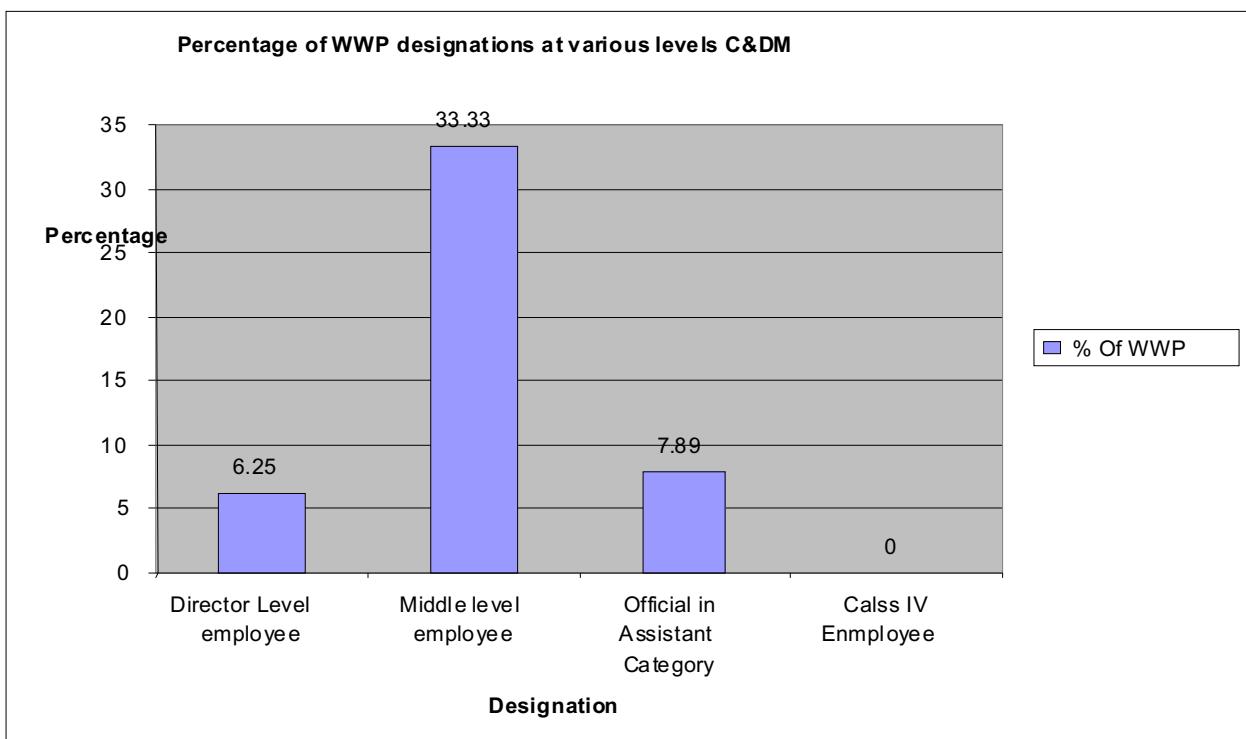
- Only designations like administrative officer and assistant accountant officer has been put in the category of administrative staff. Other staff which comes in this category, for example, typist, attendant, junior assistant all have been put in the category of support staff. This is because total number of male employees working under this designation or under Type 3 (Service staff category) are not available. However the total number of support staff is available in the data provided by the Ground Water Department. Therefore for data analysis point of view it is convenient to put all such designations in support staff category. Thus the support staff category contains both technical and non-technical staff, however the key technical staffs have been put in the category of Technical and Technical 2 as per the typology developed for the study.
- As per the data available in <http://aprws.gov.in/html/about-org.htm> in head office total number of ENC -I, CE – 3, Project Director – 2 and Superintendent Engineer – 1
- As per the organizational structure available in the <http://aprws.gov.in/html/about-org.htm> all 22 Circle Offices in 22 districts are headed by Superintendent engineers. Here total number represents the number of Superintendent Engineers only.
- As per the organizational structure available in the <http://aprws.gov.in/html/about-org.htm> all 52 division Offices in 22 districts are headed by Executive engineers. Here total number represents the number of Executive Engineers only.



The chart indicates low number of women in decision making positions in the Irrigation and CAD Department. When asked from the higher authority about the reason for having low number of WWP at higher level which is a technical post as well as a decision making post, the point was well taken by the employees. However, the argument put forward was that it was justified because as per the government rules, higher posts are generally filled up through departmental promotion and on the basis of seniority. If we look at the education profile of women 20-30 years back, there were very few women who took science as well as technical subjects like engineering for higher studies. Most of them were encouraged to take arts as its subject and get into the profession of teaching. However the trend is changing and in recent years women have been recruited for the Technical Post. In the I & CAD department, women are mostly holding the post of Assistant engineer and Assistant executive engineers, as most of them have joined recently. If government rules are followed in the same way as earlier WWP working as AEE and AE would hold decision making post only after 10 to 20 years.

As stated above, C&DOM is mainly to deal with administrative matters of all ULBs in Andhra Pradesh. Here too, there are no women working at a higher decision making level.

Designation	% of Total WWP in same designation	Total No. of employees	No. Female employee
Director level – additional director, Joint Director, Regional Director , Project Manager Deputy Director etc. including Commissioner and Director of Municipality	6.25	16	1
Middle level officers such as chief valuation officer, compost development officer, statistical officer, public relation officer Accounts officer etc.	33.33	6	2
Official in assistant Category superintendent senior and junior assistant, steno typist, Rhoneo operator, Office subordinate	7.89	76	6
Class IV Employees jamedar, sweeper, driver	0	5	0
Grand Total	8.73	103	9



Section IV: Profiles of the Women Interviewed

Table 7: Department Profile	
Department	No. of WWP
I. irrigation and CAD	
I.A. Irrigation and CAD (Irrigation Wing)	10
I.B. Irrigation and CAD (CDO) Special Designs	2
APILIP (Andhra Pradesh Irrigation and Livelihood Improvement project)	1
I.C. APSIDC	2
I.D. Directorate of Ground Water	4
2.HMWSSB	4
Total	23

Table 8: Why Women are Less? FGD Findings

Type	Designation	No. of WWWPs
Technical		
	Deputy Director (Hydrology)	1
	Assistant Director (Geophysics)	1
	Deputy Executive Engineer	1
	Executive Engineer	1
	Assistant Executive Engineer	6
	Assistant Hydrologist	1
	Manager	1
	Chief Engineer	1
Total		13
Non-Technical Experts		
	Institutional Development Expert (IDE)	1
	Computer Operator	1
Total		2
Administrational		
	Superintendent	2
	Office subordinate	2
	Accounts Assistant	1
	Officer(P and A) Personal and administration	1
	Sr. Assistant	1
	Personal Assistant to Managing Director	1
		8
Grand Total		23

Out of 23 WWWPs interviewed 13 WWWPs possesses technical post, 2 having non-technical post and 8 having administrative post.

Table 9: Age, Marital Status, Education and Caste Profile

Age	
Age group	No. of WWP
Below or upto 25 Years	3
26- 35	6
36- 45	5
46 and above	9
Total	23

Out of 23 WWPs interviewed total 14 WWPs belongs to the age group from 36 and above coming in the category of middle aged.

Marital Status	
Marital Status	No. of WWP
Married	17
Unmarried	2
Widow	4
Total	23

Education	
Education	No. of WWP
MSc.Techology, Geophysics	1
M.Tech	1
M.Tech and BE	1
M.A LLB	1
MBA and B.Tech	1
M.Com	1
BE	3
B.Tech	5
B.Com	1
BA	5
Diploma in Hydrology	1
Higher Secondary	2
Total	23

Out of 23 WWPs interviewed, a total of 6 WWPs have master's degree and a total 13 include diploma in hydrology as technical qualification; more than 50% of WWPs have technical qualification

Caste	
Caste	No. of WWP
Other Caste	11
OBC	5
SC	4
ST	2
Minority	1
Total	23

Section V:The Culture of the Water Sector

Education and Career Choices

The majority of interviewees and discussants agreed that in the water sector, the proportion of women employees (WWP) is less as compared to other sectors like education and health. The water sector somewhat relates itself with technicality thus employs technical personnel (mainly engineers - civil, agriculture, mechanical, hydrologist and related streams) for execution of its programmes.

Less number of women having technical qualifications such as engineering, geology, hydrology etc. contributes to less number of recruitments of women in the water sector. The reason for having less number of women engineers lies behind the socio-economic and education culture in India where women are encouraged to take up the arts stream. Due to gender stereotyping, less priority is given to the education of women. However in recent years, the number of women engineers has increased. In the case of the I & CAD department, considerable number of women have been recruited as Assistant Executive Engineers, the lowest position in the technical category. In the Irrigation and CAD Department, one of the WWP in her interview accepted that, 'there are very few women in the decision making positions like Executive Engineers (Ees).

Since you find more women joining as Assistant Executive Engineers (AEEs,) and it would take time for these women to get promoted and reach the Executive Engineers, EEs position. Then there will be more women in decision making position may be after 10 years or so depending upon the availability of vacancies. Though few women are found in Assistant Executive Engineers (AEE), Deputy Executive Engineers (DEE) and Executive Engineers (EE) positions but the decisions are taken above these cadres'.

Interviewees opined that Indian women have to manage home, look after kids and other household chores in general therefore professions like teaching and other administrative professions like typist, steno, senior and junior assistant, computer operator which are more of desk jobs suits them more as they can then carry the multiple responsibilities rested on them. As stated above, education and career choices of women have undergone a sea change in recent times. Women professionals having city based educated family background were encouraged by their parents to take up engineering course and continue with the service. However, the majority of them were encouraged to take up agriculture engineering as compared to civil or mechanical engineering courses. They generally take up this course as a last option. To quote one of the WWP, Ms Smita (name changed), AEE ENC, Irrigation Dept.—

'Opting for B.Tech in Agriculture engineering was not my choice. My parents pressurized me to take up this course. I aspired for civil engineering but was told that "Civil engineering is a course suitable for boys and would require site works which a girl can't do".'

WWPs hailing from educated family background and who were city based were encouraged by their parents or family members to pursue higher education in technical subject as in the case of 57-year old Ms Kanti (name changed), Asst. Director, Dir.GW. To quote her:

'I have completed my Masters Degree in Geophysics (Tech.) in the year 1979. Earlier I wanted to be a lecturer by doing M.Sc. in Mathematics but my uncle who was a geologist encouraged me to do this study. Now I am happy with what I am today. At that time, there were total ten seats for M.Sc. Geophysicist at the all India level. There used to be a written examination of this subject and on merit basis selection of students used to take place. The study was conducted with Russian collaboration.'

Nature of Work

WWPs working in the administrative sections in various departments have desk jobs mainly related with moving of files, drafting letters, assisting their seniors etc. When asked if they would wish to take up field work that involves travel, the majority of them spoke out that desk job is more comfortable and it is not possible to manage the house and the field trip at the same time. Interviews and FGDs in various departments revealed that women employees as well as their family preferred them to take up desk jobs. In the administration department, women are generally assigned to do internal work and their male counterparts are assigned to perform tasks outside office, like post related matters, banking, photocopying the documents etc. It is striking to note that some women, despite having technical qualifications, opted for desk job. In some cases women were posted in the field for the initial period of service but then shifted to offices that were located in Hyderabad where field trip is not required due to various family related reasons.

FGD with Managers in the HMWSSB revealed that even after having technical qualifications, women opt for desk work as they don't have to undertake field work or stay outside Hyderabad. The job then becomes very convenient for women because it doesn't involve any travel and hence they can take up family related responsibilities together with their job in the government.

It has been revealed that technically qualified new women employees do not have clear role assignment. They are forced to undertake administrative work like correspondence, drafting letters, sending memos etc. with which they are not satisfied and they demand for a greater role in the organisation. It also came out that the project related work is generally assigned to experienced people. 'Meeraj who has previous work experience in other water related department is given more relevant tasks like checking for work estimates, scrutinizing the works and sending to higher officers etc.'

Ms Sulochana (name changed), AEE, I & CAD is working in the Nizam Sagar project, a project to provide water for irrigation purposes as well as drinking purposes in the area. There exist water users associations (WUA) and committees. WUAs are involved in the execution of drinking water supply. Her nature of work involves travel to the project area for several purposes including monitoring of the project. However, she travels very less. She added that there is discrimination in assigning tasks to them. Any task which is unimportant is thrown at women to handle and the tasks which fetches appreciation and in the boss's eyes is picked up by men colleagues. She feels there is a lot of politics and corruption with regard to the work related to work estimation (budgeting). People who have good relations and can bribe, get what they want. Since women stay away from such acts they can't justify the work they are doing.

Images, Symbols and Metaphors

The majority of the employees aspire for understanding and friendly boss. He/she should have a good understanding of the subject and must have the ability of judging the capacity of the male and female employees. He/She should distribute the work equally. The majority of the WWPs expressed that they have a good and comfortable relationship with their boss. However some WWPs felt that in spite of subordinates being qualified, the boss has not been able to extract work from them. One of the employees having a social science background and involved in the APILIP project, I & CAD, feels that the boss should be gender sensitive. He/she must understand the needs of a woman. She feels that her boss is sensitive and has made an effort to make provision for separate wash room for women. She also thinks that women must be confident enough to face the challenge of the external environment. Most of the WWPs accepted that men and women do think differently. Some of the male counterparts pass comments on women who leave office on time or use earn leave to take care of their children or go home early due to some necessities. It is also of not understanding women who are mostly overburdened due to having duel responsibilities. Interaction with some of the male officers and staff indicated that their attitude towards women is not progressive. They feel that in the government office, accountability is less and thus they are not sincere about their work; they are more concerned about their home and children. Some men made comments like 'wait, a day will come when men will have to take permission from women'.

WWPs felt the need of women in key positions to take care of women's needs. A male boss may or may not understand women specific issues. Women also restrict themselves in approaching a male boss for women specific issues. Meeraj, working as manager, HMWSSB, thinks that, 'for desk work, male or female boss doesn't matter, but a woman boss would be convenient for the field work'.

Ms Lalitha (name changed), Officer Personal and administration (P and A), HMWSSB, frankly accepts the need for women in decision making positions. She cited the example of a woman holding the post of Chief GM (P and A cadre), few years back who brought about many changes like provision of separate toilets and lunch rooms for the women staff. Similarly all women employees in I & CAD Department wished for having a Women ENC (Adm) when their request of opening a day care centre in the department got rejected again and again as it was headed by a male ENC (Adm).

Men's Collectives and Women's Collectives

In I & CAD, informal meetings for women have been organized to celebrate Women's day, 'Vanabhojan' farewell parties etc. In these gatherings, all women irrespective of their cadre participate and there is no discrimination. They all celebrate such events where almost 250 women across all the Irrigation and CAD departments come together on such platforms. There is a women's complaints committee, where till date, no incident of sexual harassment has been recorded. But there are certain informal collectives for men. Many WWPs from the I&CAD have asserted that 'Men stay back after 6.00 pm in the office and have their contract dealing. This is typically seen in the office. There is not even a single woman seen in the office after 6.00 pm'. This indicates male domination in handling contracts and major projects where lot of money is involved. This also hints to corruption in managing major projects and keeping women away from such acts. The APSIDC Women get-together on occasions like Women's Day. But these channels are not of the nature where they get to discuss their work, promotions, benefits etc. In the HMWSSB there is a women's association for the staff which also takes care of complaints by women at the workplace. They have solved few small problems that women faced at work. No major sexual harassment cases have been recorded so far. They celebrate women's day together. They are not aware of any collectives men have. However, the Central Design Office, I & CAD, office has no specific collectives for women. But they meet at the lunch table to share thoughts. They celebrated Women's day recently. They also talk about their families when they meet at lunch. Other higher cadre women eat separately; they sit nearby but don't come to this group.

Understanding of Water Issues

The interviews and FGDs revealed that the administrative staff, especially the staff at the lower level do not have any understanding of issues related to water policy, water laws etc. However some of the administrative staff at higher level have a good understanding of generic water issues such as water scarcity, drinking water problems, need for water conservation etc. Technical employees involved in the water sector too are not aware of water policy. However professionals in the I & CAD department are aware of issues related with irrigation management, construction of dams etc. Most of the women AEE in the I & CAD Department, were unaware of water policy, participatory irrigation management etc. It has been experienced that women at higher level had good understanding on issues. Very few of the WWPs have an understanding on such issues. The Deputy Director, DGW, Ms Renuka Devi and the Institutional Development expert, APILIP project, Ms Padma, have a good understanding on such issues. During the interview, they talked about water policy, Water Users Associations (WUAs), depletion of ground water resources in the state etc.

Section VI: Gender and Organisation Related Issues

Work Atmosphere

Women find the work atmosphere comfortable and favourable to them. There is no discrimination between male and female employees in terms of payments, promotion opportunities, exposures, attending trainings/ conferences, working after office hours etc. WWPs having more than 20 years of experience in the department shared that the numbers of women employees have increased. At the time of their joining the department, there were very few women.

Ms Kanti (name changed), Assistant Director in DGW has 26 years of experience. She joined the post as a technical assistant which also included field travel to remote areas where there is no habitation. Her job was to identify feasible sites where ground water can be used for irrigation purposes. She was the only woman working in the field. She got cooperation in the field from her male colleagues who were cooperative and she didn't face many constraints. She shares, 'My only constraint was lack of sanitation facility in the field. I used to feel guilty about where to go.' Some of WWP's felt that male colleagues start respecting you if you are sincere and hard working and they never approach you in a wrong way. 'As women, one has to be clearly drawing their boundaries to avoid such problems.' The statement clearly indicates women working in the department believe in following gender stereotyping. In the field she experienced that all their men colleagues are very co-operative and protective. She suggests one needn't struggle or try to compete but keep working, automatically; you get the recognition for the work.

In the Irrigation and CAD, WWP's asserted that seniors neither lent a helping hand nor any support to know new things. In fact they fear losing their knowledge and credibility if shared with the juniors. In the words of Ms Gauthmi (name changed), AEE, Irrigation and CAD, 'juniors are treated as immature who know nothing'. She cited one of the cases reinforcing the statement. 'One of my friends was assigned a task by her seniors who didn't bother to explain the task properly. When she was not able to justify the work, she was insulted in front of everyone about her inefficiency. While attempting she tried seeking support from other seniors since she had many doubts, but they refused to help her out.' Ms Ritika (name changed), DEE, I&CAD, having 30 years of experience, feels the work atmosphere is not so convenient for women. She says, 'It is so because in majority of posts an employee has to deal with money matters and thus there exists corrupt practices like bribe and favouritism which a woman can't handle. Women are like toys working in the hands of men folk.' Ms Sulochana, AEE in I & CAD, quotes an incident where one of her colleagues drafted a letter to the concerned department, then her boss passed a comment, 'This is not a letter to be drafted to your husband. No need to write this kind of request letter' (They knew her husband stayed in Pune.). Another WWP in the same department expressed that she was very timid initially when she joined in the department. There were 100 men in the wing. Later she got used to the situation and was treated specially. She believes that equal composition of men and women would bring in a change.

Gender Spaces and Infrastructure

WWPs working in the HMWSSB are happy with the facilities available for women. There is a newly constructed complex which is very well constructed. They have all the facilities such as separate toilets, lunch room etc. There is no discrimination in sharing and coming together. Even in the lunch table, women and men sit as per their convenience. There are few women in number and therefore the requirement for having a day care has not been raised at all. In this group, two women are married and have children. They make their arrangement at home or a day care near their house. Moreover, women felt that the office timings are very flexible and they can manage their home and work. In the DGW, most of the women are middle aged thus they don't feel the need for any day care unit in the department. There are separate toilets for women which are not in very good condition. They don't have separate lunch room which they have been asking for from many days. The WWP's working in the I & CAD main department, Jalsoudha building, are not satisfied with the condition of women specific physical infrastructure like toilets, wash rooms, child care centre etc. Separate toilets for women exist but not in a good condition. However women pay extra money for getting them cleaned. In this department, new recruitments have taken place. Women are young and married and their children are small so they feel the need for having a day care centre. Therefore, women have demanded for a day care centre but in vain.

There are very few WWP's who travel to the field but those who go to the field, don't find the guest room in good shape to live in. They usually face problem with regard to sanitation facility in the field. In the I&CAD, AP one of the Assistant Executive Engineers said that as per the government rules, the vehicle facility is not provided to this level and thus they usually use public transport for the filed visits. This is very tiring and this is one of the reasons that women avoid field visits.

Maternity Leave and Other Benefits

Almost all WWPs agree for the provision of maternity leave and holidays as per the government rules. Many of them have also availed such facilities without any major constraints. They also avail earn leave and casual leave. Some WWP said that after availing maternity leave, they also availed sick leave and earn leave to take care of the child. Their office timings are 10.00 am to 5.00 pm with second Saturday and Sunday being holidays. There is no such rule which promotes flexibility in work timings. However they can be late up to half an hour but not more than twice in a month. Availing leaves also depends on the boss - if you have good relations with your boss, they generally don't bother if you are coming late or going a little early, said a WWP.

Sexual Harassment and Related Support

It has been observed that the interviewees generally avoided this question and didn't want much discussion on this aspect. This may be due to their loyalty toward the department where they are working. Some of them, especially middle aged professionals with more than 10 years of experience, straight away said no in response to this question. Some of them said that they had not experienced any types of sexual favours, eve teasing or harassment but some of their colleagues have experienced eve teasing in the department. In the I & CAD there is a grievance redressal cell to register cases against women employees such as sexual harassment or any other harassment. However no complaints have so far been registered in the cell. Surya Kala, Head of a cell to handle women's issues said that the cell is functional though only a single case was registered which was an allegation. It was routed through the Human Rights Commission. There was an anonymous letter addressed to one of the staff members.

Women from all the departments were asked to put in writing any grievance they had. However later, it was solved internally. She again feels that women are responsible for giving men a chance to intrude into their personal matters. Some of them shared that sometimes they were assigned tasks when they are about to leave which was a way to show off their dominance and power. However, WWP didn't mention any instance of men colleagues asking for special favours. It's always a tough time for women as she has to prove her competencies and give her best to survive the rat race, said a women employee of the I & CAD.

In the HMWSSB there is a women's association which looks after such matters. There are cases of sexual harassment in this department which has been handled strategically. A WWP, retired as DGM in the same department shared a case of sexual harassment in the office premises targeting a woman working as an attendant. The Women's Welfare Association raised its voice against such acts and took this issue to the Managing Director. The accused was warned that he would be suspended if he indulged in such acts again. This case was discussed with other employees informally and secretly to spread the message that stern action will be taken if such an act is repeated again.

Normative Woman

The majority of women felt that women should not cross their limits. They should not be too loud. They should not be too frank and free with the male staff. They should be decent and dress "properly", which means wearing either saree or salwar kurta. Wearing jeans, short sleeves or sleeveless blouses is not encouraged. However there is no specified dress code for women and men.

In the HMWSSB, they have the freedom to wear whatever dress they wished. Young girls who have joined are seen wearing dress of their choice like jeans, salwar suits, sari etc. As far the dress is sensible, it's alright to wear the dress of one's choice. Women should also be able to manage household and work at the same time efficiently and effectively. Ms. Prathima (name changed) working as superintendent, I&CAD, opines,

'Working women should have a plan for her to complete her work in time. She can plan the next day's activities in advance. She should organize tasks both in home and office. For e.g., she can do vegetable shopping for the entire week beforehand. She can cut vegetables and keep ready the night before for next day. She can use pre cooked curry. In spite of all this planning, a five-day week would help her to relax and manage work and home better.'

The statement above and opinion of WWP about dressing sense indicates that majority of WWP's are best fit in as normative women, they rarely think of coming out of normative concept.

Women in the Hierarchy

The majority of the WWP accepted that they work in a male dominated society. However male staff members are cooperative and generally see women as preferred subordinates. There are very few people who think that women can also be leaders. Ms Padma, Institutional Development Expert, APLIP, I & CAD, feels that,

'Being a woman, I can influence other women to come in the sector. For instance I used to invite and allow participation of a women project leader-cum-teacher in the musi project, in programmes like exposure visits or project committees. This is to put into notice that she was the only woman in the entire group. Since I am there, she feels comfortable to participate'. She adds from her own experience that men never accept women as knowledgeable. She states, 'Previously, in some forums they have not given space to me. However I found my ways to show my capabilities and capacities. I used to speak out in the meeting and I was able to convince them on many issues.' 'If a woman is active, social and interactive, they are able to manage everything; they are branded as extraordinary'.

Retired DGM, HMWSSB, Ms Shobha Rani also feels that men generally don't want women to take the lead. She cited an example of her brother. She, being very active and energetic learned to drive the scooter at a very young age. She was perhaps the first woman scooterist in her time. However, her brother didn't want to sit with her as pillion and felt embarrassed.

Section VII: Gender Relations at the Household

Most of the women accepted that they get support from the family at the household level. Some of them asserted that women are overburdened as they have the responsibility of managing home as well as work. One of the retired DGM, HMWSSB, Ms Shobha Rani, shared that if family would support, women can go for further studies and also achieve higher positions in the department. She fought with the government system on deputing employees for higher study. After completing her B.E, her husband encouraged her to do M.Tech. Initially she was not interested even though she appeared in the exam and passed. At that time she was working as a junior engineer in the organisation. When she approached the higher officials with the request to grant her leave to undertake M.Tech, it was refused initially. She states, 'I was the first junior engineer, deputed from the department to undertake M.Tech. Earlier only executive engineers and higher officials were allowed to do post-graduation. I questioned the system, wrote an application and went to all higher officials. I pointed out that I have been working in this organisation from last 10 years so I will not run away after completing my studies. I didn't get promotion for some or the other problem in the department. Compared to Executive Engineers and higher officials, I am younger, so I am fresh with my subject. Thus I can perform better than the seniors'. Her point was well taken, and she succeeded in convincing higher officials, she was allowed to undertake her M.Tech on deputation. She says, 'Higher officials were quite sensible people even at the minister level, if you will assert and convince them in a slightly louder voice.' She further adds, 'Unlike a B.E. I went like a queen; I got my salary, deputation allowance and study leave'.

Section VIII: Training Needs

In general all WWP's have gone through induction training, which is compulsory for everybody. There are very few cases where WWP's have gone through or been nominated for any other training apart from induction training. In general if any invitation for training comes up, the head Executive Engineer (EE) decides whom to send for a particular training programme. Women avoid such trainings because they have to leave their family, get up early and attend sessions which is quite straining. Instead they prefer being in Hyderabad. Some women dropped out from the trainings they were supposed to attend even after being nominated.

In the case of Retired DGM, HMWSSB, Ms Shobha Rani, she fought with the government system to go abroad for training and exposure. She says, 'Earlier only Executive Engineers and General Manager could go abroad for training. I questioned, and said being a junior I will serve the organisation more than the seniors.' Consequently she went to Britain, and attended a 4-month programme on Water Resource organized by World Water British Council of India. Here she learned design, investigation, execution and maintenance of water resource. She was the first one in the family who went abroad.

Section IX: Recommendations

There is a need to influence women and their family members. Family members should be positive towards women working outside. Sometimes the woman herself is an obstacle in her growth. There should be awareness campaigns and people like us who are researchers should come and talk to them, create awareness and help bring about a change. There is a need for rest room, lunch room and clean and maintained toilets, facility for drinking water. Field visit should be made mandatory for everyone whether men or women water professionals. There should be updated information and transparency about the upcoming training events. Appropriate candidates should be nominated for the training programmes. There should be a good library for all. There should be work rotation. Women should also form a part of meetings that are held in the department. This updates them and helps them to contribute better. There should be induction training first before joining the job.

Section X: Concluding Remarks, Major Findings and the Way Forward

Major Findings

The data related to the number of WWP in various departments clearly brought out the low number of women. Category-wise too, many departments have less number of women in technical positions. In departments where considerable a number of WWP exist in technical positions, very few women hold decision making positions. In relation to the nature of work, there are very few women in technical positions who look forward to field visits and site work.

In some of the cases, WWP asserted that their family members forced them to take up agricultural engineering instead of civil engineering as the later involves more travel and outside related work. Few WWP asserted discrimination in assigning tasks, of drafting letters. In general the work environment is comfortable and junior and senior male and female staff is cooperative. It has been observed by the researcher and also shared by WWP that there exist a lobby of male employees who stay back in the office after six p.m. for contract dealings. Women are generally not involved in such processes. In general no images, symbols and metaphors are used for women. Women in decision making position would help women to discuss women specific issues and contribute to the gender sensitive environment in the office. There is no such issue related to availing leave including maternity leave as per government rules.

The cases of sexual harassment are rare. However, some of the employees have spoken out about the case of some favours and eve teasing. Remarks and comments from male colleagues about their attire are not many. In order to avoid this they limit themselves to wearing attire acceptable in society. Most of the WWP do not have an understanding on water related policies and laws in Andhra Pradesh. The WWP believe in accepting societal norms and not going out of the way - this promotes gender stereotyping. With regards to women specific infrastructure facilities, newly built departments have all such facilities whereas old constructions needs maintenance. There were very few WWP having aspirations for career growth. Except in the HMWSSB, the redressal cell for women is not so active. They are not aware of gender policy.

The Way Forward

Considering the findings of the study having a low number of WWPs in the water sector, low number in technical positions, low number in decision making positions and gender issues related to the sector, we recommend the following:

- Gender policy must be put in place in every department.
- It is really important to develop a strategy and evolve a mechanism to make gender policy and grievance redressal cell functioning.
- This should be widely discussed and oriented among WWPBs in particular and WPs in general.
- Promoting gender specific needs like sanitation facilities, day care centre, separate lunch room etc.
- There is a need to orient women on various issues like understanding gender, gender and water etc.
- There is a need to restructure the recruitment process and norms for departmental promotions in the government departments. A mechanism can be evolved to recruit more women in technical categories and also promotion of women to the higher posts.

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Acknowledgements

This study would not have been possible without getting directions from South Asia coordination team namely, Ms Seema Kulkarni, Ms Sneha Bhat, Ms Sutapa Majumdar from SOPPECOM, Pune, India and Dr Chanda Gurung Goodrich from SaciWATERs, Hyderabad, India.

I would like to thank Ms Vanaja Kankrala, Independent Consultant, Hyderabad, India who supported me in undertaking interviews of WWPs and conducting Focus Group Discussions (FGDs). I must acknowledge her contribution towards the outcome of the study. I thank all the officials in the water bureaucracy for their encouragement and help in undertaking interviews and FGDs in their respective departments and offices. I would also like to thank all interviewees who spared their valuable time.

I hope the outcome of the study would serve the purpose of developing strategies for increasing the participation of WWP in the decision making process.

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SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN MAHARASHTRA

**Seema kulkarni
Sneha Bhat
Sutapa Majumdar**

List of Abbreviations

- CDCB Community Development and Capacity Building
- DAMT District Appraisal and Monitoring Team
- DFT District Facilitation Team
- GSDA Groundwater Survey and Development Agency
- IDA International Development Association
- IEC Information, Education and Communication
- MJP Maharashtra Jeevan Pradhikaran
- MPSC Maharashtra Public Service Commission
- PWD Public Works Department
- PWS Public Water Supply
- RSPMU Reform Sector Project Monitoring Unit
- WRD Water Resources Department
- WSSD Water Supply and Sanitation Department
- WWP Women Water Professional
- ZP Zila Parishad

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Situational Analysis of Women Water Professionals in Maharashtra (India)

Section I: Introduction

Since the last decade the interest in issues of gender and water is increasing. Throughout South Asia we see new policies and programmes coming up which emphasise women's participation in management of water. All these programmes focus on rural women and their participation in community water management, but little thought has been given to the issues of women professionals who work in the water sector. Hardly any research has been done about whether these macro level institutions are democratic or not, whether there is space available for these women professionals to participate in decision making, what are the constraining factors in it etc. These questions largely remain out of the debates on gender and water. In this context we feel that a study about women water professionals would be very important.

Maharashtra Scenario

The era of water sector reform began few years back. In 2003, Maharashtra State Water Policy was declared and after that, new policies and programmes were launched in both irrigation and drinking water sector. All these programmes have tried to incorporate gender concern at the micro level.

The state government has been proactive about developing policies for women. An independent Department of Women and Child Development has been set up in the state in June 1993. The State Women's Policy was developed and implemented first in 1994 and again in 2001. Different areas for women's development have been identified and actions have been taken accordingly. An important change in the policy that is relevant in this context is the reservation for women in government jobs. The government policy is that 30% posts will be reserved for women in government, semi-government and government-aided organisations. This policy has definitely had a positive impact and we see that the number of women employees has increased after the policy has been implemented.

In this study, we are trying to look at the less studied subject of Women Water Professionals (WWPs), to understand their number and concerns. This report for the state of Maharashtra is the part of the larger study done at the South Asia level and presents the findings from the state of Maharashtra (India).

Section II: Scope of the Study and Methods Used

For the study in Maharashtra, we have focused only on WWPs working in the water bureaucracy, i.e. government departments. This section gives a brief idea about the different departments in which these women are working and different methods used for the study.

Water Bureaucracy: Maharashtra

There are three departments that deal with the water sector: Water Supply and Sanitation Department, Water Resources Department (former Irrigation Department) and Water Conservation Department.

For the study we have considered Water Resources Department and Water Supply and Sanitation Department.

Water Resources Department (WRD)

The WRD deals with the matters related to surface irrigation. The main office of the WRD is in the Mantralaya. After the recent legislation of 2005 in Maharashtra, the entire state has been divided into five river basin corporations, governed by WRD.

They are:

1. Godavari Marathwada Irrigation Development Corporation
2. Maharashtra Krishna Valley Development Corporation
3. Tapi Irrigation Development Corporation
4. Konkan Irrigation Development Corporation
5. Vidarbha Irrigation Development Corporation

All the river basin corporations have a central office, headed by an Executive Director. Under the main office there is the Chief Engineer Office. Under the Chief Engineer office there are different irrigation offices. Under each irrigation office, there are different divisions and subdivisions. For a sample structure of a River Basin Corporation and the offices under it, see annexure I. Apart from the River Basin Corporations, there are some research organisations which are formed under the WRD. These are:

1. Maharashtra Engineering Research Institute (MERI), Nasik
2. Water and Land Management Institute (WALMI), Aurangabad
3. Central Designing Organisation (CDO), Nasik
4. Directorate of Irrigation Research and Development (DIRD), Pune
5. Maharashtra Engineering Training Academy (META), Nasik
6. Dam Safety Organisation (DSO), Nasik
7. Hydrology Project, Nasik
8. Ghatghar Hydroelectric Project
9. Quality Control Circle, Pune
10. Mechanical Organisation

For the present study we have considered only irrigation offices and not the research institutes/organisations that are formed under the WRD.

Water Supply and Sanitation Department (WSSD)

The WSSD is responsible for providing these two services in rural as well as urban areas. There are three main components of the WSSD: the Maharashtra Jeevan Pradhikaran (MJP), the Groundwater Survey and Development Agency (GSDA) and the Reform Sector Project Monitoring Unit (RSPMU).

The GSDA was established in 1972, as a requirement of the agreement between International Development Association (IDA) and Maharashtra government. The GSDA is engaged, in the exploration, development and augmentation of groundwater resources in the State through various schemes. This mainly includes, drilling of bore wells/tube wells under the Rural Water Supply Programme, rendering technical guidance under the minor irrigation programme by locating suitable dug well sites, strengthening of groundwater sources by water conservation measures, artificial recharge projects for induced groundwater, specific studies related to the periodic status of groundwater availability, protecting the existing groundwater resources through technical assistance under Groundwater Act etc.

The Maharashtra Water Supply and Sewerage Board was constituted in 1976, and was renamed as the Maharashtra Jeevan Pradhikaran (MJP) in 1997. The MJP is responsible for design and construction of water supply (costing more than INR 75 lakhs) in rural areas and PWS (Public Water Supply) and sewerage schemes in urban areas and mobilisation of resources on behalf of state government and the local bodies.

In recent years, the MJP has been criticized for its methods of working. It is considered as a white elephant and there are active efforts to downsize this organisation. There is also a consideration to privatize this organisation.

The head office of the MJP is at Mumbai and there are six regional offices in the state. Under each regional office there are circles, divisions and subdivisions. For the structure of the MJP, see the annexure 2.

The RSPMU deals with the execution of the Jalshwarajya scheme in the state. The Jalshwarajya is a demand based, decentralised water supply scheme which is funded by the World Bank. They have their central office at Mumbai. They also have six regional offices and staff of three people in each regional office. Then there are district level teams in each district where the Jalshwarajya scheme is implemented. There are two main teams in each district: the District Facilitation Team (DFT) and the District Appraisal and Monitoring Team (DAMT). These teams consist of some permanent government employees and some people who have been appointed on a contractual basis for the project. There are technical experts like engineers and ground water specialists as well as social scientists like community development and capacity building experts, gender specialists, tribal specialists, and IEC (Information, Education and Communication) specialists. There are also administrative and accounts personnel. For the detailed structure of the RSPMU, see annexure 3.

For the present study we have considered the MJP and the RSPMU.

Methods Used for Data Collection

Different sets of tools were used to collect secondary as well as primary data. All the information about the water bureaucracy, structure of different departments was collected through different government websites. Different methods were used to get information about number of WWPs in different departments. For the MJP, information was acquired through their website. For the irrigation offices, information was collected through postal correspondence. Letters were sent to different irrigation offices asking about number and posts of WWP working in their offices. Some of the offices responded and sent the information. Information about WWP in the RSPMU was provided by their central office in Mumbai.

Primary data was collected through detailed interviews with WWP. In Maharashtra we have interviewed 35 women from the Irrigation, MJP and RSPMU departments. We also conducted two meetings, one with WWP of WRD, Mantralaya and one with the MJP, Pune. Around ten to twelve women attended both these meetings.

For a short term study like this, it was not possible to select the sample very systematically. But we have tried to include women from different departments, women working in different capacities (engineers, social scientists and those working in administrative capacities), WWP from different regions in the state and belonging to different caste groups.

Section III: Typologies

As mentioned in the South Asia report, we consider that there are five types of WWP: technical, technical type 2, non-technical experts, administrative and service staff. For the state of Maharashtra, these categories include following:

Technical Engineers

Technical type 2: Professionals who are not as qualified as engineers but do support in their engineering work like draftsman, assistant draftsman, tracers and lab assistants

Non-technical experts: Social scientists, who are included in the water bureaucracy as the result of sector reform, and are contractual employees

Administrative: Those who do administrative work like accounts officer, clerk, steno, store superintendent etc.

Service staff: Employees who provide different services. E.g. driver, sweeper, watchman, electrician, labourer etc.

This section presents the secondary data about number of WWP and their typology in the state of Maharashtra. We were able to collect information for MJP, RSPMU and some irrigation offices.

Number of WWP

Table 1: WWP, MJP, Maharashtra (for the entire state)

Type	No. of total employees	No. of Female employees	No. of Total Female Emp.
Technical	1112	45	4.05
Technical 2	317	29	9.15
Administrative	1481	310	20.93
Service staff	3641	192	5.27
Total	6551	576	8.79

Table 2: WWP, Irrigation department, (for five irrigation offices out of around 35)

Type	No. of total employees	No. of Female employees	No. of Total Female Emp.
Technical	933	18	1.93
Administrative	1390	157	11.29
Total	2323	175	7.53

For these irrigation offices, separate information for technical 2 and service staff was not available. Technical 2 employees are included in the technical category and service staff is included in the administrative category.

We see that in both the departments, the number of technical women professionals is very low. It is slightly better in the MJP than irrigation offices. It is probably because new recruitment of staff was done in the MJP in 2003 and 30% posts were reserved for women. The percentage of WWPs working in the administrative section is more than technical professionals. Even here we find that it is more in the MJP (20.93%) than in irrigation offices (11.29%). This sectoral difference, why even within the water sector some sections have more women professionals than others, is a separate area of investigation and needs further detailed exploration.

With the introduction of new policies we see that the bureaucratic pattern is changing. With the new drinking water scheme the Jalswarajya, we have social scientists included in the water bureaucracy. But this has its limitations as all these social scientists are contractual employees whereas technical experts and administrative staff have been deputed from other government departments. Though this change has opened up an opportunity for women social scientists to enter the water bureaucracy, we see that the situation is not much different from the other departments.

Table 8: Why Women are Less? FGD Findings			
		Technical and Non-Technical experts	Administration and Accounts professionals
Permanent employees	No. of total posts	208	208
	No. of female employees	7	21
	% of female employees	3.37	10.10
Contractual employees	No. of total posts	182	26
	No. of female employees	22	3
	% of female employees	12.09	11.54

There are 26 districts in which the scheme is currently implemented. The total number of posts is thus calculated by multiplying the number of posts under a scheme with 26 which is the number of districts where the scheme is being implemented. Here, we also see that the percentage of permanent WWPs is as low as 3.37%. The number of contractual WWPs is slightly better than that.

Women's Presence in the Hierarchy

In all these three departments we see that women are not present in the topmost levels of the hierarchies.

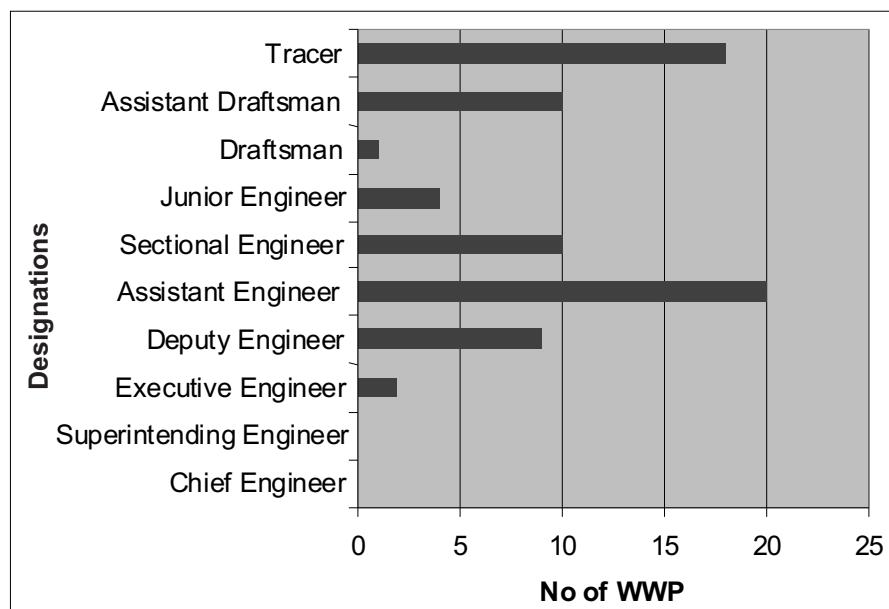


Table 9: WWPs in Technical Hierarchy, Irrigation, Maharashtra, for 5 irrigation offices

Post	No. of WWP
Assistant Engineer	7
Sectional Engineer	4
Technical Assistants	7
Total	18

In the irrigation offices, we see that no women are on higher positions than that of Assistant Engineer. Though this table provides information only for five irrigation offices, it can be seen as representative. But if we look at the chart of MJP we see similar trend. Here also we find that there are only two women Executive Engineers, and there are no women on higher posts. Highest numbers of women are in the category of Assistant Engineers.

Even in the RSPMU we find women are hardly present in the higher levels of hierarchy. Among the seven permanent employees only one is a DFT leader, which is the highest post in the district level hierarchy. There are no women on the other permanent posts like engineer and ground water specialists. We find that number of contractual women social scientists is slightly better than permanent employees.

After discussing the low number of WWP in the water bureaucracy and how they are placed in the hierarchy, next two sections are going to present our main findings about the situation of the WWP working in the water bureaucracy. Like the SA report we have tried to present our findings in two sections: issues that are related with the culture of the sector and issues related with gender and organisation structure.

Section IV: Culture of the Water Sector

Career Choice

In the earlier section we have seen how number of WWP is very low in the sector. Major reason cited by women for this is that very few women opt for Civil engineering, and many of those who do prefer either private sector or Public Works Department (PWD) in the government sector.

When we asked these women why they chose to be a Civil engineer, we got a mixed response. Some said that it was their last choice and as they were not able to get admission for other engineering courses, they opted for Civil engineering. Some said that they didn't have much idea about it and chose it in consultation with others. And some said that it was a conscious decision and they always wanted to be Civil Engineers.

Women engineers from the MJP said that after the reservation policy mentioned earlier, the number of women has increased in the sector. 'Women need this reservation otherwise they will never get jobs in this field. People keep saying that women won't be able to do it. Women do have capacities, but they need opportunities to prove it', says an Assistant Engineer, MJP. The same thing has been expressed by other women professionals as well.

Some of them shared their experiences of what their male colleagues think about them getting jobs through reservation. 'Women are looked down by men because of the reservation policy. Many of my male colleagues say that because we have reservation we get jobs even though we don't have merit'.

As we have seen, even the number of women social scientists working in the RSPMU is very low. There also women professionals said that it is because it is a field based job and so women don't opt for this career. Another reason might be that the reservation policy was not applied to appoint the contractual employees.

Nature of the Work

The WWPs, we interviewed were a combination of professionals working as engineers, social scientists and administrative officers. All the administrative officers we interviewed were working in the Water Resources Department at the Mantralaya level. Almost all of them were at the higher positions and looked after administrative and establishment-related work in their sections.

More Administration than Engineering Work

There are engineers from the MJP, the Irrigation Departments and some from the Water Resources Department, Mantralaya. Almost all of them are working at Division, Circle, Region and Mantralaya level offices, where mostly monitoring work is done. Almost all of them have been doing desk work. Their main tasks have been checking and sanctioning bills submitted by the lower level offices, doing technical sanctions, designing, correspondence etc. Their current job profile doesn't involve much travel. Though some of them have worked on subdivision level in the past and have worked on the field for some time. Some of them have never been to sites in their career. Apart from that they take different responsibilities in their offices, depending upon their designations.

'At the subdivision level one gets to take on challenging tasks but as one rises onto higher offices one has to take on administrative work. One has responsibilities such as making sure whether subordinate employees are punctual, are they accomplishing their tasks, prioritize the mails that reach boss' table, do presentations on certain issues, demand information from lower level offices etc'.

'Apart from regular work, I have been assigned the responsibility of RTI related matters. I have to answer the queries/ applications filed under RTI. This has to be done within 30 days. Then I have to share the enquiries with the State level RTI office. I have answered at least 300 applications in past 2 years'.

'I joined MJP after my promotion, before that I was working in ZP. There I was given unimportant and clerical tasks like reading GRs and making notes on it, giving information to people etc. Here I am not assigned any site work. I work as a technical assistant to Executive Engineer. Sometimes I do give some technical help to my boss, otherwise the main work is related to establishment and administration like matters related with salaries and leaves of employees, attending meetings etc'.

'Being a senior I have to take up other managerial tasks, which is additional work load. For e.g. I have to make visits to the Regional office, attend meetings, take a lead in organizing functions, interact with taluka level politicians etc.'

'Apart from my routine work like checking tenders and bills etc, currently I am monitoring the site of our new office. Monitoring site work is very challenging. Now I get the actual experience of implementation which involves taking instantaneous decisions'.

There is a Junior Engineer who works at the Subdivision level, where actual execution of schemes is done. In spite of that we see that the nature of work doesn't change much.

'Designing, drawing, conducting surveys and execution of the scheme are the main tasks that are undertaken at the subdivision level. Women are not given responsibility of execution, because the sites are at interior places and their safety is the responsibility of the department. There are four of us in the office. Talukas have been distributed among us. But my male colleagues handle responsibility of execution of schemes in my taluka as well'.

Women also reported discrimination in the allocation of work. Important tasks in which financial transactions are involved are given to men. Women from one of the offices said that until recently technical sanctioning of schemes had always been done by their male colleague. But now the new boss said that all the engineers should do that for their allotted areas. Ultimately it depends upon the attitude of the boss and in some other offices women said that financial matters are always handled by their male colleagues.

What Women Engineers Think About Not Doing Site Work?

Being a civil engineer, working on sites is something that they have learned, but are not doing right now. We tried to understand how they look at this scenario.

Lack of Opportunity and Facilitating Atmosphere

Some have expressed that they really want to work on site and get actual experience but do not get that opportunity.

One of them says, 'Actually we are trained to work on field. But what we are doing here is more like a technical clerk. I would like to work on the field in future'. Apparently getting opportunity is not enough; there are other constraining factors that women have to face.

A Deputy Engineer from the MJP shares her experience: 'Few years back, I had asked for subdivision office, because I was interested in doing engineering work. But my boss as well as my colleagues were very uncooperative. Though my boss gave me an opportunity to work on sites, he told me to go there alone. They were at very interior places and even male engineers used to go in pairs. I had to face so many problems that I finally had to give it up'.

For some women it had been a difficult choice, choosing administrative work over site work due to either household responsibilities or social constraints.

'When I joined MJP as Deputy Engineer, I had the choice to take charge at subdivision level, where it would have been mainly field work, or to take a side post at division level, where it would be mainly desk work. At that time my children were young, so I could not take up responsibility of subdivision and had to take up this administrative job'.

'It is not that women can't work on site. They are as capable as men. But they can't give as much time as required. They have household responsibilities. They have to maintain relations with relatives. Men do not participate in these things. So we give more time to the household and make compromises on the professional front'.

'I have taken up this job in Mumbai, as my marriage has been fixed and my husband lives in Mumbai. Actually being an engineer, I wanted to work on the field, but getting married was also important. In my community, girls are not that educated, and they get married at younger age. While living in the community, you can't think only about profession. So I had to compromise'.

Finding Meaning in One's Work

While the younger women have expressed their desire as well as the constraints in working on sites, some of the older women engineers have taken a different position. They express that the work they have been doing is also important.

'I have never done site work in my career. Neither did I demand for it, nor did I get it from my seniors. And one can learn a lot from office work too. Besides, my boss has always been supportive and allowed me to visit and observe site work whenever I wanted. So that way I have kept my knowledge updated'.

'In the beginning it so happened that men were keen to go on sites so there was a need for someone to do the office work, so we did that. Then I started liking it and continued doing it. I never really missed going to the sites. The kind of work that we do, i.e. designing, technical scrutiny etc. is also related with engineering, so I don't feel that I miss something'.

'May be if we were given sites in the beginning, we would have done it. Men were not interested in doing office work, and as we had household responsibilities we were not very enthusiastic about going to sites, so we continued doing desk work. But it is not like we fall short just because we don't go on sites. In the beginning we have to ask others, but now we have enough experience to do our job. Then, there are many male engineers, who have always done desk work and never been to the site in their whole career. So we don't feel sorry about it'.

Exceptions: Women In-Charge of Financial As Well As Technical Matters

Where almost all of the women had reported these things, there are also women who are on important positions and are involved in all technical, financial as well as administrative decision making. Manisha Palande is one of them. She is an Executive Engineer and currently among the women engineers holds the highest post. This is how she describes the nature of her work:

'I'm in charge of the division and subdivisions under the division. I have the total responsibility for the schemes, projects implemented by my division. So to implement the schemes, to see that there are no problems, is my responsibility. For that I have to make frequent visits to all the schemes. Then there is financial side of this. Each month I have to check the bills submitted by the subdivisions, demand for the money to the higher office, to see that the funds come on time, and then to disburse the funds. And then there are administrative responsibilities. I have to look into the matters like leave, medical claims, grievances, conflict resolution. This is like being the head of the household. This is a 24 hour job.'

Most of these women have said that normally their office timings are 10 to 6 and are generally flexible. Sometimes, in case of urgent work they have to work late. Women working in the Mantralaya said that the timings are fixed and they have to follow it strictly.

Women Social Scientists in the Water Sector: Nature of Work

WWPs from the RSPMU are all social scientists and working in the Jalswarajya project as DFT and DAMT members in different capacities such as Community Development and Capacity Building Specialist (CDCB), Gender Specialist, Tribal Development Specialist and IEC (Information, Education and Communication) Specialist. In the Jalswarajya project, there is emphasis on people's participation, as well as women's development. There are special activities undertaken for community development and capacity building. A fund for women's development is available and through that fund, trainings for women are organized and SHGs are given funds. All of these women professionals are involved in different activities undertaken for carrying out these components of 'the scheme'. Unlike women engineers and administrative officers these women have been extensively working on the field.

'As part of our work we have to build capacities of the village communities to implement the drinking water scheme according to the design. We then have to monitor to see if all the things are going as per the design. There are support organisations which work along with village communities and we have to monitor them as well. If we find there are problems, then we have to locate the reason and develop strategies to solve it. Many times there are village level conflicts, we have to solve them'.

'IEC (Information, education and communication) is a major component of the scheme. As an IEC specialist I have to do planning for the campaign, prepare the budget, get it sanctioned and then implement it in the villages. We prepare different resource material for creating awareness among people like banners, posters and pamphlets. We have to organize some programmes. We also publish certain things in newspapers. I have to take decisions and coordinate all these activities'.

'Apart from working on the field, there is administrative work as well. When villages send their demand for fund release, we have to check it, put up notes on that, get it sanctioned and then disburse it to villages. We have to send regular reports to our central office about the progress of work'.

'Though we are responsible for social component, we have also learnt technical things and also look sometime in those matters. We also participate in other activities like auditing'.

Women from the RSPMU said that their work timings are not regular. *'Normally Monday is office working day and other days of week are spent on field. There are no regular timings when we are working on the field. Sometimes we have to work on Sundays as well'*.

Images: Qualities in a Water Sector Official

Ideal Officer

Technical knowledge, ability to execute the schemes, decision making capacity and planning skills are the most cited qualities of an ideal officer. Women have also given importance to the concern about water issues. They think s/he should be sincere, hardworking and concerned about the community. Many women also said that s/he should have good communication skills, ability to explain the technical things to community people. They also think s/he should have some qualities which directly affect the staff. E.g. s/he should be cooperative, approachable, should have positive approach and team building capacity.

Qualities Women have as Professionals

Women professionals feel that there is a difference in the way men and women employees think and work. Most of them reported that they believe that generally women are more sincere, hardworking, particular, responsible, non-corrupt, ethical and sensitive towards the issues than men.

'If a woman is in-charge of the office, the financial transactions are more transparent. But on the other hand women have not acquired capacity to take decisions on sites, because they don't have such exposure.'

'Men work late hours to impress the boss. They may not work whole day, but they start doing it when it is closing time. So they get noticed, but though women work hard for the whole day, they don't get noticed.'

Women also feel that there is difference in the way men and women think.

'There is a difference in the way men and women think. Men think more about themselves. They think it important to show their capabilities. But women think more about others. They are socialized that way.'

Because of this way of thinking about women, some women believe that women can understand social aspects of the work better than men.

'There are two aspects of this work, technical and social. Technical work could be done either by male or female, there isn't much difference. But women can handle social component better than men.'

When asked whether they are part of informal collectives at the office, most women answered negatively. In some of the offices where women are more in number they have informal groups. Women engineers from the MJP, who have joined through the MPSC exam, have an informal group. They meet occasionally and share work-related issues with each other. They have said that these kinds of meetings have been relaxing for them and they get support from each other. But these meetings are occasional as they can't get much time for it. This was the reply by most of the other women, that they don't have much time to get involved in such activities with their office and household responsibilities.

Some of them feel that their male colleagues have such informal groups and also that major decisions are taken in the informal meetings.

Understanding of Water Issues

As explained in the SA (South Asia) report, we found that an understanding of water issues is largely dominated by the current departmental understanding, yet women also have been looking at the things critically. When asked about the issues in the water sector women have talked about water scarcity, need to implement water conservation schemes, management issues and lack of recovery. But some women have also talked about flaws in the implementation of the schemes, lack of actual public participation and need of an integrated approach.

Section V: Gender and Organisation Related Issues

Relations at the Workplace

We tried to understand opinions of these women about the different aspects of the work atmosphere. Relations with male as well as female seniors, colleagues as well as juniors were one of the important aspects. Responses received were varied in nature.

Male Seniors as Father Figures

Many of the women we spoke to referred to their relationships with male seniors as fatherly or brotherly, '*I have received support and encouragement from all my seniors. Once, one of my bosses introduced us as his daughters in a public meeting. It created a sense of attachment for the office and motivated me to give my best, and live up to his expectations*', says a Sectional Engineer from the Irrigation Department.

'The relations with my juniors are good, healthy. We try to maintain family like atmosphere in the office', Senior Administrative Officer, WRD.

Some were more critical and expressed that their relations with the male colleagues have not been that smooth. Some have said that they have either suffered because of being a woman, because of favouritism, hierarchy and caste.

Differential Treatment Being a Woman

'In the office we have to prove continuously. If I make some mistake I am told so immediately, but I have noticed that male colleagues have not received same treatment. Women engineers are expected to be perfect but same is not expected from male engineers. They are allowed to make mistakes'.

'I have worked very hard but have not got results accordingly. But some other people do get things easily. I think that is because I have not been part of those informal meetings with the boss'.

'During my pregnancy I was working at a subdivision level and my male colleagues were uncooperative. If some day I told them a problem and asked for help they used to say it was my problem and why should they consider it. They also used to make sarcastic comments about how inappropriate it was for women to work in this field and how they cannot handle the hard work'.

'In my previous office, when I started objecting some of the wrong practices going around in the office, my male boss sensed some problem. He told me to go and sit in other office. He had no right to do so, so I refused and told him that I won't do any such thing unless I have a written order from the department', says a Junior Engineer, MJP.

Other Reasons for Ill-Treatment: Organisational and Caste Hierarchy

'Some of the technical people think that we are inferior, as they do technical work and we do clerical work. When I was new to this department, one of my bosses was like that and whenever I put up a note, he used to tell me that I had done it wrong and things are not done so in this department. When it happened consistently I told him that he can give his

written comments on my note but I am not going to change it', says an administrative officer.

'I have joined through MPSC, and so was directly appointed as Class I official. There are male engineers who are senior in age, but now are working under me. I always thought they are more experienced than me and so asked for their help. But they could not accept that being so young and a woman I have become their boss'.

Same kind of thing has been also expressed by some other women engineers of the MJP, who have joined through a similar process. They explained how in the beginning they had a difficult time and had to take efforts to prove themselves.

On the other hand women professionals from the RSPMU have reported that they have to face discrimination due to their contractual nature of appointment. Women reported that they are treated as inferiors by the permanent staff. This is also due to the attitude that the social component of the scheme is less important than the technical component. As they are not permanent government employees, they also hardly get cooperation from administrative and accounts people. Their contract is renewed after every year and for that they have to prove themselves continuously.

Caste is also an important factor for the basis of ill treatment. One of the social scientists from the RSPMU says, 'I have suffered due to caste discrimination. Some people refuse to accept that I can speak well; write well, so they try to find opportunities to point out my mistakes. One of my male colleagues used to call our driver by my surname although his surname is different. He meant to convey that Dalits only deserve to be on such posts. He used to do such things to humiliate me'.

Presence of Other Women at Workplace Makes a Difference

Where there are more number of women working together, women have reported that the atmosphere is better and they feel comfortable as there are other women in the office. Where there are two of them, they have tried to cooperate and help each other. But there have been women who are the only female employees of their office. It had not been an easy job for them to cope with it.

'I'm the only female employee in my office. Initially it was difficult. Men are not used to women's presence, when they find women in otherwise male dominated place, they feel constricted. Initially I also used to feel awkward, but gradually I accepted it. I realized that I can't isolate from them as I have to work with them. So I try to mix up with them as much as possible', says an engineer from the Irrigation Department.

When asked about the difference between male boss and female boss and their comfort level with both of them, most of the women frankly said that they will prefer to work with a female boss. Though some of them also expressed that it doesn't matter and they can deal with a male boss as well as a female boss. Women gave different reasons for why they prefer a female boss over a male boss.

'Sometimes I feel that if there had been a female boss, it would have been beneficial for women employees. Male boss is closer to the male colleagues, so sometimes when he goes to the site, he takes male colleagues along with him. During these visits, there are informal discussions between them. We lack these opportunities, so in a way, it would have been better to have a female boss'.

'I prefer to work with a female boss. I can share my views openly with female boss. If I think something is wrong and I say so to the female boss, she would accept it. But this doesn't happen with male boss. They will ignore, and say something sarcastic. Though men talk about equity, they don't like women who are smarter than them'.

'It definitely makes a difference whether your boss is male or female. I can discuss freely with female boss if I have a problem. Once my year-old daughter fell and injured herself so I wanted to go back home early. My female boss understood my problem and allowed me immediately. But my male colleagues were of opinion that it isn't a big issue and going early is not necessary. In such matters women are more understanding than men, so having female boss is always better'.

Participation in Decision Making

We tried to know how much space they have to express their views, how much do they participate in the decision making, how they participate in the office related activities. Some women said that they have the space to express their opinion, they have the authority to take decisions within the capacity of their post and don't feel constrained to participate in activities like meetings, discussions etc. Some women professionals had other things to say.

'In the beginning it happened that if I tried to speak during the meetings, they did not allow me. They told that I was new, and did not know much, so I should keep quiet. They don't want you to express your ideas. I developed inferiority complex and started thinking that maybe I don't know anything.'

I spent three years like that. Then our boss changed, and he gave me an opportunity to work and then I proved myself'.

Unfortunately some women are resigned to the fate of being low key in their organisations: *'I am in charge of administrative and establishment matters here. Here people don't follow rules; they come and go as they please. I was not used to these kinds of things and so tried to change them and inculcate discipline. Some people opposed me; threatened to complain to the union. Atmosphere here did not change with my discipline, so I changed myself. I don't struggle for these things anymore'*.

'It happens that I'm the only female person present for the meeting, and I don't feel comfortable on such occasions. Men's attitude is that women anyway don't understand anything. Though they don't say so openly, I can feel that from their behaviour. They don't encourage you to participate. So I generally don't participate actively in such meetings'.

'Many times I'm not involved in important decisions just because I'm a woman. If there is some problem in the village and we organize a meeting to solve it, my role is limited to organize the meeting, facilitate people to attend, control the people gathered and start the discussion, in short preparing the ground work. Later when the decisions are taken, my opinion as an expert is not considered. Then it becomes a male issue'.

Support for Women Staff

Sanitation Facility

One of the major constraints voiced by these women is lack of proper sanitation facility. In some places like the Water Resources Department in the Mantralaya, at the MJP located at the Pune central office, and in some Jalswarajya offices, women said that sanitation facility is good. But in many other places either it was not available or it was not maintained. Women have to find different ways to cope with the situation. We see that though it is one of the most necessary factors to create facilitating environment for women to work, it has been neglected. One of the women engineers says, 'Though there is a GR (governmental rule), which says that, there has to be a toilet for women at government offices, it is not implemented. While constructing the offices, it has been taken for granted that women won't work in these offices. There are toilets for men but not for women. It is difficult to talk on these issues with male seniors, but I did, and I was told that there are no funds available right now. I think the problem is not only with funds but attitude also. They don't think it is necessary, otherwise they would have constructed it, when there was fund available'.

Maternity Leave

Again this is one of the important supports that women need while working. As one of the women professionals says, 'This leave of women should be considered as an investment. People should not look at it as if a woman is getting salary without working'. Women working in the MJP and the Irrigation Departments reported that they are entitled to three months maternity leave. Many of them expressed that that is not enough, and they have to take extra leave during pregnancy. They think that as women employees of central government are entitled to six months maternity leave, same thing should apply to the state government.

As for other kinds of leave, women seem satisfied.

For women working in the RSPMU, who are contractual employees, there is no maternity leave available. One of them said that during her pregnancy she had to take unpaid leave.

Sexual Harassment and Related Support

When asked about any experiences about sexual harassment, most of the women responded negatively. Two or three of the women professionals from RSPMU shared their experiences of indecent behaviour by male colleagues like staring indecently and passing vulgar comments.

'I have to face problems, being a woman. People pass vulgar comments behind my back. If somebody speaks in front of you then you can slap that person. But you can't do much about this kind of harassment'.

Apart from sexual harassment, they also reported other kinds of harassment they have faced at their workplaces either because they have been outspoken about malpractices or because they have been doing their work confidently.

'As I'm the only one who opposes malpractices here, I've faced lot of harassment. Some people used to make comments about my character, suggesting I have an affair with a male colleague. That is the most common form of harassment women have to face'.

'I'm confident that I can handle any responsibility. When you are confident, you are always open to harassment. I was given far off talukas on purpose. My daughter was 3 years old at that time. And it took 3 hours to travel to those places. All the other women were given nearby talukas, except me. So I refused to go. People started talking about me that she doesn't work, just sits at the office, she is useless. Then I had to complain to the higher authorities and change the talukas. But after that I proved myself. I'm ready to go anywhere if there is need'.

At all the places, women said that either there is no harassment redressal committee or it is not active. According to them there are no cases filed in there.

Section VI: Gender Relations at the Household

Again on the subject of support received from the household, there were varied responses from women professionals. Some women said that they do get support from their husbands in the household work. Some women were of opinion that it is not an issue with them and they are capable of managing household as well as office work.

"I do all the household work myself and also do 75% of other works like going to bank etc. I think women can manage household as well as job both well".

But some women were more critical and expressed that they have to take up the double burden, how they have to take up major responsibility of children and how it affects their work.

Gender Relations at the Household, Yet to Change

'Women are socialized to believe that their household duties are more important than their career. No matter how much higher she goes in her career, she is expected to cook and serve her husband'.

'There is no work sharing as such at the household level. Culture of our society is also not favourable for that. Even if men try to help in the household work, other people criticize them. So men avoid it and women adjust. That is true of women from all the classes, and doing all kinds of jobs'.

'While deciding the marriage, they want an educated wife and daughter-in-law. It is a prestige issue. But later they don't support if she wants to pursue her career'.

'At the household front expectations are very high. If I reach home early and husband comes late, then it is ok. But if it happens that he comes early and I'm late, then though he doesn't say anything, I can understand from his behaviour that he doesn't like it. So to avoid these kinds of tensions I give more attention to the family'.

Effects on the Career

Women expressed how because of household responsibilities and lack of support, they have to make compromises in their career. *'Once women have children, they have to give lot of time for them. It affects their work, especially if you are on a responsible post. So we tend to do adjustments at the work front, say no to responsibilities'*. In one of the FGDs, women expressed how they fall short compared to their male colleagues who do not have household responsibilities.

'Men read newspapers in the morning, get knowledge and show it off in the office. But we have only seen kitchen before coming here, and don't even know what has happened'. Because of the responsibilities at various fronts many women are stressed out and lose out on any meaningful relations at both their families and colleagues. One of them says, 'After doing all the housework I'm not given due status in the house. I am always taken for granted and decisions are taken excluding me. My role is that of executing decisions'.

Challenging Gender Relations at the Household

On the other hand some women had something else to say:

'Even before taking up this post, I never did much household work. Now I live in quarters, where there is help available to look at the household work. My office work is so demanding that I do not have much time.' One of the social scientist says, *'In the initial phase, there was expectation that I should give more priority to the household work than my career. But I told my husband that my career is important for me. I will take care of children and will do household work as much as possible. But don't expect anything else from me'*.

Section VII: Recommendations by WWP_s for Improvement

When asked about what their recommendations would be, women have talked about different things.

Support and Facilities Related Recommendations

As discussed earlier, poor sanitation facility is one of their major problems and women want attention to this issue and provision of funds for it.

Other support related recommendations from women professionals have been child care facility, rest room for women, transport facility when they have to work late. Some of the women working in the Mantralaya have said that they should get staff quarters. Some of the women have expressed the need of harassment redressal committee.

Some of them had suggestions about how the work atmosphere should be.

'Cleanliness is very poor in government offices. Our office is always dusty. Actually we spend around 10 hours in this place, so it has to be clean. These things are always neglected in the pretext that there is no money for this. So if there are separate budgets for these things, then things would improve.'

'Even basic facilities are not there in the office. We had to struggle to get sanitation facility. We don't have clean water, good canteen, good chairs to sit on. These things are necessary for all the employees. But attention is not paid to these things.'

Need of a Sharing Platform

Women do feel a need of a sharing platform. Many of them expressed how it had been a solitary struggle for them in this male dominated sector and if there had been a platform to share their issues, it would have helped them. 'I'm the only woman employee in the office. So I don't have other women with whom I can discuss things. So there should be a helpline, where we can discuss our problem', says an engineer from the irrigation department. Many of women responded positively to the idea of a network of WWP.

Specific Department Related Recommendations

Women have also shared their specific department related concerns and their recommendations for it. For the MJP women professionals, restructuring of the MJP has been an issue. Most of the women were not certain about how the restructuring would work, but they had some suggestions for it. One of the women professionals put it this way, 'There is a need of internal restructuring of MJP. The situation has changed, and so we have to keep up with changing times. We have to adopt the culture of private sector without doing privatization. Measures should be taken like changing managing pattern, improving skills of employees and adopting computerization'.

In case of women professionals of the RSPMU, their temporary appointments have been a major issue. One of their problems has been that since they are contractual employees they don't get benefits of leave and other facilities that are due to the permanent staff. They get only eight days of leave all put together per year and don't have separate sick leave. One of the women from the RSPMU says, 'Nature of work is very demanding and hectic. Continuous travelling affects the health and we have to take extra leave sometimes. But then Rs 500 per day are deducted from the salary. Many times we work on Sundays as well, but that is not considered'.

Women have said that they mostly work on field and so there are no fixed working hours. Sometimes they work from early morning to late in the night. This has been a strong recommendation from these women that they should get leave according to the state government rules.

The Jalswarajya project is about to close and there is an uncertainty about what is going to happen with the people who have been working on contract basis for the past few years. Women have recommended that they should be continued as employees in the water sector. One of the CDCB specialists says, 'In last five years we have gained so much experience. Also we are people who are working with a different attitude. Government should take a stand and include us in the sector as permanent employees in future'.

Training Needs

• Some of them have received trainings from the department before they joined their work. Some also have attended some other training programmes later. But others have not taken any training whatsoever. Here are some of the recommendations that women had regarding trainings:

- 'Different water related trainings are necessary, because when we did Civil Engineering, water was one of the twelve subjects and now we have to deal with that only.'
- 'Tests should be conducted after the trainings, so that people would take them seriously. They will be helpful in refreshing one's knowledge.'
- 'When I joined MJP, I was not given training about the work I was supposed to do. It was taken for granted that I knew it. But before that I was working in ZP, and nature of work in different departments is very different. So that kind of training would have been helpful.'
- 'Those who are recruited through MPSC get trainings, but those of us who have joined through employment exchange haven't got trainings. This practice should change and all the employees should be given trainings'.
- 'There are new things coming up in the field of technology, so trainings about those things need to be conducted.'
- 'It would be better if the trainings are conducted during summer holidays so that women can take their children along with them.'

Section VIII: Concluding remarks: Major Findings and the Way Forward

Major Findings

From the study it is evident that the number of WWP_s is very low, especially when it comes to the higher posts in the bureaucratic hierarchy. Further, there are sectoral differences in it, and we see that in certain departments there are more women than others. If we look at the nature of the work we see that the women social scientists are carrying out similar responsibilities in the field as their male counterparts, but women engineers are mostly doing administrative work rather than site work. When it comes to the understanding of water sector issues, we see that though it is dominated by current department understanding, women are sensitive about social issues and the micro perspective. Some of them are also trying to make a difference within their capacity. On the organisational front, we have seen how women do get a differential treatment due to different reasons. Women feel that some more support will create a facilitating environment for them to work. Most of the women don't involve in informal collectives at workplace unlike their male colleagues. But they feel the need of that kind of support. Many of the women have not gone through trainings and capacity building programmes and they feel that if they are provided trainings they can perform more efficiently. Women have to face the struggle between public and private spheres. Lack of support at the household level leads to different problems for women professionals.

The Way Forward

These findings show that two sets of issues determine the presence of the women: first is related to education and career choices that women make and second is related to the constraints that women feel after entering the sector. Considering this, we would like to propose the following recommendations:

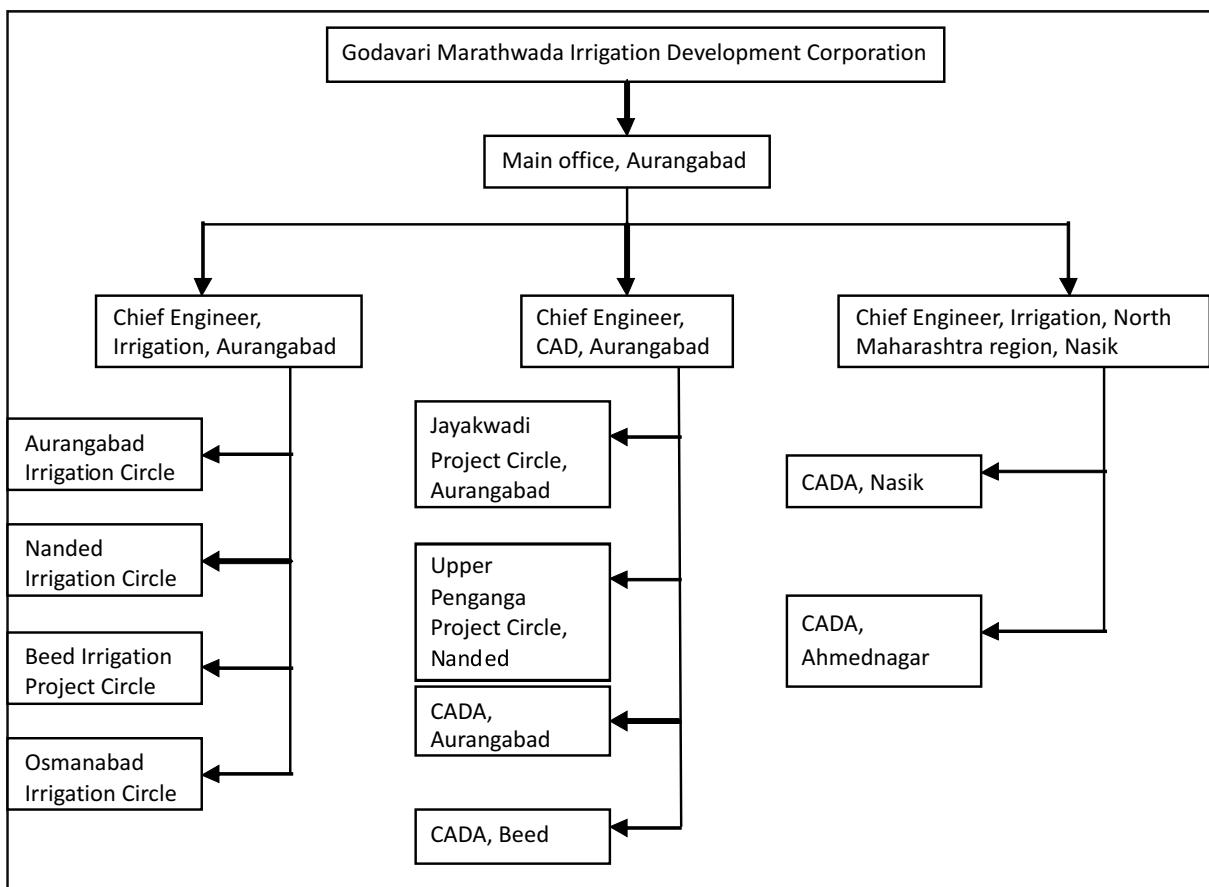
1. There should be a gender policy, which will outline specific rules regarding organisational facilities, allocation of tasks etc.
2. More number of WWP_s will make a difference, and the government policy for reservation is a positive step towards it. There also should be a policy for reservation for women staff which is appointed on contractual basis.
3. Women do need support like better sanitation facilities, child care centres and maternity leave up to six months, so that they can work more efficiently.
4. Capacity building of these professionals is an important area of consideration. Some of them, who have joined through the MPSC (Maharashtra Public Service Commission), have received training, but many others have not. This kind of training should be given to everyone and further there should be regular training so that they can refresh and update their knowledge.
5. Women are looking for an articulation of their concerns and want visibility to their concerns. Organisation of network and through this network liaison with other women's group and regular dialogue will be very beneficial.

Apart from that challenging the notion that hard sciences are for men and soft disciplines for women becomes an important ideological struggle. At another level, a change in understanding of women's work too becomes important in changing our existing belief systems that determine women's absence in this sector. Reconceptualising science, here the water sector and women's work, would definitely go a long way in making it more conducive to gender equity.

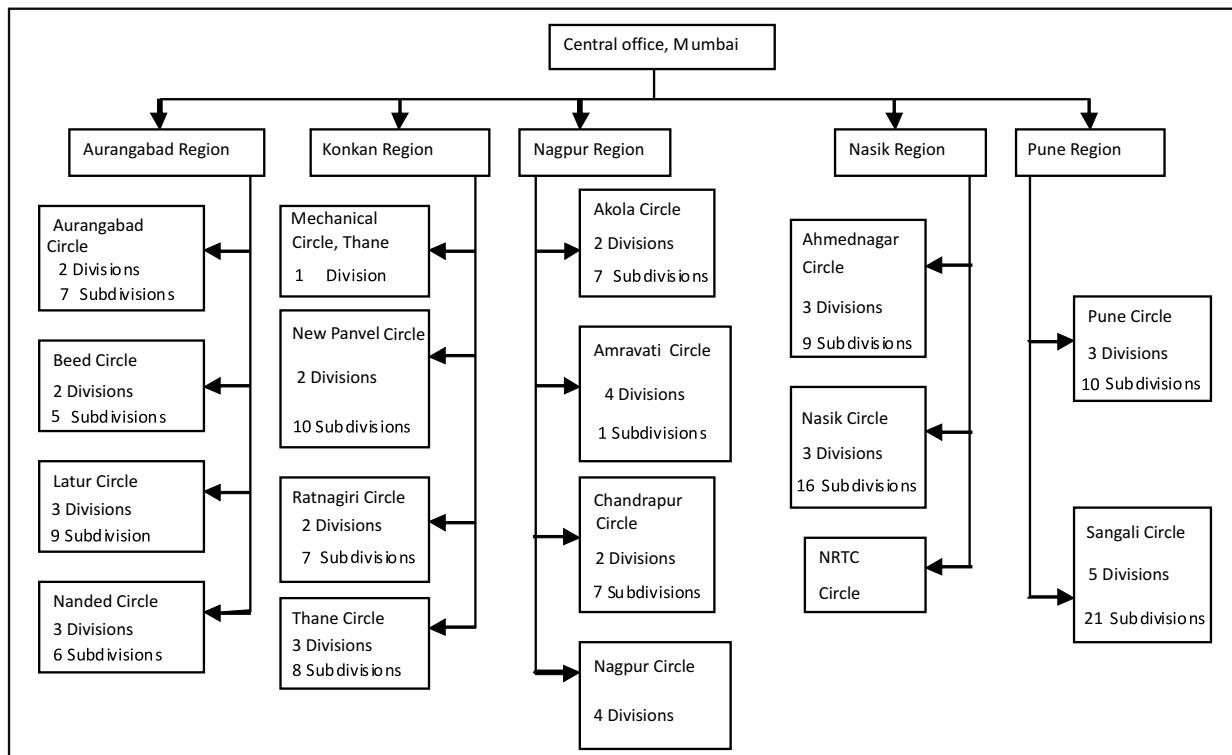
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Annexure I Sample Structure: River Basin Corporation and Offices Under It, Maharashtra (Godavari Marathwada Irrigation Development Corporation is one of the five River Basin Corporations in Maharashtra)



Annexure 2 Structure: MJP, Maharashtra



Annexure 3 Structure: RSPMU, Maharashtra

District Facilitation Team (DFT)	District Appraisal and Monitoring Team (DAMT)	Account Wing	Administration Wing
DFT Team Leader (Permanent)	DAMT Team Leader (Permanent)	Senior Accounts Officer (Permanent)	Office Supervisor (Permanent)
Eng specialist (Permanent)	Ground Water Specialist (Permanent)	Assistant Accountants Officer (Permanent)	Senior Clerk (Permanent)
Ground Water Specialist (Permanent)	Eng. Assistant (Contractual)	Senior Cl. Accountant (Contractual)	Senior Clerk (Permanent)
Engineering Assistant (Permanent)	Health & Sanitation Specialist (Permanent)	Cashier (Permanent)	Senior Clerk (Permanent)
Community Development and Capacity Building Specialist (Contractual)	MIS Assistant (Permanent)		Senior Clerk (Permanent)
IEC Specialist (Contractual)	Community Development and Capacity Building Specialist (Contractual)		
Gender Specialist (Contractual)			
Monitoring and Evaluation Specialist (Contractual)			
Engineer (Permanent)			
Tribal Development Specialist (Contractual)			

Acknowledgement

Many people have contributed to the successful completion of this study, and we acknowledge their support. We are especially thankful to Shri D L Thorat, Joint Secretary, Water Resources Department, Shri Mahadev Jogdand, Gender Specialist, RSPMU and Shri Umesh Botalji, Assistant Gender Specialist, RSPMU for helping us collect secondary information and conducting the in-depth interviews.

Our thanks are also to:

Ms Madhuri Vaishampayan, Deputy Engineer, MJP, Pune for her help in taking initiative in communicating with women engineers of MJP, Pune and organizing the meeting.

Ms. Vidya Kulkarni and Ms. Sangita Gandhe for conducting interviews and FGDs with women water professionals.

to Shri S N Lele, senior irrigation engineer and member of SOPPECOM, and to our former colleague Deepa Oak for their inputs;

SaciWATERs for all the support they have provided during the study.

Finally and most importantly we are extremely thankful to all those women professionals who participated in the study.

Seema Kulkarni

Sneha Bhat

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22 December 2009



SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN NEPAL

Pranita Bhushan Udas

List of Abbreviations

- BE Bachelor of Engineering
- DOI Department of Irrigation
- DWSS Department of Drinking Water and Sewerage
- ENPHO Environment and Public Health Organisation
- FMIS Farmer Managed Irrigation Systems
- GEWNet Gender Energy & Water Network
- ICIMOD International Centre for Integrated Mountain Development
- INPIM International Network on Participatory Irrigation Management
- INGOs International Non-governmental Organisations
- IOE Institute of Engineering
- NEA Nepal Engineers Associations
- NEC Nepal Engineering College
- NEWAH Nepal Water for Health
- NGOs Non-governmental Organisations
- PWPA Professional Women for Promotional Activity
- SOPHEN Society of Public Health Engineers Nepal
- WATSAN Water and Sanitation
- WEC Western Engineering College
- WPLUS Women Professional in Land Use Sector
- WWF World Wildlife Fund
- WWN Women Water Network
- WWP Women Water Professional

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Section I: Introduction

Nepal is known for its abundant water sources. One third of the country is covered with snow peaks, the Himalayas, a source of fresh water. There are about 6000 rivers and rivulets within the territory of Nepal. However, availability does not ensure accessibility. Eighty percent of the rainfall occurs within four months and only twenty percent in the rest of the year. In addition, the geographic variation adds further complexity. The altitude of the country is lowest at 60m in the south that rises to 8848m towards the north within an average horizontal span of 200m. Thus the majority of the land area in the country is steep, making it difficult to retain water. Landslides are rampant during the rainy season. With this, access and availability of water resources in the country is complex and is a socio-technical as well as a political process. Water professionals have to face many challenges to make the available resource accessible to people.

The Nepal government is involved in managing water resources effectively since 1950, specially guided by the notion of Bikash i.e. modern development (cf. Tamang, 2009). Water was and still is seen as blue gold that can be utilized to generate electricity, increase agriculture productivity and increase revenue for the nation. Since the 80s the national focus shifted to recognition of traditional farmer managed water systems, such as farmer managed irrigation system (FMIS) and traditional water spouts. In hydropower, the debate on mega projects has shifted to micro-hydro. The Nepal government adopted a decentralization policy and participatory approach from the last two decades to recover its investment and to manage water projects in a sustainable manner. Over time, both, the national priorities and approaches to water management and water professionalism have changed. Engineering that used to be a dominant profession in water departments is now interdisciplinary to some extent. The construction oriented focus has shifted to management and community mobilization. Gender concerns are addressed in its programmes to some extent by encouraging women participation at all levels.

Shrestha (2000) narrates that having few women professionals in the water sector is one of the major factors constraining gender mainstreaming in the water sector. However, adequate and enough studies on this issue have not been conducted yet. Some of the related studies are on women professionalism in natural resources sector with focus on agriculture and forestry (Adhikary, 1995; Devkota, 2003; Karmacharya et.al, 2003). Studies on other courses like engineering, environmental sciences and women engagement in such courses are limited. This study is an effort to contribute to this knowledge gap. It is a study conducted over a two month period on Situational Analysis of Women Water Professionals in Nepal in 2008. The report has been revised in 2009 to bring consistency among similar studies carried out in other South Asian countries by SOPPECOM and SaciWATERs, India. This study aims to document visibility of women professionals in the water sector, as well as their aspirations, needs, attitude and challenges. The study carefully looks at gender concerns of water professionalism, not clustering all men and women professionals as a homogenous group. The analysis of the situation of WWP's is not limited to gender identity as the only criteria for having different opinions about water and water related activities. Experiences and exposures like trainings and visits to a place with different gender values are considered in the analysis. It matters in thinking, talking and acting on gender related issues.

The report is structured into nine sections. This introductory section is followed by scope of the study and methods used. The third section provides numerical evidence on visibility of women professionals in water agencies considered for this study. The fourth section is a profile of women professionals, followed by a section on the culture of the water sector. The sixth section deals with gender issues at the workplace. The seventh section discusses gender issues at the household level. The following section analyses training need of women professionals and the last section contains recommendations.

Section II: Scope of the Study and Methods Used

In 2008, the Ministry of Water Resources and the Ministry of Physical Planning and Works are the agencies dealing with water issues. The Department of Irrigation, the Department of Water Induced Disaster Prevention; and the Department of Electricity are the line agencies within the Ministry of Water Resources. In 2009, the Ministry of Water Resources was separated as the Ministry of Energy (Department of Electricity Development) and the Ministry of Irrigation (Department of Irrigation and Department of Water Induced Disaster Prevention). The water supply and sanitation sector is the responsibility of the Ministry of Physical Planning and Works which is implemented by the Department of Water Supply and Sewerage.

This study considered the Department of Water Supply and Sewerage and the Department of Irrigation for an in-depth study. There are two reasons for the selection of the departments. First, both the agencies are the oldest organisations in the water sector. Second, both the institutions work closely with the community to implement irrigation and drinking water systems throughout the year. The study of government agencies only covers half of the reality for a country like Nepal, where the non-government organisations play an important role in the development of the country. Therefore, beside the two departments, leading national and international non-government organisations working in the water sector are studied to map the women professionals in non-government organisations. Four academic institutes affiliated to three universities are considered for the study to understand enrolment of women students in academic programmes that lead to career opportunities in water sector. These institutes are Western Engineering College, Tribhuwan University, Pokhara; Department of Environmental Science, Tribhuwan University, Kathmandu; and Pokhara Engineering College and Nepal Engineering College, Pokhara University. In addition, one association of public health engineers was studied to analyze visibility of women in such association. Three women networks are studied to understand how these networks support women professionals.

The study was conducted in April/May 2008. Data collection methods included interview (open ended questionnaire), participatory observation, field-visit, e-survey, focus group discussion with water professionals and tracing out the journey of women professionals from college to work. Both male and female professionals were interviewed and considered for the study. The information collected during the fieldwork of PhD research (2005–2007) titled 'gendered participation on water management - discourse, policies and practice' by a researcher at Wageningen University, Netherlands has complemented the study.

Below, is a brief profile of institutions and organisations studied.

Department of Irrigation (DOI)

The DOI was the first water agency, formally established in 1952 to expand irrigated agriculture in the country. The DOI played a key role in the construction of irrigation systems by expanding its organisational structure in five regional offices and seventy-five district offices all over the country. As the primary focus of the DOI was the construction of irrigation systems, the recruitment was primarily of civil engineers. By the 80s, eighty percent of the technical staff was of civil engineers. As engineering is seen as a male occupation, all staff members were males with a civil engineering background (Poudel, 2002: 45, 55). At present, the DOI is restructured to play a monitoring role as per the Local Governance Act 1999 and the decentralization policy of the government. The seventy-five district irrigation offices are restructured to twenty-six divisions and twenty subdivision offices since 2002. Eighty percent staff are civil engineers, ninety-eight and half percent are male and forty percent of staff members are from the Madeshi community, dominant of Terai. Since the 90s, with growing emphasis on community and participatory management, two positions of non-technical professionals were created - one, a sociologist (five in number) and an association organiser (at least one in each district office).

Department of Water Supply and Sewerage (DWSS)

The DWSS was established as a separate lead agency to work in drinking water supply and sewerage issue in the country since 1972. It expanded its construction activities throughout the country by establishment of five regional offices and seventy-five district offices. As per local governance act 1999, the district offices are restructured to form 43 divisions, 27 subdivision offices with five regional offices in 2002.

The majority of the officers in the DWSS are male engineers. With increasing emphasis on sanitation and community mobilization in the nineties, the DWSS created a new position of sociologist (few) and women workers in all 75 districts .

Educational Institutions

a. Western Engineering College, Pokhara

The college is the oldest college in the western development region to offer civil engineering and other courses. It offers Diploma and Bachelor Degree in Engineering. It is a government college and hence the fee structure is subsidized. Focus group discussion with faculty members and students and five interviews with faculty members were conducted for the study.

b. Central Department of Environmental Science, Tribhuwan University, Kathmandu

This department offers Master Degree in Environmental Science, where the students of the second year can opt for a special paper on water resource development and planning. The study focuses on the rate of women students to take up this special paper. The graduates were traced out to understand whether this paper opened up any opportunity to work in the water sector or not. Focus group discussion with faculty members and interview with two female graduates were conducted.

c. Nepal Engineering College (NEC), Bhaktapur and Pokhara Engineering College, Pokhara University

Both the colleges affiliated to Pokhara University are private colleges. The colleges offer Bachelor Degree in Engineering. The NEC offers Master Course on Interdisciplinary Water Resources Management. Interview with faculty members, students of master course were conducted to understand the situation of women professionals in the water sector.

Non-government Organisations (NGOs)

a. Nepal Water for Health (NEWAH)

Established in 1992 is a leading NGO working in drinking water supply and sanitation programmes. It operates in selective districts through its three regional offices located in Eastern, Central and Mid-Western region with support of 87 professional regular staff (www.newah.org, 2009).

b. Environment and Public Health Organisation (ENPHO)

Established in 1990, it is the first non-government organisation with well-equipped laboratory to test water quality. It combines research and integrated programmes to improve the health and sanitation condition of the communities and create eco-society.

International Non-government Organisations (INGOs)

a. WATSAN Program - UN Habitat Nepal

UN Habitat Nepal office is the United Nation agency for human settlement. It implements Water for Asian cities programme with focus on Water and Sanitation.

b.The International Centre for Integrated Mountain Development (ICIMOD)

The ICIMOD is Nepal-based regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush-Himalayas - Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. Integrated water and hazard management unit of the organisation has been considered for mapping women professionals.

c.World Wildlife Fund (WWF)

The WWF has a unit to work on fresh water. A rapid assessment is made to identify professionals working on this theme.

Network/Associations

The Society of Public Health Engineers, Nepal (SOPHEN) was established in 1990 as an independent professional organisation of Nepalese Engineers working in sanitation and health issues. At present, it has 374 members.

The Nepal Water Partnership, hosted at Jalsrot Vikas Sanstha, organized the first country level workshop to establish a network of women and water in 2001. Forty-two women working in the water sector were present in the meeting and were representative from all five development regions.

The Woman Professional in Land Use Sector (WPLUS) was established in 1997 as a first women professional's organisation. The membership is open to graduates on any subjects related to natural resources and land use including agriculture, forestry and engineering.

The Professional Woman for Promotional Activities (PWPA) is a network of women professionals established in 2007. The network works with a mission of women's empowerment and upliftment through networking of professional women.

Section III: Visibility of Women Professionals and Typologies

Nepal being a patriarchal society, the access to education for daughters used to be and is discriminatory. As the cost of education has to be borne by the family, investment on education is prioritized for sons rather than daughters as sons are considered old age security for parents. It has implications for the lower number of female graduates. Forty years ago, there were only 3 women graduates in engineering and 3 in agriculture compared to 341 male engineering graduates and 130 agriculture graduates in 1971. This number has drastically increased with the opening up of universities and colleges in the country. The number of women graduates more than doubled, from 492 in 1967 to 1039 in 1971 with the annual growth rate of 17.7 percent due to opening of the first university, the Tribhuwan University in 1959. There are positive trends of increasing women professionals.

For the study, water professionals in five different categories and women professionals within that category are studied. These typologies include:

Technical I (T1): Engineers

Technical 2 (T2): Professionals who are not as qualified as engineers but do support them in their engineering work like draftsman, assistant draftsman, tracers and lab assistants.

Non-technical Experts (NT): social scientists, who are included in the water bureaucracy as the result of sector reform, and are contractual employees.

Administrative: Those who do administrative work like accounts officer, clerk, steno, store superintendent etc.

Service Staff: Employees who provide different services. E.g. driver, sweeper, watchman, electrician, labourer et al.

Women Professional in Government Agencies

The number of women civil servants in Nepal's civil service is less. In 2003, only 8 percent of the civil servants were female.

Table 1 Post-wise Civil Service by Gender (As of 2003)						
Group	Male	Female	Total	Male %	Female %	Total %
Special	41	1	42	97.62	02.38	00.05
Gazette First	304	4	308	98.70	01.30	00.41
Gazette Second	1399	52	1451	96.42	03.58	01.93
Gazette Third	4909	304	5213	94.17	05.83	06.93
Non-Gazette First	12816	1250	14066	91.11	08.89	1870
Non-Gazette Second	18169	1623	19801	91.76	08.24	26.33
Non-Gazette Third	5830	1293	7123	81.85	18.15	09.47
Non-Gazette Fourth	1781	58	1839	96.85	03.15	02.45
Class Less (support staff)	23885	1432	25317	94.34	05.66	33.66
Not Available	47	2	49	95.92	04.08	00.07
Total	69181	6028	75209	91.98	8.02	100

Source: Nijamati Kitab Khana, Ministry of General Administration/HMG/N: 2003
Note - Data based on Personal Information System only.

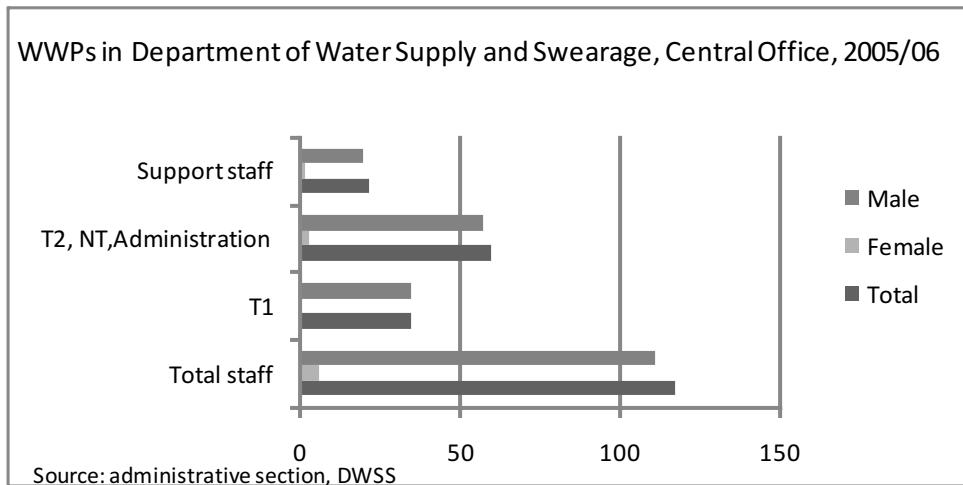
Among them, there are very few women professionals in the Department of Drinking Water Supply and Sewerage and the Department of Irrigation. To find out the number of women staff in the respective water departments, primary data was collected. This is because, though the Ministry of General Administration maintains data of civil servants in computerized personal information system, not all employees are registered yet in the system.

The data available at the central office of the water departments shows that the DWSS has more women staff, compare to the DOI. It is because the DWSS has eighty-three positions for women workers to work in division and subdivision offices. However, women professionals are minimal at the technical and managerial level (Table 2, Graph 1 and 2).

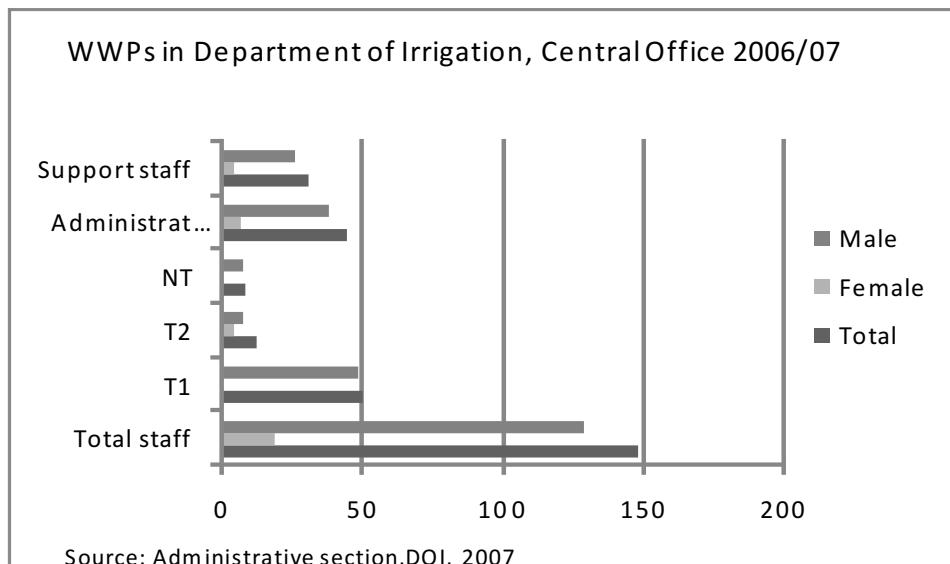
Table 2 Human Resource in Division, Subdivision and Regional Offices, Department of Drinking Water Supply and Sewerage - 2007			
Particular	Total	Female	Male
Total staff	1947*	93+	
T1	138	1	137
T2	234*	9+	
NT	88**	83	5
Administration	289	NA	NA
Support Staff	1198	NA	NA

Source: Planning section, DWSS, 2007
Note - Including temporary and permanent staff, * gender disaggregated data of overseer and peon not available, ** five male sociologist and 83 women workers

Graph 1



Graph 2



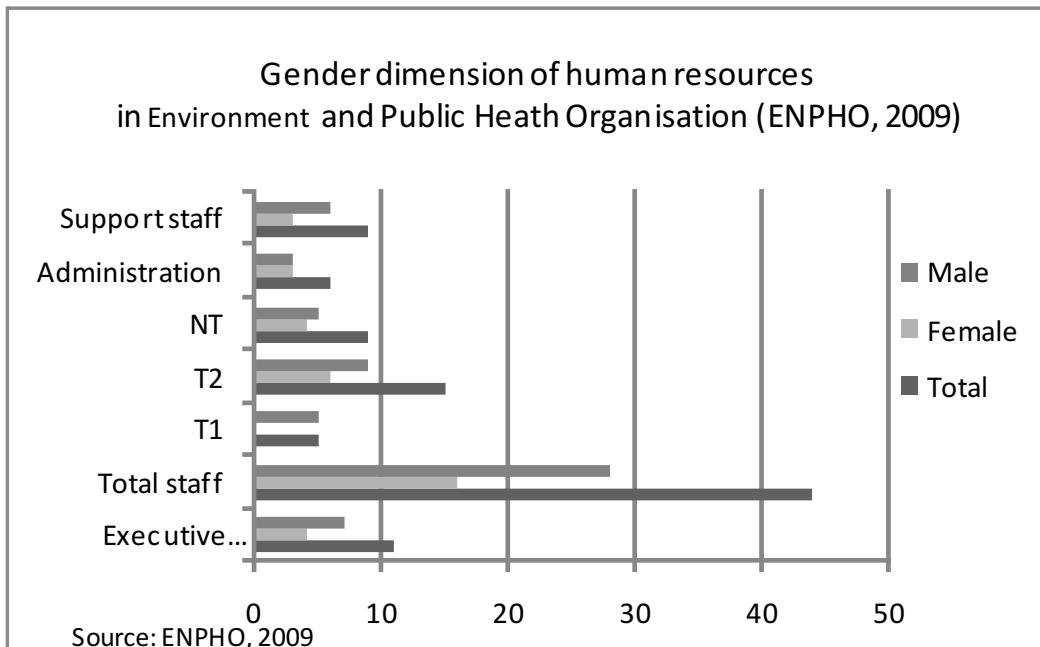
In both the department, most of the draft-persons/architects were women. The only engineer in the DOI was an engineer in architecture, whereas that in the DWSS was a civil engineer.

These water departments are dominated by engineers. Lack of women professionals in these departments can be correlated with the lower number of women engineers in the civil service. 'Women in Engineering Services' category in the Nepal government is only 2.24 percent of the total, whereas the same in Health Service Category is 35.26 in 2007 (highest among 11 service categories). Similarly, the total women registered in the Nepal Engineering Council is nominal (refer section d.on Association and Societies).

Women Professional in NGOs

In contrast to government agencies, women professionals are found to be more in non-government agencies. ENPHO one of the leading NGOs in the water and environment sector has 40 percent women staff in their central office.

Graph 3



Another leading organisation, NEWAH, has one woman member against six men in their executive committee. Similarly, in the senior management team consisting of 11 members responsible for preparing the operating guidelines of the organisation, there was only one woman present .

Women Professionals in INGOs

A rapid mapping of women professionals in leading INGOs in the water sector in Nepal shows that the visibility of women professionals in leading positions are more in such organisations than the government agencies.

Table 3: WWP in International Non-government Organisations

Organisation	Total	Female	Male
International Water Management Institute, Nepal	2	1	1
Integrated Water and Hazard Management Section, ICIMOD	10	2	8

Source: Personal inquiry, IWMI, 2009, ICIMOD 2009

In addition, the ratio of male to female staff in WATSAN program of UN Habitat is 1:6. The water expert of the Integrated Water and Hazard Management Section of the ICIMOD is a Nepali female professional with degree in environmental science. Similarly the manager for Freshwater in World Wildlife Fund (WWF) is a Nepali female professional with a bachelor degree in civil engineering and masters in environmental science. The programme coordinator of UN Habitat-Nepal, WATSAN program, is a woman.

The quick assessment indicates that women professionals are in higher number in INGO and NGO than government offices. The WINROCK study on women professionals in natural resources indicates women professionals prioritised their job preference first in INGO, second in NGO and then in government offices (Devkota, 2003; Karmacharya et.al 2003). This finding also supports the observation made on women water professionals. Many of them working in the non-government organisations have degree in environmental science, whereas positions of the DOI and the DWSS are more for engineers.

Women Professionals in Societies and Associations

As discussed above, WWPs are found to be less in organisations where the positions are of engineers. Therefore women professionals in engineering societies were studied to understand the number of women engineers in such societies. The Society of Public Health Engineers Nepal (SOPHEN) and the Nepal Engineers Association (NEA) reveal that the engineering profession is still dominated by males and there are very few women engineers. In SOPHEN, there are only eight engineers registered among 274 members. Similarly, women engineers in Nepal engineering council are very few.

Table 4: WWP in Society of Public Health Engineers Nepal (SOPHEN), 2008

Particular	Total	Female	Male
Members	274	4	270
General Members	44	0	44
Life Members	230	4	226
Executive Members	11	0	11

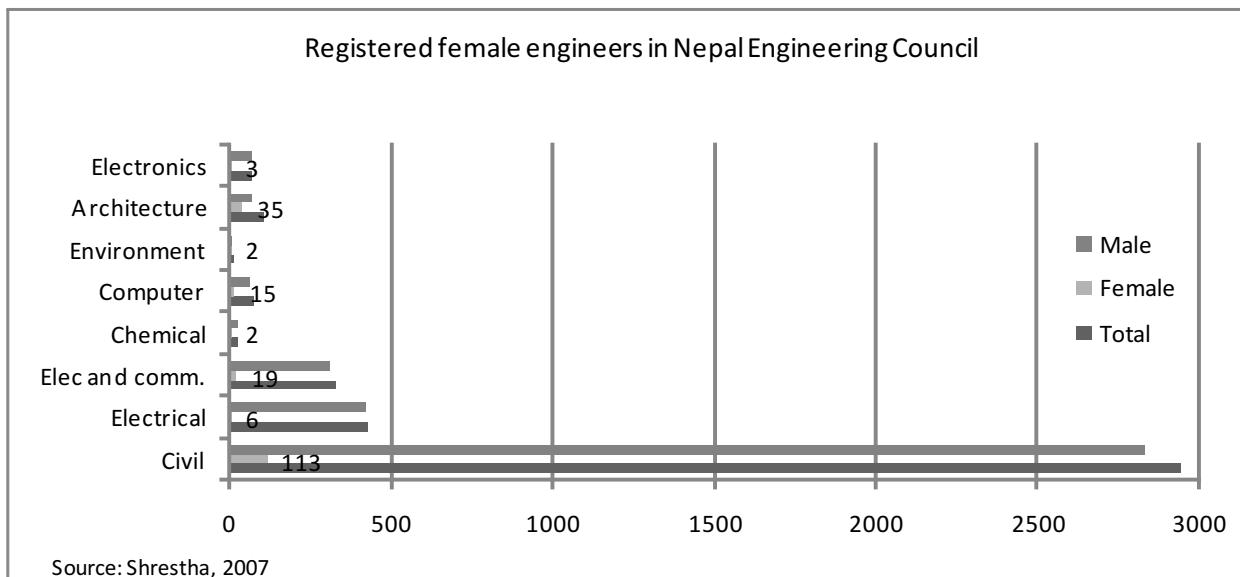
Source: www.sophen.org.np 2008

Note - The executive committee in 2009 consists of 10 male and one female as treasurer.

Considering that the engineering profession is the dominant among water professionals, the review of secondary data on women engineers in the National Engineers Association shows that there are 4524 registered engineers in the Nepal Engineering Council, out of which women engineers were 195 (4.56 percent) in 2003 (Shrestha, 2007).

There are no female engineers registered in the category of survey, geology, mining, agriculture, forestry, urban planning, automation, radio and industrial, textile, metallurgical, aeronautical and mechanical (Graph 4). Of the total 4524 registered, only 4.3 percent of the total is female (Shrestha, 2007). Among the board members, the treasurer of NEA in 2007–2008 is a female engineer.

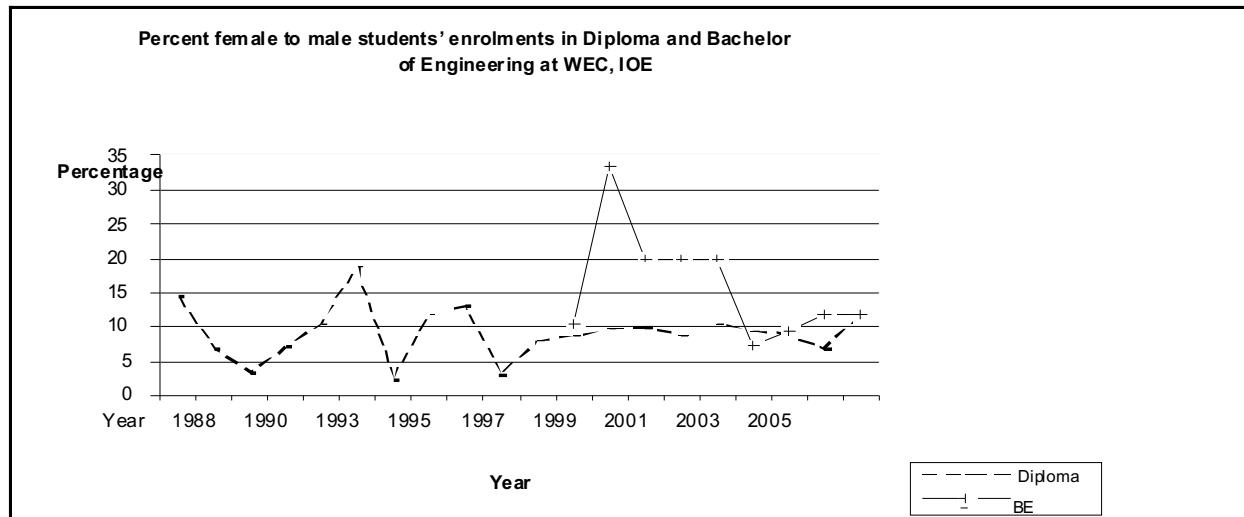
Graph



Women's Enrolment in Academic Programmes

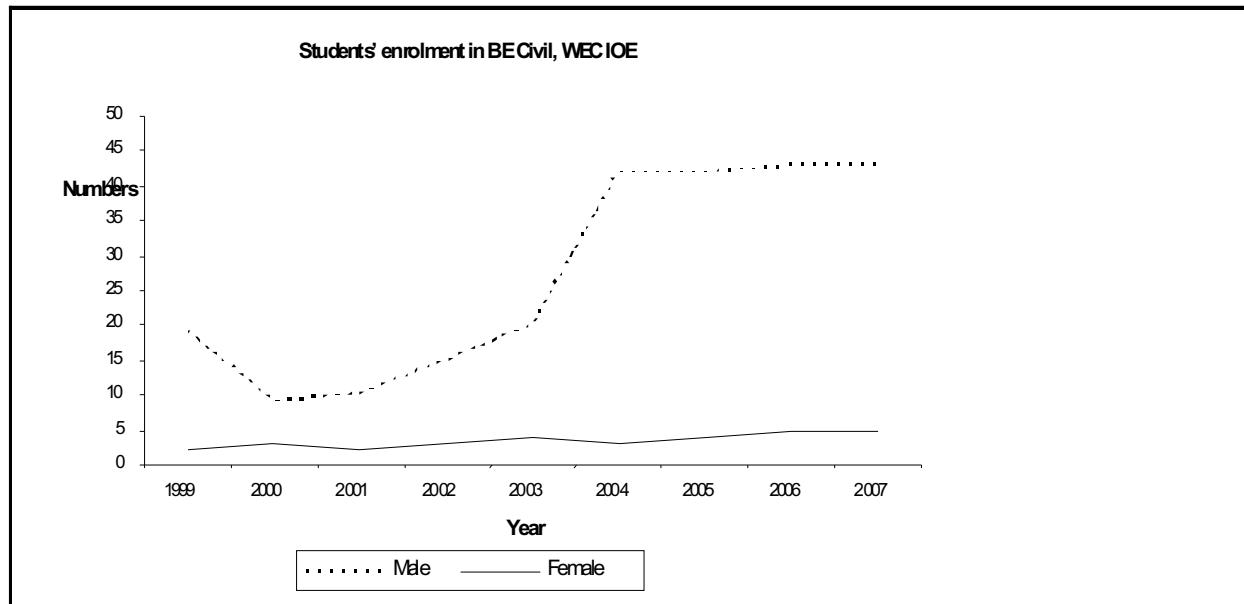
A study by concludes lack of women professionals in technical field is due to lack of women's enrolment in technical courses like engineering etc. Thus the study also considered rapid assessment of women's enrolment in various academic programmes that leads to career opportunities in the water sector. There are low enrolments of female students both in the Diploma and Bachelor of Civil Engineering courses. (See graphs 5-9)

Graph 5

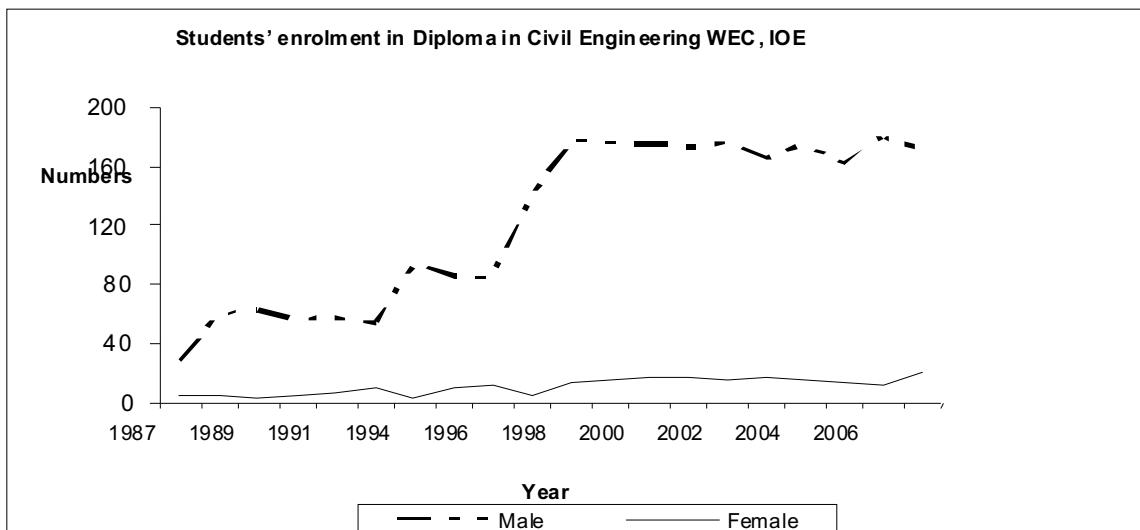


This graph indicates that women's enrolment in the Diploma in Civil Engineering Course is more or less constant from 1997, whereas that in Bachelor's course is fluctuating.

Graph 6



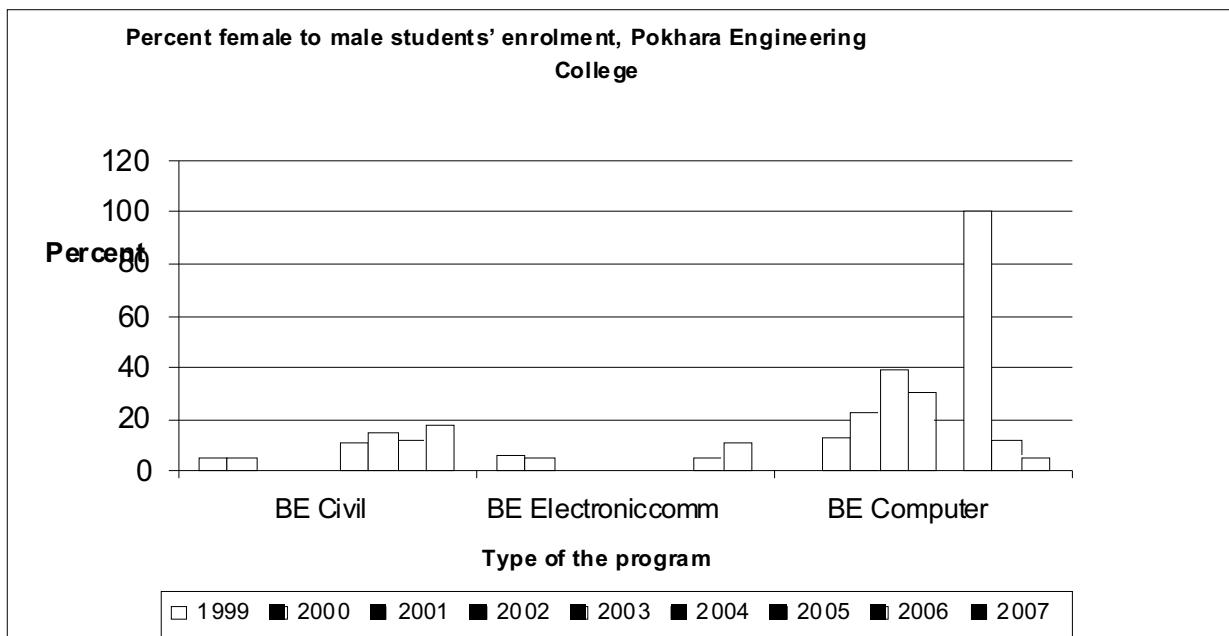
Graph 7



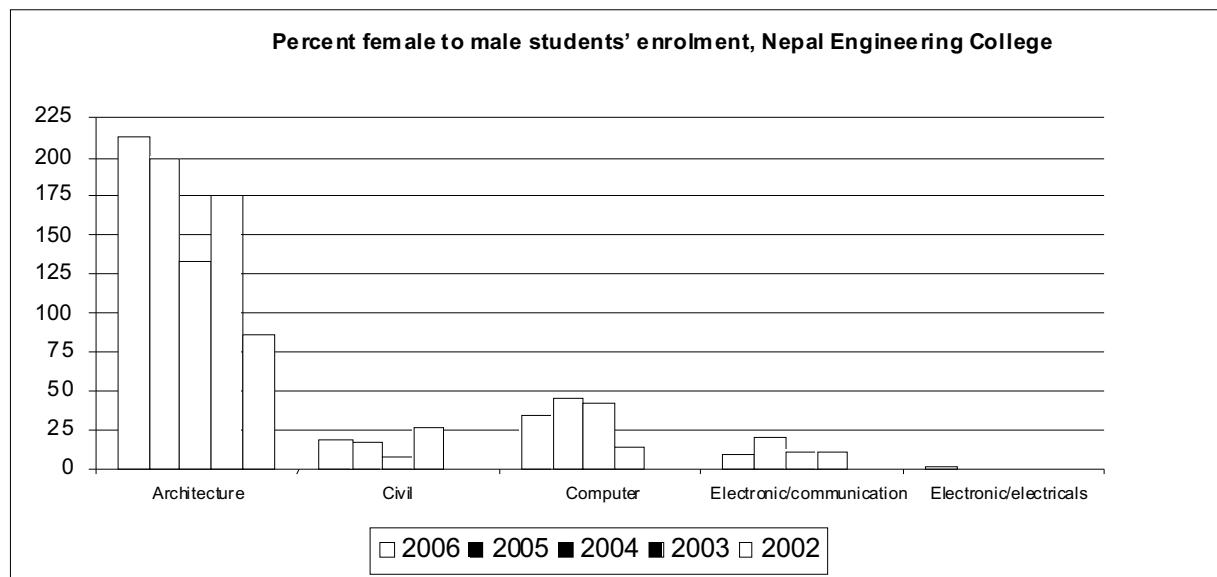
The enrolment of female students in civil engineering courses in private colleges is still less. For example, the figure below represents female to male students' enrolment (percentages) in Pokhara Engineering College and Nepal Engineering College affiliated to the Pokhara University. In Pokhara Engineering College, the percent of male to female enrolment in civil is below 20 percent whereas that in Nepal Engineering College is about to 25 percent. Female enrolment in architecture has exceeded male students in Nepal Engineering College, and nearly matches with male enrolment in BE computer science in Pokhara Engineering College in 2003. In civil engineering, the percent of female to male students' enrolment is below 20, though it is better in computer education.

Higher enrolment of female students in architecture has led to more women professionals in the water sector. Most of the teachers in architecture in academic institutions are women.

Graph 8



Graph 9



These trends suggest that female student enrolments in engineering colleges are increasing. There is a strong preference for the architecture course. Interview with students indicate that among the engineering courses, architecture is considered the most suitable for women. It has more table work than fieldwork that suits women's biological responsibility to be a mother and take care of children.

The preference for joining Diploma in Civil Engineering Course at Western Engineering College, which is a government college, is related to the fee structure. The total fee of the course is ten times cheaper than the cost to be paid in the private colleges. It is slightly higher than studying non-technical courses in the government colleges. Though, it is a technical course, the subsidized fee structure by the government encourages both the students and parents. The fee structure encourages parents to invest on daughters' education if she is able to clear the entrance exam. During the focus group discussion with women students of WEC Pokhara, the students mention lower fee structure as an encouraging factor to join the course.

Conclusion on Visibility of WWP

An overview of women professionals in government agencies, NGOs, INGOs and student enrolment in engineering courses concludes that the majority of vacancies in the government sector to work in the water sector is for engineers. The women professionals in NGOs and INGOs are mostly scientists and professionals on environmental studies. Fewer women professionals in engineering can thus be considered as one of the reasons for fewer women professionals in government agencies. The water work of government agencies still focuses on construction of water systems.

There is a trend of increasing the number of women students' enrolment in Diploma in Civil Engineering in Government Colleges. It indicates that women do want to be engineers and take up challenges.

Section IV: Profiles of the Women Professionals

The table provides information on women professionals interviewed for this study:			
Present Position	Engagement in Water Activities	Education	Age/Caste/Ethnic group
Freelance consultant	<p>Fourth Rural Water Sector and Sanitation Project implemented by Department of Water Supply and Sewerage</p> <p>community development specialist and was a member of PPTA Asian Development Bank fourth project on Rural Water Supply and Sanitation project.</p> <p>A coordinator for South Asia working Group on partnership with Civil Society in the management of water supply and sanitation programme for the International Secretariat for Water, Water supply and sanitation collaborative council, Canada</p>	B.A. Home Economics M.A. Home Economics Ph.D	60+ Newar
Sociologist Department of Water Induced Disaster Prevention Government of Nepal	Seven years, department of irrigation Two years till today, department of Water Induced Disaster Prevention	M.A. Sociology	30+ Brahmin/Chetri
Faculty Western Engineering College	Teaching assistant, teaching	Diploma in civil engineering Master in Business Administration	40+
Senior Divisional Engineer Department of road	Engineer, Department of Water Supply and Sewerage Engineer, Ministry of Physical Planning and works	B.E. Civil engineering M.Sc. Environmental Sanitation	40+ Newar
Programme Officer Save the Children	Program officer, NEWAH for nine years	M.A. Sociology Ph.D fellow	40
Planning officer Ministry of Agriculture	Worked as district officer to implement small irrigation project of Department of agriculture	M.Sc. Farming System	30+
Faculty, NEC	Teaching courses for engineering students	Ph.D, ME.	40+

Section V: Culture of the Water Sector

Education and Career Choices

Few women engineers working in the water sector opted for engineering studies as they are influenced by their relatives who are in the technical field, specially engineering. In addition, the scholarships offered by the government for higher studies in engineering encouraged them to apply for the course.

A woman professional working on early childhood development issues in Tribhuwan University reflects that she was a child interested and curious in mathematics. When she was to choose Intermediate in Physics, she was discouraged by her family members saying that 'Physics is for Boys and Biology is for Girls'.

According to the respondents, the reasons for few women professionals in the water sector are due to:

1. Engineering is still the dominant profession in the water sector, and study in this course needs a lot of investment (if one has to study in private institutes) for the family.
2. The fee structure of government engineering colleges is cheaper, but admissions are highly competitive.
3. Water related field activities are more suitable for males than females, if they include field visits and site supervisions.
4. The Nepali society is not yet encouraging when women go out of home for work which in turn discourages women to work in the sector.

Lower Possibility to Raise Gender Issues in Water Professionalism

The water profession is dominated by engineering and technical sciences with very limited consideration and involvement of professionals from social sciences. The entry to the profession is based on intellectual ability and brightness in terms of grades. There might be a possibility that not being good in mathematics or general knowledge could be the result of bias in access to educational environment in formative stages. The discursive space to discuss and think about the problem of female staff is very low. The question raised is: 'if the profession is not suitable for you as a female, why did you choose the profession'. The question comes first before discussing about possible of shaping of the profession using a gender lens. The organisational disciplinary culture has dominated the possibility to make the profession suitable for females. Often, the female graduates in the engineering courses have changed their profession (See box below)

Female graduates changed the profession - Interview with a male water professional

Mr Pokharel studied Diploma in Civil Engineering in Western Engineering College in 2052–55 BS. After graduation, he worked in NEWAH, a leading NGO in the water sector. He left the job and joined Western Engineering College as it provides better prospects.

When he did the Diploma, there were 10 female students of the total 96. During his bachelor level study, five were females of 48 students. Among his female colleagues, two are working in water sector, and others changed their stream to sociology and management.

Nature of Work

A female sociologist is blamed by her male colleague for doing more administrative desk work than field based work. She along with other female sociologists agreed to this blame to some extent but refused to relate it to their inability. They relate it rather to women's triple role as mother, manager and employee. As there is very limited provisions for the motherly role of women, women professionals do make compromises at their work. Especially when the children are small, they request male colleagues to help them in field work. During these phases they did desk work rather than working at the site. Rest of the time, they feel they are able to work equally as men. Female respondents also mentioned that when they themselves cannot go to a field trip, they support male colleagues. However, they demanded child day care facilities and special provision for women with young children as an urgent need.

A woman professional narrates that women's leadership characteristics is very important at the workplace to bargain, speak up and argue if any injustice happens. She says that she felt she was being treated badly when she raised an issue about financial transparency in a non-government organisation in which she was a founding member. Later, she could argue with a proof. Not only that, she even threatened the management committee that she will bring the issue to the newspapers when she found a receipt of the payment as a proof to argue with the management committee. However, she is a woman who studied in India and US and acquired a PhD degree 20 years ago. She is one of the few women professionals with such qualification and exposure which is reflected in her leadership character. Not all WWPAs have such experience and exposure and that limits them to bargain in the work space.

Images, Symbols and Metaphors

Two metaphors are dominant in the water departments i.e. Hardware and Software. Hardware refers to technical work of water projects and software to institutional and management related work. The hardware is the responsibility of engineers and professionals with a technical background. Software is the responsibility of sociologists and non-technical professionals. The organisational structure of promotion places the technical professional in higher positions.

Though there are very few engineers in the department, more female sociologists are present. As the position of sociologist is secondary in the department, female sociologists are given less importance especially when they had to compromise with work performance because of household responsibility. Among the engineers being 'a smart officer' refers to the one who has technical competence. The women professionals replied that it is about being able to prove one's ability as a capable engineer and making the men folk accept that the female engineers are equally capable and it depends on how people see them. At the field level, women professionals do face interesting responses from the community, when they realize that female engineers exist. Though the female engineers are very few, they do enjoy being a change agent in bringing altering the dominant discourse of engineering profession being a male domain.

Men's Collectives and Women's Collectives

The gazette officers who are core government missionaries to achieve its vision and mission are classified as special, first, second and third. The non-gazette staff, that are considered as support staff, are classified as first, second and third. Officers at first are found to be grouped as per their level in the workplace. For examples, second class officers join each other during tea and snacks, whereas the first class sit together. Often some staff members spend time after office hours together where they informally discuss official issues. Officers, especially women staff, have a difficulty in joining such get-togethers due to family responsibilities.

Understanding of Water Issues

A male president of water users' association who spent fourteen hours by bus to come to the Department of Drinking Water Supply and Sewerage (DWSS) in Kathmandu to submit an application on behalf of his user' organisation, narrates that how important it was for him to have a women clerk in the office that day, it was a Friday and as my journey was long, I finally arrived at the DWSS office five minutes before seventeen hours, the closing time of the office. To reach there, I took a taxi which is lot of money for me. Unfortunately, when I was standing in the line, the clock showed its seventeen hours after few minutes. The male staff in the registration desk refused to take my letter that I wanted to submit on behalf of my users' organisation. Staying and waiting for another working day to submit my application would have been difficult for me, as I had to stay back Saturday and Sunday, till the office opened on Monday. Kathmandu is expensive and to stay two days more means a lot of money. I made a humble request and explained the problem of not being able to come early. The male staff appeared very rude. But the female staff next to him, listening to my story, asked for the letter so that she could register it. Women understand practical problems much better than males.'

Similar concerns were expressed by few other respondents about different understanding of males and females. The focus group discussion with eight faculty members of Western Engineering College concluded the following:

1. If there is a woman officer, the interaction with lower staff will be more - meaning the hierarchy of water organisations will be diluted.
2. Female officers are more punctual than male. It is because of several reasons. One is sincerity. The other is that female engagements in other unofficial activities (get-togethers and local politics etc.) are less.
3. Women do the work at a normal pace, in a consistent manner, but men hurry. Therefore, females work honestly.
4. As the water world is full of corruption, female professionals' tendency for corruption is less.

Though with this short study it is hard to analyse whether men and women had different perceptions on water, the overall observation concludes that they might have different water-related attitudes. Interview with male and female respondents also concluded that not all males and not all females are the same. Thus gender identity might not be the only criteria for having different opinions about water among males and females.

Section VI: Gender Issues at the Organisational Level

Work Atmosphere

A Female ecologist at the Ministry of Population and Environment narrates:

'For the last 25 years I am working in the same post as a technician. I had a hard experience of several failures of not being promoted despite passing the written exam. I was questioned about being on the same post for the last 24 years during one of the interviews.'

A woman environmental engineer put her grievances thus:

'... I have not been promoted for 20 years though I earned degrees from Russia, Canada and Australia. There is no evaluation of what I worked in remote places of mountain and hilly areas. In addition, women are mentally exploited in the civil service and therefore quota should be increased for new ones.'

Source: SACPEW (2003)

Sen (2006) argues that identity is not one-dimensional. Identity gets added on over time and with engagement in different activities. When the women water professionals they joined their offices, people did not perceive them just as engineers, sociologists or any other position that they joined in. The very identity of being a woman engineer, woman sociologist did come along. The statement made by the female ecologist that she passed her exam for promotion but she always failed in interviews, reflects the same. She was interviewed by a group of males as there were not many women in higher positions. For these men, she was not just a professional but was a women professional who is possibly assumed to have less capability and linkages.

Gender Spaces and Infrastructure

Women professionals have said that a child care facilities in the workspace can be an asset for them to enhance their performance. Both the departments studied had separate toilet facilities for women. Officers mentioned that such facilities in field offices and other spaces are also important.

Maternity Leave and Other Benefits

There are some policy agenda that encourage women professionals to work in the water sector in Nepal.

- The maximum age limit for entering the civil service, which was 35 years, has been relaxed in favour of women candidates. Now, up to 40 years of age women can apply for a job in the civil service.
- Women who are continuously working in the civil service on temporary basis from more than five years duration are exempted from the age limit for one attempt if they want to compete for a permanent post.

In 2000–01 the working days of government office was Monday to Friday, nine to five. Later, these working hours had changed to earlier one of Sunday to Friday, ten to five with Friday as half day holiday to match practical difficulties.

- New entrant women civil servants are given concession of six months in the probation period. For confirmation as a permanent employee, the performance of the women employees who are under probation is now required to be certified by their respective supervisor after a six months period. For male employees the probation is still of one year duration.
- Female staff can get maternity leave for 60 days and unpaid leave for extended periods. However, the period of maternity leave is not counted as job experience. There is also a possibility to have unpaid leave for extended period.

Though, there is a provision for extended unpaid leave after the set 60 days paid maternity leave, women professionals expressed that they do not want to go for extended period of unpaid leave when they are located in a better place for the job such as the ministry and department in Kathmandu, the capital. An agriculture officer, who looks after small irrigation projects of the government, mentioned that she was scared to take extended leave because many officers would like to be based in her position. Being on leave might make the position vacant for others and she might get a posting in remote districts after she rejoins the office. After her maternity leave, she left her child at home and tried for a alternate feeding arrangement besides regular breast-feeding. For a child, it is not healthy.

Sexual Harassment and Related Support

None of the professionals interviewed explained the issues of sexual harassment in the workplace. However, the male professionals interviewed explained dissatisfaction with the special provisions for women with regard to promotion and getting enrolled in a government job. For example, women have a higher age bar to apply for the government job than men. One of the male engineers explained how it led to jealousy and non-cooperation with women professionals to help them in their household chores that they used to do in support of women colleagues.

Special provision for women and jealousy among male colleagues

The special provisions for women in policy document are considered as concession for women in the Civil Service Act and Regulation. Women professionals who have got the opportunity being women were harassed by some male colleagues due to the same. It has created jealousy among contemporary male staff.

On the other hand, issues such as maternity leave being not counted in service period is never questioned. Most of the women professionals who joined at the same time as their male colleagues have remained behind when it comes to job promotion. Both male and female staff members were interviewed on these issues. The discussion and retrospect concludes that due to lack of policy that recognises women's reproductive role, the women professionals face harassment and jealousy from their male colleagues when they have a shorter period of service counted for promotion.

Normative Woman

During a focus group discussion with both high level male water bureaucrats and field staff, it was seen that there is a need for empowerment programmes for women to increase the number of women professionals in the water sector. However a critical thinking on different roles women professionals have to play for being women is not discussed much. Women professionals mentioned that there are certain issues on which they have right to be equal to male colleague in professional provisions. They also have the right to be different for being a woman. However, women at present are expected to behave same as male professionals. The male colleague who helped women professionals to fulfil their other role, usually helped based on social norms and values of brotherhood and sisterhood. Such contribution of the male is not counted anywhere in the work, which is also not justifiable.

Accepting women as professionals

As the number of women professionals in the water sector is still limited, the amount of work they could perform to change the dominant discourse on masculinity is limited. Women professionals feel that their hard work is not properly recognized (See box below).

Challenges for Women Water Professional-When does society accept our ability?

In December 1999, a delegation of eight Nepalese, four from NGOs including two female participants and six males from the National Federation of Irrigation Water Users Association attended the International Conference on Participatory Irrigation Management. At the end of the programme, one of the organizers approached the women participants and said whether any of the two can share their experience of the conference with the audience on behalf of the Nepali team. He also emphasised that women's presentation would be better since as an organiser he would like to fill the gender gap. Among 210 participants of the programme, only 20 were female.

The Nepali women participants consulted with their male colleague on the same. The immediate response from the male colleague was that, 'it is not that we cannot deliver the speech, but if they have asked you, do it.' With this response from the male colleague, the female participants were quite embarrassed and at the same time felt discouraged.

- Interview with female participants of INPIM conference

A Sisterhood of Networks and Support for Women Professionals

A review of women professionals' network and its present status indicates that all the networks are initiated with influence of external agencies. WPLUS the first network of women professionals was the outcome of the ICIMOD meeting. WWN is due to the influence of Global Water Partnership and PWPA is partly a result of the Crossing Boundary Project of Saciwaters at Nepal Engineering College. All the networks are active whenever there is specific fund to do some activities. WPLUS as one of the oldest network has had full-fledged activities for years when there was logistic support from WINROCK Nepal. It has generated its resources through membership and saving from the activities conducted by the organisation. WWN and PWPA do not have a separate identity. Both remained as part/initiative of the larger institute.

Some of the network members expressed difficulties to strengthen the network due to their dual responsibility as professionals and caretakers of the household work. Strengthening of the network demands extra voluntary time. Managing such time for women professionals is relatively difficult compared to male colleagues who do not have direct responsibility to take care of household chores and children's responsibility.

Section VII: Gender Issues at the Household Level

Women professionals working in the water sector in Nepal have to perform all the three roles as suggested by Moser i.e. the reproductive, productive and managerial role. She has to take care of her children, household and her paid job. Taking care of children is additional work compared to her male colleague. Though men do take care of children, the primary responsibility is on women. Women professionals interviewed have domestic help to meet the time demand of their job. Beside this, women water professionals also have to manage their reproductive role. As per the new amendment in the Civil Service Act, women staff can have leave for 60 days on paid basis for two pregnancies. In addition women can have unpaid leave for an extended period.

A male engineer raised the point about changing the dominant gender role in society as an important issue to encourage women professionals. Cooking as entirely women's role in the household is reflected in the discussion. He expressed his personal experiences as:

'My wife is one of the first graduates. I have only three daughters, which was not usual at my time. My elders in the family expected us at least to have a son. We (me and my wife) broke this notion and tried to tell others, we are happy with our three daughters. Daughters can equally be like sons. At this age, when I am about to retire and all my daughters are grown up, I had a keen desire that at least one of my daughters choose my profession. My elder daughters refused to do a technical course for higher studies. My last daughter also refused saying that whatever women study it does not matter when it comes to household work. She had to take care of cooking for the family. She questioned why she should study tough technical courses to be cook for the family.'

He concludes that women and men both are part of the social web of gender relations. It is not easy to change this relation, which is reflected especially in the task of cooking which is considered a woman's role. Ely and Meyerson (2000) raise a need to debate, discuss and critique such practices to change the dominant practices that reinforce gender injustice.

Section VIII: Training Needs and Capacity Building

The women interviewed at different levels mentioned that at sometime in the period of their career they have felt that their male counterparts have more knowledge than they do. It was specially observed in meetings. They overcome this observation by being alert in organisational and national politics. Training, conferences and exposure visits attended outside the country were especially useful to overcome any hesitation and reluctance they may have. They recommend such visits for the new women staff.

The underlying philosophy of the network is to empower. Group mobilisation and group organisation help to empower. As already there are three networks (there is another one on gender and technology GEWNET) working in the water sector in one or the other way, linking these networks and strengthening the women's network is thus important to change the dominant discourse on water professionals as being men's world. These networks can debate on social practices that hinders women's promotion, organise programmes with reward and recognition for men who support women.

Section IX: Conclusions and Recommendations

The analysis, personal narratives and observations documented in this report suggest that the status of women professionals in the water sector is low and often challenged. The structural limitations enforced on women in Nepalese society are a crucial factor to address if we want to promote women professionalism in general and in the water sector. The existence of some policy provisions supporting women professionals is narrated as a concession than special provisions. Neither in policy documents nor in day-to-day interaction, is there a space to appreciate women's reproductive role. Women's reproductive role is seen as a personal issue than a societal issue, although women give birth to a child, not only for themselves but for the continuation of the human race.

The role of women networks is positive to some extent. Strengthening their activities and institutionalising them would be an important step, both to empower women and to debate on structural problems.

As usual, the implementation of positive discriminatory policies to provide spaces for women to choose water as a career and to contribute in the water sector is recommended. More number of the women in the sector brings positive changes to raise voice and concerns on structural problems.

The young students who joined the Diploma courses are more enthusiastic and motivated. Therefore, support for women professionals should not only remain for higher studies. If the enthusiastic students at the Diploma level get support for higher studies, they could continue their passion to bring about positive changes. The experiences in the forestry sector could be a learning experience for the water sector. To be a forester is equally challenging for Nepali women, just like being a water professional. Scholarship support for Intermediate and Bachelor level courses of WINROCK Nepal has reduced the gender gap at the professional level in forestry and agriculture sector. In addition, the government of Nepal offered a woman fellowship for forest professional to do higher studies in India and Philippines. There were six district forest officers in 2002 (Shrestha, 2002), whereas that among water professionals is nominal.

Job related rules are not conducive (gender biased) for women. For example, the leave-taking policies. The leave at the birth of child is not counted in service period for promotion. However there is a policy of shorter service period counted in promotion of female officers that brings in conflict with male colleagues. Instead, counting maternity leave as work would be helpful.

The scholarship programme for women students offered at Nepal Engineering College for the masters programme in Interdisciplinary Water Resources Studies should include strategies to keep the students in the country. The possible job opportunities for these students are an important factor to keep them in the country. This study found three female engineers working in drinking water department, Nepal Engineering College and WINROCK International (water sector) had migrated to Canada, Australia and the US. Thus there is a trend of brain drain among women water professionals. So the criterion for awarding scholarship has to ensure that the candidate contributes to the situation of WWP's and the water sector in Nepal.

The water profession is dominated by engineers. There is a need to bring a socio-technical perspective on water management. The integration of sociologists, social workers, graduates in environment science and professionals from other discipline is very important to bring in this socio-technical perspective. The graduates of masters in environmental science (with 'water resources' as an elective paper) mentioned that for them job opportunities in the water sector are very few. They complained that their credibility to work in the water sector is considered as less compared to engineers. There are limited possibilities for sociologists to be promoted to being high level officers in the irrigation department as compared to engineers. The biasness towards the social component of water management has implications for encouraging women to work in the sector. It makes the sector insensitive to social and gender issues.

Financial support for female students to enrol in courses that lead to careers as water professionals, will help to get rid of the problem emerging from parents' attitude towards investment on girl children and their influence in choosing a discipline. With increased number of women professionals in the water sector, it is expected that the parents of the next generation will not treat their children the same way like the parents of this generation.

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Annexure I:Numerical Data on WWP

I. Human resources in Department of Drinking Water Supply and Sewerage, Central office, 2005/06

Particular	Total	Male	Female
Total staff	117	6	111
T1	35	0	35
T2		1	
NT	60	1	56
Administration		2	
Support Staff	22	2	20
<i>Source, Administration section, DWSS, 2006</i>			

Note - This data does not include Small Town Drinking Water Project and Community Managed Drinking Water Project of the department that has been implemented in project mode.

In year 2002, there were 6 women forest-officers, 23 women forest rangers and one women district forest officer (Shrestha,2002).

2. Human resources in Department of Irrigation, Central office (2006/07)

Particular	Total	Female	Male
Total staff	148	19	129
T1	50	1	49
T2	13	5	8
NT	9	1	8
Administration	45	7	38
Support Staff	31	5	26

Source: Administration section, DOI, 2007

3. Women professionals in ENPHO central office

Particular	Total	Female	Male
Executive Board	11	4	7
Total staff	44	16	28
T1	5	0	5
T2	15	6	9
NT	9	4	5
Administration	6	3	3
Support Staff	9	3	6

Source: ENPHO, 2009

4. Registered engineers in Nepal engineering council, 2003

Faculties	Total	Female	Male	Female % to male
Civil	2944	113	2831	3.84
Electrical	428	6	422	1.4
Electronics and communication	329	19	310	6.12
Chemical	26	2	24	7.69
Computer	75	15	60	20
Environment	10	2	8	20
Architecture	102	35	67	34.31
Electronics	102	3	67	4.29

Source: Shrestha, 2007

Annexure 2:Activities for Data Collection

Focus group discussion	Total number of participants/Date	Remark
Subdivision irrigation office, district drinking water office, district soil conservation and watershed management office, district forest office (two,separate FGDs) - district level, Udayapur district, Eastern Development Region	1. Five male officers/2005 2. Five male officers - overseer, association organizers of irrigation and drinking water office water programmes/2005	Main objective was to understand officers' reflection on implementing the gender component of respective policies, in which discussion was held on women water professionals in their workspace and to achieve policy objectives.
Chief district irrigation offices, Eastern Development Region	1. Chief engineer, nine in number-division, subdivision and project head of EDR / Nov 2005 2. Five Association Organisers, one female and four male from different districts in EDR	
Central level bureaucrats, Department of Irrigation	11 male officers, chief of different section and director general, including a sociologist an association organizer and a head of large irrigation project in Terai/2007	
Faculty members of Western Engineering college,Pokhara	Ten faculty members,all male/2008	
Bachelor of civil engineering students, Western Engineering College,Pokhara	30 students, with eight female students/2008	
Female students studying diploma in civil engineering, Western Engineering college	8 female students/2008	
Faculty members of Pokhara Engineering college	Interview with 3 male faculty members/2008	
Faculty members Nepal Engineering college	Interview with 2 male faculty members and 2 female faculty members/2008	
E-survey open-ended questions.	3 NGOs working in the water sector in Nepal/2008	
Department of Irrigation, and Department of water supply and sewerage and Ministry of agriculture - central level	Interview with four high level bureaucrats (2 each of DOI and DWSS), two officers working at field office (1 each from DOI and DWSS), three sociologist (two females)(1 from DWSS, 2 from DOI), one female planning officer (MOA)/2008	
NGOs working in the water sector	Two NGO staff, one male and one female/2008	
Independent researcher/consultant	1 female, working in the water sector/2008	



SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN SRI LANKA

CENWOR

List of Abbreviations

- **CBO** Community Based Organisation
- **CEA** Central Environmental Authority
- **CGIAR** Consultative Group on International Agricultural Research
- **CWRM** Comprehensive Water Resources Management
- **DoI** Department of Irrigation
- **FGD** Focus Group Discussions
- **GCE** General Certificate of Education
- **IESL** Institute of Engineers Sri Lanka
- **IWMI** International Water Management Institute
- **IWRM** Integrated Water Resources Management
- **MILCO** Milk Industries of Lanka Co. Limited
- **NDT** National Diploma in Technology
- **NGO** Non Governmental Organisation
- **NWSDB** National Water Supply and Drainage Board
- **O&M** Operations and Management
- **UN** United Nations
- **UNDP** United Nations Development Programme

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Section I: Introduction

With an average annual rainfall of 2,100 mm, 2,908 sq. km. of inland water that includes human-made reservoirs, and 103 catchments sourced from the central highlands, considerable ground water resources and a per capita water resource of 2,400m, Sri Lanka is not faced with water scarcity in the immediate future (Ariyabandu, 2008). However, 'water battles' have already begun (Samath, 1999). Intermittent droughts and flooding, water scarcity in the dry zones, salinity and environmental degradation and competing multiple uses of water resources for irrigation, hydro power, domestic and industrial use, flood discharge and mitigation, sustaining the aquatic eco systems as well as water for environmental, social, cultural and spiritual needs pose a challenge for water resource management in the country.

Influenced by the Dublin Principles, the 1990s saw greater attention being paid to bringing about efficiency in water resource management through the development of a Water Resources Master Plan, policy reform and improving institutional arrangements. New legislation and the setting up of basin-wide organisations were also proposed. However, despite the endorsing of several plans by the Cabinet a concrete water resources policy is still to be adopted due, *inter alia*, to public concern that privatization would ultimately dispossess the poor (International Financial Institution Watch, n. d.). Now the whole CWRM (Comprehensive Water Resources Management) process, according to Ariyabandu (2008), '... remains in jeopardy'.

Several policies, plans and strategies such as the National Forestry Policy 1995, the National Policy on Wildlife Conservation 1990, the National Watershed Management Policy of 2004, the Rain Water Policy 2005, and the Solid Waste Management Strategy have a bearing on the water sector. The policy to provide to all, by 2010, electricity, safe drinking water, sanitation and adequate housing, policies relating to industry and agricultural development, self sufficiency in food, poverty alleviation, land tenure, rural settlement and macro economic reforms also place demands on water resources (Imbulane et al., 2006). All these aspects have gender impacts.

In both urban and rural areas women have a central role as collectors, users, and managers of water for household as well as for farming purposes but they hardly have a say in the planning and decision making processes in water related activities. This marginalisation is despite women having constitutional equality with men and not being subjected to overt discrimination in access to education, health and other state services, and cultural and social practices that do not have adverse impacts on women. However subtle injustices in economic, political, social and cultural spheres continue to disadvantage them. Girls have equal access to education but educational outcomes are skewed in favour of men. Unemployment is higher for females, they are clustered at lower levels of the occupational hierarchy, their representation at decision making levels is low, and women have not been able to achieve a critical mass in political participation. Some laws and administrative procedures disadvantage women. Traditional attitudes, which have seen reinforcement in recent years, tend to inhibit women in pursuing their life choices. Women's groups are active in pressing for policy and legal reform, quotas in political assemblies, and demanding institutional changes.

Rationale

As in other sectors, women's involvement in water related/water active organisations in the public, private, academic institutions, donor agencies and NGO/CBO (Non-Governmental Organisation/Community-Based Organisation) sector as professionals, advisors and activists is very low and minimal. Despite the crucial importance of water for women to fulfil their domestic and economic roles, and their own personal needs, women do not have a commensurate presence at the policy and decision making levels in the water bureaucracy, at field level, and as users. The role of women in agriculture and their participation in agriculture related activities and women's use of water have been studied in Sri Lanka to some extent at least. However, studies on the role of women and their participation in water management are almost non-existent. Hence a study of this nature was considered by SaciWaters to be imperative to find out the situation of women in the water sector with a view to adopting appropriate strategies to improve women's participation.

Section II: Scope of the Study and Methods Used

Water Bureaucracy in the Country

A large number of local, provincial, national and international agencies are involved in the water sector in varied capacities. There is no apex body for water resources management as attempts to set up such an agency failed. Of the water related institutions, some, such as the Department of Irrigation (DoI) have been established during the colonial period and is now responsible for the regulation and control of inland water while others such as the Water Resources Board and the National Water Supply and Drainage Board (NWSDB) have been established after independence. The former was set up in 1966 as an advisory body relating to the 'control and utilization of water resources in Sri Lanka' with emphasis on ground water while the main responsibility of the latter is to provide sustainable water and sanitation solutions. Two other agencies - the Water Resources Council and the Water Secretariat set up in 1996 - ceased to function with the completion of the formulation of the national water policy and the draft National Water Act. An Interim Water Resources Authority was established under the Ministry of Irrigation and Water Management in 2001 and the Ministry of River Basin Development in 2004. In all there are over 30 national institutions and 320 provincial and local level agencies with responsibility for water. UN agencies and international non-government organisations such as the International Water Management Institute (IWMI) work closely with national agencies. However there is no clear demarcation of responsibilities and accountability, which along with the over 40 laws that exist in the country result in inefficiency and inter-sectoral conflict (Imbulane et al., 2006).

Organisations Considered for the Study

Three public sector institutions, two in the private sector, three local NGOs, two international NGOs and a community based organisation were selected for the study. However, the major focus of this study is on the public sector agencies because of their crucial importance to the water sector and the large number of workers that are employed by them. Although the project activities of the NGOs and CBOs and the two private sector organisations are important, their scale of operations is limited. Therefore only their staffing patterns were looked at.

The Department of Irrigation, one of the oldest water related agencies in the field, is a government department under the Ministry of Irrigation and Water Management. It has an island-wide presence and possibly employs the largest number of women on and off the field in the water sector. The Department is responsible for the planning, design, construction, operation and management of all major and medium irrigation schemes and integrated natural and human resource management in major irrigation systems. It has the objectives of increasing productivity under major irrigation systems, raising the income and living standard of the farmers, assessing water in major river basins, protecting land from flooding, water logging, and salt water intrusion (Department of Irrigation, 2009).

The Water Resources Board was set up in 1966 by an Act of Parliament as an advisory body to the Minister in charge of water resources in Sri Lanka. In 1978 it extended its portfolio to carry out implementation activities. Its major projects relate to ground water assessment, development of a ground water resources database and tube well drilling and monitoring. The Board however is operating under financial constraints and the 2009 report of the Committee on Public Enterprises stated '...the financial situation of the Water Resources Board has declined' and 'as the loss for 2008 has gone up ...there is a need to decide whether the Water Resources Board should be continued'. The NWSDB established by an Act of Parliament in 1975 functions under the Ministry of Water Supply and Drainage. It is the main agency responsible for the provision of safe drinking water and facilitating sanitation facilities in the entire country. The NWSDB operates 308 major, minor and small water supply schemes of which 31 cover major cities and 277 townships and villages, providing pipe borne water to 34% of the population. It serves another 10% of the population with hand pump tube wells. The responsibility for the sewerage system in Colombo and the suburbs also lies with the NWSDB.

The Lanka Hydraulic Institute (Pvt.) Ltd is the oldest private organisation dealing with water. It serves the public sector organisations by undertaking research and technical work. Milk Industries of Lanka Co. Limited (MILCO) is a public company, the successor to the former National Milk Board operating under the Ministry of Livestock Development. It is engaged in promoting livestock development and marketing of dairy products. Milk is collected from farmers who are organized into village level self-managed Farmer Manager Societies of which there are currently 1,600 with a membership of 35,000. These societies supply about 50% of the national milk collection.

Sarvodaya, an NGO aiming at holistic development, has an island wide presence. Its technical section implements a number of water schemes in different areas of the country. The NGO Water Supply and Sanitation Decade Service was established in 1983 under the auspices of the UNDP as a part of the International Drinking Water and Sanitation Decade to promote NGO participation to achieve the goals of the UN Water Decade in Sri Lanka. The Lanka Rain Water Harvesting Forum, an NGO, was formed to concentrate on harvesting rain water on a small scale, providing training for engineers, plumbers, and masons for domestic and small scale agricultural projects in rain water harvesting. The Forum has an international network and attempts to improve the technology. The Praja Sanwardhana Madyasthanaya is a women's NGO based in Aranayake in the Kegalle District, implementing a number of environmental projects such as protecting threatened food varieties. NETWater is a volunteer organisation of professional women specializing in water technology and management. Kitulgala Liyanoya Sanwardhana Padanama is a community-based organisation working in Kitulgala in the Kegalle District in the Sabaragamuwa Province.

The International Water Management Institute is an international NGO, is supported by the Consultative Group on International Agricultural Research (CGIAR). Research is the core activity of CGIAR, organized around four priority thematic areas. It works in partnership with government ministries and departments, academic and research institutions, and the private sector, and international and local NGOs. Practical Action (formerly known as Intermediate Technology Development Group) has as its main focus the introduction of practical technology to communities. Consequently it is involved in rain water harvesting, providing technical advice and implementing pilot projects to demonstrate the technology.

Methodology

The methodology for the study was influenced by the lack of data disaggregated by sex at the macro and micro level. There is no data relating to the number of persons in water management in the country. The public sector institutions selected for the in depth study also did not maintain data systematically making analysis difficult. The limited time frame of two months did not allow more time to be spent at the institutions, sorting through administrative records and extracting statistical data. The interviews and focus group discussions could not be held in the North and East of the country due to the prevailing security concerns as well as financial and time constraints. The use of an email survey was considered but abandoned as many did not have access to e-mail. The study therefore had to rely on published and unpublished sources of information, interviews with key stakeholders and water professionals, and focus group discussions. Five categories of professionals were identified for the purposes of the study:

1. Women engineers with an academic engineering qualification, with or without a post graduate degree or charter. Some of these women are at the top of their profession and are in positions of decision making and management.
2. Women engineers who are at the middle level in a water managing institution/department. They may not have a basic engineering degree but have years of proven experience in a responsible position and relevant post graduate degrees. Chemists or other scientists working in laboratories dealing with water may be included in this category.
3. Those in the category of engineering assistants/technical officers who hold a National Diploma of Technology (NDT) or a Diploma of Irrigation Technology.

4. Academics attached to a university whose first degree may be in the sciences or agriculture but who work, teach and conduct research in the field of water subsequent to obtaining postgraduate qualifications such as agricultural engineering.

5. Other women working with or in organisations that have projects on water management. This would include those in the NGO and CBO sectors and in the private sector who have expertise in water management activities at community level.

Interviews were conducted with 30 water professionals in two universities, three public sector institutions, an international non-governmental agency, a private sector company, and women and men involved in the water sector to get in-depth information.

Four focus group discussions were conducted in Colombo (Western Province), Anuradhapura (North Central Province), Peradeniya (Central Province) and Ratnapura (Sabaragamuwa Province).

The participants included all five categories of water professionals - engineers and technical officers working in the field, supervisors, academics, sociologists, economists, and NGO and CBO activists. Both men and women participated. The selection of participants gave particular attention to capturing a variety of viewpoints. A total of 38 attended the focus group discussions.

Focus Group Discussions (FGD)

Colombo

The first FGD was held in Colombo. The participants, from different disciplines related to water, were mainly drawn from the managerial positions in water management. Though invited, there was only one male participant at the Colombo meeting. He was a welcome source of many interesting views that contributed to a spirited discussion.

Anuradhapura

The second FGD was held in Anuradhapura. High to middle level engineers from the Mahaweli Authority and Engineering Assistants from the Department of Irrigation participated.

Peradeniya

The third FGD was held at the University of Peradeniya in the Department of Agricultural Engineering. Many of those who attended the meeting were graduates in agriculture with post graduate degrees relating to water, agribusiness or extension and had some involvement with the SaciWATERS programme that the Post Graduate Institute of Agriculture (PGIA) is implementing. Many were professors in their field some of who had been participants of a gender training course conducted by SaciWATERS. A research expert from the Crossing Boundaries project of SaciWATERS was also present, facilitating a better focus on their concerns.

1. Technical: Engineers (both who are working on site and who do table work like designing, scrutiny, sanctioning etc), Hydrologists, geo hydrologists.
2. Technical type 2: Professionals who are not qualified as engineers but do support in their technical work- like draftsman, assistant draftsman, tracers and lab assistants
3. Non-technical experts/permanent or Contractual: With the introduction of the sector reform process an effort to bring in a multi disciplinary team is seen. Therefore, there are non-technical social and natural scientists. In each of the countries, their position in the state government differs. In India for example all the social sciences employees fall in the contractual category and are not part of the mainstream government set up. This is also true of Pakistan. In Nepal, Sri Lanka and Bangladesh they are part of the mainstream government set up.
4. Administrative: Those who do administrative work (table work) like accounts office, clerk, steno, typist, store superintendent etc.
5. Service staff: Employees who are not doing administrative work but provide different services (most of these would be what is called Class 4 employees) like sweeper, driver, cleaner, watchman, labourer, electrician, gardener, lineman, pump operator, wireman etc.

Ratnapura

The participants at the Ratnapura discussion were all SAWA (South Asia Water) scholars, i.e. those who had been granted scholarships for postgraduate studies by SaciWATERS. They were students with a first degree mainly in Agriculture, who had been sponsored by SaciWATERS for a postgraduate degree in water related fields. Deliberately, women were given a preference by SaciWATERS to encourage female participation in water management, and so the majority were women. The two men present already had a Masters degree and were studying for their PhD in water-related disciplines and were lecturers at the Universities of Colombo and Rajarata.

The study was conducted in October and November 2007 and edited and updated in August/September 2009.

Arrangement of the Study Report

The brief introduction to water resources in Sri Lanka is followed by the rationale and the methodology of the study. The sections that follow discuss the typologies of water professionals in the organisations studied and the representation of women, a brief profile of the interviewees, the culture of the water sector, gender and organisation related issues, gender relations at household level and their impact on the career of women water professionals, and training needs. The study concludes with the recommendations.

Section III:Typologies

Department of Irrigation

The Department of Irrigation is a technocratic institution primarily staffed by engineers and other technical personnel (it has no multidisciplinary team even though community interface and interaction are among its functions) and is dominated by men. It is headed by the Director General of Irrigation. Eight Directors are in charge of the subjects of Planning and Design, Asset Management, Regional Development Construction, Training, Research and Development; Irrigation Water Management, Plan Implementation, Finance, Human Resources. Except for the Director of Finance, all the others are engineers. A Senior Deputy Director functioning directly under the Director General is responsible for Environmental Drainage and Flood Control. Seven Deputy Directors function under the Directors while the Deputy Director (Contracts) reports to the Director General. Regional Deputy Directors are in charge of 14 regions while the training institute is managed by a Director. There are 14 range offices throughout the country headed by Regional Directors. Next in the hierarchy are the Chief Irrigation Engineers followed by Engineers and Assistant Engineers (See Annex for Organisational Chart).

The sex-wise distribution of the top management and irrigation engineers shows a typical pyramidal structure where only two of the eight Directors, two of the eight Senior Deputy Directors, two of the seven regional Director, and 41 of the 231 engineers, and 33 of the 347 engineering assistants are women.

Water Resources Board

The majority of the staff of the Water Resources Board is technical comprising hydro geologists, geophysicists, geochemists, engineers and water analysts. The sex composition of the staff including technical staff brings out starkly the gender imbalance in the Water Resources Board. Only 33 or 11% of the 288 staff members, five of the seventeen professionals, five of the technical and associate professionals, five of the 37 clerical and related workers were women. There were no women senior officers or managers. All the engineers were male as also the General Manager, the Deputy General Managers and Assistant General Managers. The five-member Board of Directors had one woman.

Table 1: Sex-wise Distribution of Senior Management

Senior Management	Total	Women	% Female
Director General	1	0	0
Directors	8	2	25
Senior Deputy Directors	NA	1	NA
Regional Directors	7	2	28.5
Deputy Directors	NA	7	NA
Chief Engineers	NA	6	NA
Engineers	231	41	17.7
Engineering Assistants	347	33	9.5

Department of Irrigation**Table 2: Sex-wise Distribution of Water Professionals**

	Total	Women	% Female
Geologists – Grade I (DGM Level)	0	0	0
Geologists – Grade 2 (AGM Level)	2	0	0
Geologists – Grade 3	6	0	0
Geologists – Grade 4	6	1	
Civil Engineers	NA	0	0
Chemists	0	2	100
Water Analysts	0	2	100

Water Resources Board**National Water Supply and Drainage Board**

The NWSDB is managed by the Chairman and the Board of Directors, and senior management comprising the General Manager, seven Additional General Managers heading the different subsections, 16 Deputy General Managers followed by 20 Project Managers, Assistant General Managers and 100 Managers, Engineers, Assistant Engineers and the minor technical staff. The Board of Directors comprises 11 individuals. The Board does not have the same rigid structures of administration as a department and the administration has been decentralized into 11 divisions.

The 8,768 staff members of NWSDB in 2007 included 8,021 permanent employees while 413 were employed on a casual basis, 305 on contract and 29 as trainees. Most of the contract workers had been recruited to work on foreign funded projects. The NWSDB further classifies its employees as Executives; Technical, Administrative, Clerical and Allied; Skilled; and Unskilled workers. The majority is the skilled category followed by the unskilled. In 2007, 70% of the staff was engaged in operations and management, 14% in services, and 8% in development and construction. Twelve percent of the employees were based in Head Office, 24% in Greater Colombo, 8% in the Western, 19% in North Central and North Western, 18% in Southern and Uva, 13% in Central and Sabaragamuwa and 6% in Northern and Eastern provinces. It should be noted that no sex disaggregated data were available (National Water Supply and Drainage Board, 2008) to ascertain the number of women in the head office and Greater Colombo region as compared to women in the other regions.

Thirty percent of the nearly 8,768 employees of the NWSDB are women but typically they are concentrated at lower levels. The distribution of senior management positions by sex is given in the table below.

Table 3: Sex-wise Distribution of Senior Management

Designation	Total	Female	% Female
General Manager	1	0	0.0
Additional General Manager	8	1	12.5
Deputy General Manager	16	5	31.3
Assistant General Manager	27	5	18.5
Project Manager	20	2	10.0
Senior Manager	60	12	20.0
Engineers	177	57	18.1
Total	309	160	18.4
Engineering Assistants	771	217	20.8
Grand Total	1080	Women	20.0

Except for three Deputy General Managers in charge of finance and human resources, all the other senior management positions are held by engineers. The staff includes senior level professionals who have post graduate qualifications in technical, finance, management and other disciplines. Middle level officers are also technically qualified. Senior engineers in the Planning and Design Division are responsible for the process designs, pipe line designs, water treatment plant designs and pumping station designs.

A wide gender gap is seen across the NWSDB. Out of a total of 1,080 senior positions, women hold only 217 posts or 20 per cent. The highest percent of women (20.8%) work as Engineering Assistants. If the Engineering Assistants are excluded from the total, this number and percentage are reduced to 309 and 18.4 per cent respectively. At the very senior positions, the General Manager is a male, while one (12.5 percent) of the Additional General Managers, five (31.3 per cent) of the Deputy General Managers and five (18.5 per cent) of the Assistant General Managers are women. Three of the five Deputy General Managers in charge of the provinces are women. All the women holding the position of Additional General Manager and Deputy General Manager are engineers. The eleven-member Board of Directors has only two women while the Audit and Management Committee appointed to assist the management had none (National Water Supply and Drainage Board, 2008).

The NWSDB has recruited sociologists recognizing the need for community-agency interface in the operations and management (O&M) of programmes and the multidisciplinary nature of water supply and management. Regional Service Centres with a substantial degree of autonomy were also set up. These two factors - regional autonomy and the means of building up community interaction - are seen as having a positive influence on facilitating the participation of women, their right to decision making and ensuring water security in the drinking water sector (Athukorala, 2006, 2007).

However, women have not made a marked progress over a fifteen year period from 1992–2007. The percent of women in senior positions increased by only two while the percent of women in the position of Assistant General Manager had actually declined from 28% to 18% during this period due to factors such as fewer number of women available for promotions and sometimes due to the reluctance of women to take up positions in the outstations, which is a prerequisite for promotions. Of the two percent in senior positions, one woman had reached the position of Additional General Manager and five, that of Deputy General Manager whereas in 1992 the highest position held by a woman was that of Assistant General Manager (Mendis, 1993:42).

The Lanka Hydraulic Institute (Pvt) Ltd. has a Board of six directors, all male. Three of the nine engineers on its staff were women functioning at the middle level. There are no women engineers at the managerial level. Only five per cent of staff at MILCO is female although ninety percent of the members of Farmer Manager Societies that supply milk are women.

The Sarvodaya programme differed from the other agencies that were studied as it was one of the first to break away from tradition and encourage women to move towards developing themselves as technical entrepreneurs. The hand pump technology that Sarvodaya introduced to the community was one such example. Women were trained in hand pump manufacture with the expectation that they engage in entrepreneurial activity. Many of the participants of the water schemes that Sarvodaya implements in different areas of the country are women.

The NGO Water Supply and Sanitation Decade Service involves women in their projects by promoting a gender balanced approach for providing water and sanitation such as toilets and dug wells to rural and urban areas and getting women to manage them. Equal participation of men and women is seen in the Board.

The Praja Sanwardhan Madyasthanaya and NetWater are both women's NGOs - the former working at the community level and the latter comprising professional women specializing in water technology and management. A gender sensitive balanced attitude is fostered through the projects of NetWater but with emphasis on capacity building for women, who are seen to be marginalized. The community based organisation (CBO) Kitulgala Liyanoya Sanwardhana Padanama had been able to demonstrate to the people of the area in which the project was implemented, the capability of women technical officers who could perform equally well or even better than their male counterparts (Athukorale, 2006a).

The International Water Management Institute (IWMI) has an equal number of men and women in the management and on the Board while there even may be a slight tilting in favour of women. According to the Director of the Global Research Division it is one of the more gender conscious organisations in the international field. It is an associate of the Gender Diversity Programme of the CGIAR, has an institutional gender policy, makes a conscious effort to mainstream gender and recruit qualified women. The Chairperson of Practical Action is a woman while two of the five team leaders are women. The Chairperson of the Rainwater Harvesting Forum is a woman, who is a Hydro Biologist.

Low Number of Women Water Professionals, Comparison across Departments

Table 4 and Table 5 provide a comparative picture of the employment of women in the water related organisations that were included in the study. The consistently low number of women water professionals employed across the agencies studied is primarily due to historical reasons. However, as will be discussed later on in this report, there are extraneous factors and gender roles expectations that impact on the recruitment and promotion of technical personnel that disadvantage women at entry and while in service. The three major agencies selected for the in-depth study, the Department of Irrigation, the Water Resources Board and the National Water Supply and Drainage Board are critical to the water sector in terms of the activities conducted and projects implemented, coverage, the number of employees employed and their influence and impact on the management and provision of water for different purposes. While participation of women in the work of these organisations is important, of equal importance is the understanding and attention to the differential needs of male and female beneficiaries. These three agencies employ nearly 15,000 in the respective head offices and field locations; top level employees are primarily technically qualified; and women are outnumbered by their male colleagues. The two private sector organisations employed hardly any women. It was IWMI, the NGOs and the CBOs that gave serious attention to involving women in a professional capacity and as users.

Table 4: Sex-wise Distribution of Employees in Selected Water Related Organisations, 2006

Institution	Female	Male	Total	% Female
Water Resources Board	33	255	288	11
Mahaweli Authority of Sri Lanka	889	3,743	4,632	19
Ministry of Agriculture, Irrigation and Mahaweli, Irrigation Management Division	26	129	155	17
National Water Supply and Drainage Board	1144	6803	7948	14
Community Water Supply and Reorganisation Project	7	16	23	30
Community Water Supply and Sanitation Project	49	106	155	32
Department of Irrigation	819	3219	3948	29

Source: Department of Census and Statistics. Census of Public and Semi Government Sector Employment, 2006. <http://www.statistics.gov.lk/CPSGSE06/index.html>

Table 5: Sex-wise Distribution of Employees in Selected Water Related Organisations by Category, 2007

	Senior officials & managers		Professionals		Technicians & associate professionals		Clerical and related workers		Total	
	F	M	F	M	F	M	F	M	F	M
Water Resources Board	0	5	5	17	5	37	16	14	264	73
National Water Supply and Drainage Board	16	69	322	989	134	113	709	1,089	8,768	1,279
Mahaweli Authority of Sri Lanka	14	161	72	314	235	747	439	281		4,739
MILCO	2	17	13	47	25	351	125	113	1,520	528

Source: Dept of Census and Statistics .Bulletin of Semi Government Sector Employment, 2007.
http://www.statistics.gov.lk/empcensus/Bulletin_2007.pdf

Section IV: Profiles of the Women Interviewed

The 30 interviewees had different backgrounds relating to place of work, age, marital status and family background, school and university attended, and educational qualifications. Their distribution across organisations is given below.

Table 6: Distribution of Interviewees by Place of Work

Institution	Type of Institution	Female	Male	Total
Department of Irrigation	Govt. Department	3	1	4
Water Resources Board	Statutory Board	1	1	2
National Water Supply and Drainage Board	Statutory Board	4	5	9
Mahaweli Authority of Sri Lanka	Statutory Board	3		3
Disaster Management Centre	Statutory Board	1		1
Universities	Academic	3		3
NGOs	Non Govt. Organisations	5		5
International Water Management Institute	International Institute	2		2
Lanka Hydraulics (Pvt.)Ltd.	Private Company	1		1
Total		23	7	30

The three interviewees from the universities included the professor of civil engineering, head of the Department of Agricultural Engineering, and a senior lecturer in irrigation engineering. In the Department of Irrigation the General Manager, two directors, a deputy director and the Chief Irrigation Engineer for the Gampaha Division were interviewed. The General Manager, the Additional General Manager, Deputy General Manager, an Assistant General Manager and two Project Directors, an engineer, and chief of the laboratory services of the NWSDB were interviewed. Interviewees at the Mahaweli Authority included a Resident Manager and a Deputy Resident Manager. A retired engineer was also interviewed as she was one of the first women engineers to graduate. The Consultant from the private sector establishment was an engineer but the interviewees from the other four agencies were of non-technical personnel holding various positions. One of those interviewed from IWMI, the international NGO, was an expatriate.

Table 7: Interviewees by Institution and Category

Institution	Technical	Administrative	Non Technical Experts	Academicians	Total
Department of irrigation	4				4
Water Resources Board	2				2
National Water supply and Drainage Board	9				9
Mahaweli Authority of Sri Lanka	3				3
Disaster Management Centre	1				1
Universities				3	3
NGOs			3		3
International Water Management Institute			3		3
Rain Water Harvesting Forum	1				1
Lanka Hydraulics (Pvt.)Ltd.	1				1
Total	21		6	3	30

The majority of those interviewed was married and over 35 years of age with one nearing the retirement age. Two women were not married. All Sri Lankans had studied in government schools located in Colombo and major towns. All had obtained their basic degree while several had postgraduate qualifications from Sri Lanka and overseas. Three had obtained the first degree overseas while the majority had obtained postgraduate qualifications from foreign universities. By ethnicity all except two were Sinhala. There were no Muslim women working in these institutions. As caste and religious affiliations are not barriers in accessing employment, these variables were not considered.

Section V: Culture of the Water Sector

Education and Career Choices

The first women engineers entered the University in 1963. Since then there have been many women engineers as shown by the data provided by the Institute of Engineers Sri Lanka (IESL).

The IESL, which is a professional body of engineers, has a total membership of 3,107. Women are 28.45 per cent of the total membership. The engineers in the water resources field would mainly be civil engineers.

Table 8: Membership of the Institution of Engineers of Sri Lanka 2008

Category	Number
Total number of members	3,107
Total number of women members of which:	884 (28.45%)
Civil engineers	552
Electrical engineers	280
Mechanical engineers	32

In October 2008 a female engineer was appointed to the chief executive position in the Ceylon Electricity Board after serving in different capacities for over three decades. This appointment is a source of encouragement and inspiration to women engineers in Sri Lanka, who aspire to the highest positions in their professional careers.

Despite more and more women graduating as engineers, the increase in the number of women entering engineering courses has been marginal as compared with entry of women into law, humanities, social sciences and education courses of study. By 1981/82 the percentage of women seeking entrance for engineering had increased to 14% of total enrolment but it was still the lowest for women and did not exceed 18 percent in the years 2001-2002. This percent had increased to 20% of total female enrolment in 2006. This trend is despite unemployment among arts graduates and the demand for science and engineering graduates as is evident from the organisations selected for this study.

Table 9: Admission of Women to Universities by Academic Stream

Academic Stream	Academic Year											
	1981/82*		1990/91*		1998/99		1999/2000		2000/2001		2001/2002	
	Total	Women%	Total	Women%	Total	Women%	Total	Women%	Total	Women%	Total	Women%
Arts	2,207	55.6	2,384	63.2	3,993	69.7	3,865	69.5	3,794	71.3	4,039	73.0
Management	*	*	653	43.6	1,433	50.9	1,425	51.9	1,598	49.7	1,531	53.2
Commerce	692	37.9	804	47.6	924	50.8	935	51.6	887	52.9	837	54.4
Law	71	43.7	189	54.5	210	71.0	193	78.8	201	77.1	200	79.5
Science	941	34.5	1,253	42.6	2,764	39.3	2,671	36.0	2,660	37.5	2,625	38.3
Madicine	390	39.2	828	43.1	893	44.0	896	50.0	881	47.7	871	53.3
Dentistry	56	48.2	73	43.8	78	52.6	91	46.2	87	58.6	86	45.3
Vet Science	30	43.3	45	57.8	82	48.8	91	56.0	76	57.9	87	37.9
Agriculture	165	32.7	289	46.4	670	54.5	646	52.6	721	53.5	624	50.5
Engineering	480	14.0	636	10.5	738	17.8	875	14.7	926	16.3	985	18.1
Architechture	39	15.4	46	54.3	58	55.2	56	69.6	76	59.2	102	67.6
Quantity Surveying	*	*	35	11.4	53	24.5	61	23.0	55	18.2	51	33.3
Computer Science & IT	-	-	-	-	-	-	-	-	-	-	106	27.4
Total	5,071	44.7	7,235	47.8	11,896	52.4	11,805	51.4	11,962	52.1	12,144	53.8

Source: * Department of Census and Statistics. Changing Role of Women in Sri Lanka, 1997.
Ministry of Women's Affairs, Handbook on Sex-Disaggregated Data, Sri Lanka 2003.

Note: In 1981/82 Management was included with Commerce while Quantity Surveying was included in Architecture.

Interviews could not be conducted in the North and East of the country which has a majority of Tamils and Muslims due to time and resource constraints as well as the uncertain security situation in those parts.

Table 10: Admission of Women for Engineering Courses by University

	University of Peradeniya			University of Moratuwa			University of Ruhuna			Total		
	Total No.	Female No.	Female %	Total No.	Female No.	Female %	Total No.	Female No.	Female %	Total No.	Female No.	Female %
2001/02	320	52	16.25	562	105	18.68	107	23	21.49	989	180	18.20
2002/03	315	67	21.26	548	69	16.24	104	15	14.42	967	151	15.61
2002/03A	329	59	17.93	535	102	18.37	116	23	19.82	1000	184	18.40
2003/04	320	58	16.57	554	82	14.88	96	23	23.95	975	163	16.72
2004/05	348	53	15.20	647	127	19.60	94	21	22.30	1089	201	18.45
2005/06	364	71	19.50	801	177	22.10	205	32	15.60	1370	280	20.40

While it is encouraging that more women are opting for engineering courses, studies show that the internalization of what courses are suitable for women has inhibited them from accessing scientific and technological disciplines. This reluctance is partly attributed to ingrained socio-cultural and patriarchal norms and the socialization process. Gender socialization processes and gender role acceptance were also apparent as, according to the discussants, about 15 per cent of women coming into the University were already married and they were unlikely to opt for a course that would lead to a job with field work. SAWA scholars from Peradeniya and Colombo were also of the view that there may be some control by parents when selecting courses of study at the university. Socio-cultural norms also influenced the career choices of women, as the scholars stated that although as students they were ready to go to the field, even on bicycles, they did not expect to do so when they were married and had children. Additional barriers existed even when women opted and qualified to study engineering. According to a focus group discussant, men including university teachers had devised subtle ways to exclude women and maintain control and the status quo. For example, a former professor of geology had felt that these courses were not appropriate for women and had actually discouraged and even prevented them from joining the programme.

Some of the focus group discussants who contested these views said that selecting courses of study and career choices were made freely and that there was no control or discrimination at entry point and that change would occur naturally and gradually. For example, the University of Moratuwa had started a programme to encourage women to go into the science streams. In another example, the breaking up of social constraints was pointed out, as more and more women were opting for the course in the agricultural extension course of study of the Agricultural Extension Department of the Post Graduate Institute of Agriculture, which invariably has field work. Focus group discussants from Anuradhapura who were mainly Engineering Assistants said that they chose this area of study as they liked it and as it would involve field work. Some others were aware of the greater opportunities available in the engineering field.

Many of the women who had selected engineering said that they liked the subject, had performed well in the university entrance examination while at least one had been clearly influenced by her family background. As stated by Mala her father owned a construction company and her motivation had been to follow in his footsteps. She had selected Geology for her degree and went on to specialize in Hydro Geology. She says that only a restricted number is selected for this specialisation. 'In my batch there were 30 undergraduates, but after the first year examination, only 10 students were able to qualify to pursue this course. Of these ten only three including myself were women'. She said that there is nothing to prevent women from following these courses if they obtained the requisite grades.

While the low number of women water professionals could be attributed to historical factors, macro factors and organisational practices also acted as constraints to the upward mobility of a greater number of women to high decision making positions. Within the last few years employment opportunities in the public sector have been shrinking and this is also true in the water related institutions with the exception of the NWSDB and the Ceylon Electricity Board. Several of those who looked for employment in the public sector had been compelled to find work in the NGO sector as project officers. The retired General Manager of the NWSDB pointed out, however, that women would be at an advantage as there is a trend for male professionals to migrate.

Lack of employment opportunities, according to respondents, is compounded by extraneous factors such as politicization of recruitment and promotions. For instance, till the mid 1990s political intrusion had been confined to the recruitment of staff categorised as labour. But over the years political patronage had spread to the appointment of technical categories as well as to the top most positions. The former General Manager of the NWSDB said that until 1997 it was the practice to appoint the outgoing General Manager as the Chairman of the Board or in situations where the incumbent did not want to accept the position, as a Consultant in the Ministry. However, the then Government had made a drastic change in the system of appointment of the Chairman. It was pointed out that the NWSDB receives a substantial amount of project funds, which suggests an attraction to outsiders mainly in the private sector. He said that these appointees could use the position for personal gain and serve the interests of the elite rather than that of the masses. Thus complete outsiders were appointed as Chairmen. Even the current General Manager of the Water Resources Board is from outside the service. Lateral entry therefore created bottlenecks to upward mobility of both women and men and gave rise to organisational conflicts. The focus group discussants and interviewees came out strongly against politics creeping into organisations. Alleged malpractices in the selection process compounded the problem. According to a stakeholder interviewee although vacancies are advertised and interviews conducted it was alleged that some of these interviews are manipulated by tampering the marking sheets to recruit the candidate of choice. One interviewee complained that new recruits were also taken without promoting those who had long years of service.

Added to these disadvantages was the preference for males over women, as indicated by the former General Manager of NWSDB. Lack of physical strength, higher cost of employing women due to compliance with labour laws, and perceptions of the inability of women to serve in remote areas under difficult conditions, were the reasons attributed by him for this preference for males.

There were opposite views as well. A Project Director who is in charge of water supply to many towns in the hill country had been in service of the NWSDB for about 20 years. She did not think that there was any gender discrimination at the Water Board. Promotions were on merit as well as seniority. All officers were subject to an annual evaluation and an individual's performance was also considered when being considered to a higher post.

A Life Time with Irrigation

JA obtained her engineering degree in 1973, and joined the Department of Engineering soon after as its first woman engineer. The Dol is a government department which has been in charge of the irrigation system of the country for over 100 years. JA says her experience in the department from the first day was very pleasant both with colleagues and superiors. In the Department, promotion goes by seniority and she got her due promotions as she had served in all the difficult stations and had an impressive array of academic and professional qualifications and training skills. The post of Director General of Irrigation fell vacant while this report was being written and she is next in line for the post. The question was asked 'will she be the first woman Director of Irrigation?' Unfortunately she too was due to retire in a month's time and the decision was not to make this appointment just for a month and as such the next person in line of seniority (a male) was appointed Director General of Irrigation. Therefore that glass ceiling too will remain unbroken for a few more years!

Nature of Work

The work of water professionals involve both desk and field work. The job description for women and men in the same position is identical. The majority of interviewees and focus group discussants said that there was no discrimination in the allocation of work. In fact according to the retired General Manager of the NWSDB the management is accommodating to women. For instance when allocating night shifts women were given the option to choose and there is no compulsion by the management. Many senior women who were interviewed said that they were happy with the work that was assigned to them.

No Gender Discrimination

IL, a Project Director of the NWSDB, is a woman engineer in charge of the supply of water to many towns in the hill country. She has an engineering degree from the University of Moratuwa and a Masters degree from Tokyo. She has about 20 years service in the NWSDB.

She did not think there was any gender discrimination at the Water Board. Promotions were on merit as well as seniority. All officers were subject to an annual performance evaluation and these evaluations were also considered when being selected to a higher post. She had served in many stations including remote areas. There were no problems due to gender. The job itself was very challenging and she was happy tackling the problems.

However gender issues surface whether engaged in field or desk work. The nature of the sector is such that some of the positions are more demanding than others. External pressures also had implications. For example work in the Sewerage and Maintenance Unit of the NWSDB required round the clock work and Swinitha said that she worked till very late on the construction sites with the site team as most of the construction work such as pipe-laying is done in the night. She said 'there were times I came home past midnight'. Such work has a further downside. They had to work with different categories of men on construction sites. Labourers who get into the sewers are in the habit of consuming liquor that could sometimes lead to unpleasantness. Also late night work becomes especially difficult for married women unless the spouse is supportive but even then 'neighbourhood opinion can be negative'. 'Because of this', Swinitha said 'I discourage women engineers getting involved in construction related work'.

The retired General Manager of the NWSDB said 'I personally think that some jobs in this sector are not suited for women due to required physical strength. For example pump operators have to be strong to perform this duty. Therefore more women are concentrated in the Design Section'. It was also his view that the position of the General Manager should not be held by a woman because it is very demanding especially because of political interference. Even males find this position repulsive. His experience confirmed this view. 'I was interdicted for not agreeing to comply with orders and decisions of higher authorities whose interests were in conflict with the interests of the organisation. They expected me to cooperate with them in their malpractices. As such I was on compulsory leave from 2000 to 2001 until I was exonerated from all the charges levelled against me'. However he said that a woman is able to handle an Additional General Manager's position if there is a good team to work with her. These responses reveal the demands of the job, external pressures, and the perceptions of males regarding women's ability to accept challenges and hold high office.

Much of the work of women engineers, especially technical assistants, who are the backbone of the irrigation service, was at the field level. They are the backbone of the irrigation service. Consequently they have to travel to remote areas, interact with farmers and other beneficiaries and local level officials. Many government departments, especially the Department of Irrigation as well as NGOs deploy women in the field in various capacities and their presence is now accepted in the villages. The reaction of the villagers to their presence initially had been hostile. However it appeared that the young engineering assistants challenged social norms. They had no compunction in riding motor cycles or travelling alone but maintained that they had to be properly attired. In fact several commented that they prefer a field work to a desk job.

While both men and women are engaged in farming the economic contribution of women remain largely invisible. Consequently their needs are not focused on and research has shown that even extension services tend to bypass them. Women are diffident about articulating their views and needs to officials, one of the reasons being the leading role given to the male in the farming community and in farmers' organisations. However the women engineers from the Department of Irrigation who worked in the field stated that they had the ability to communicate better. For example in walk-through surveys, they were able to elicit better responses from women. In projects that a large number of women were involved in, such as the community water projects of the NWSDB, the community actually preferred to have women engineers and technical assistants deal with them.

It was stressed however that women have to be conscious of prevailing social practices. For instance an IWMI researcher engaged in an action research project that involved working with fisher folk found that she could not interview women on the beach. It had to be done inside the house, which was difficult. A gender issue that arose for the second researcher was that of personal security. Although she was willing to work on coastal ecology she had to abandon the idea as going alone to the coastal areas had security risks.

The overall policy arena is still male dominated. The Board of Directors of statutory bodies had just one or two women. When the National Water Policy, which was discussed for close on four years by the highest officials in the land (Water Resources Secretariat, 2000), was being formulated only two of the twenty members in the council were women. However those who were at the higher positions of their organisation stated that they have had a chance to contribute to planning and influence policy regarding their own sector and within the organisation.

There is space for women professionals to initiate work. The Hydrologist at the NWSDB said 'I initiated two projects: Benchmark Ground Water Study in Eheli Oya and the Walawe Left Bank Development Project – Water Quality Study. I myself wrote the project proposal and the final report after completion. In addition to this, I had the opportunity to be involved in many Board of Investment related Ground Water Investigation Projects'.

Images, Symbols and Metaphors

Due to the dominance of men in the water related institutions other than in the NGOs and CBOs and the very technical nature of the work that these institutions perform and the low visibility of women in construction and other works, these institutions are usually identified with the masculine gender. Water is still regarded as a technical subject despite its socio cultural significance and women's close involvement as users and managers of community projects. However, there are an increasing number of women at field level but the numbers are still small to change these perceptions.

Women considered themselves to be hardworking, honest and committed to the job at hand. They were willing to work in remote locations, work late and disregard some of the social norms. They said they had empathy for those at community level and had the ability to communicate with them better. However, the interviewees and focus group discussants agreed that there are women who shamed, used their sexuality to get favours, and were inefficient. Some avoided field work. They recognized their shortcomings as diffidence and lack of leadership qualities although some said that their management style differs from those of men.

Women were members of trade unions and professional associations as well as welfare associations such as the Seva Vanitha comprising women. However dominant and visible participants in trade unions and professional associations are men reinforcing the male image of the organisations.

Understanding of Water Issues

All those interviewed and the focus group participants were aware of the water issues. They were of the view that from an efficiency point of view it was essential to optimize the use of water resources in the country. The participants observed that the institutional structure in Sri Lanka was highly complex and there was a split administration among the Central government, the Provincial Councils and the Pradeshiya Sabha (lowest level of administration). 'Because the ownership of water is not defined there is an overlap creating confusion amongst these stakeholders' said a former General Manager of the NWSDB. Water is seen as a cross cutting issue and the devolved powers, as they are at present, are obstructions to efficient management.

In the ensuing discussions, the middle level professionals, and academics pointed out the lack of interaction with other professionals whose expertise was necessary for projects in the sector. For example in System C of the Mahaweli project, the canals were built without consulting the soil scientists. Therefore, water resource planning should involve not only engineers and users, but also other professionals including sociologists because of community interaction. The need for a multi-disciplinary approach to water management was gaining acceptance in institutions like the Water Board and it was a step towards IWRM. Slow acceptance was because agencies such as the Department of Irrigation had vested interests as it catered to the largest users of water in the country, namely the farmers who were opposed to any reduction of water to their fields. The Department, as the major manager of irrigated water over the past 100 years, felt that they had to safeguard the farmers' interests. Of late however, they too have come to the position that domestic water is also important as was stated in the interviews with highly placed engineers of the Department.

This, the discussants said was encouraging as they saw the conflicts that arose particularly regarding water for irrigation, industrial and for domestic use. New users such as the bottled water industry and the tourism industry were using water without any restrictions. The respondents unanimously agreed that there was an urgent need for IWRM as there were so many competitors for the limited water supply of the country and ground water resources were also being exploited heavily. The representatives from the NWSDB particularly noted the need for IWRM as they had problems getting water for domestic needs. The case of Thuruwila highlighted the problem (Athukorala, 2006a). The researchers of IIMI interviewed were both strong supporters of IWRM. They noted that the coastal regions should be included in any IWRM plans.

Section VI: Gender and Organisation Related Issues

Gender Spaces and Infrastructure

While the interviewees and discussants engaged in office work had no complaints of physical facilities at the workplace, the women who worked in the laboratory and engaged in field work had issues that had not been resolved satisfactorily. The former had separate toilet facilities but there were no rest rooms and lunch rooms for the staff in some offices. In other cases there was a canteen that provided lunch at subsidized rates. In case of sickness, the staff was provided transport to either go home or to a doctor. Day care facilities for children are not provided as according to a former General Manager of the NWSDB, many of the women travel to work by bus and it was not feasible for them to bring children with them. But the women interviewed said it was a felt need. 'I went through a lot of problems when my children were younger. Even my female subordinates undergo similar child care problems, especially during school holidays'.

Stressing the importance of such a facility she made a point that she permitted them to bring their young kids to the office and at times allowed the older children to come to the office to have lunch before attending tuition classes after school. 'We have requested for a day care facility, but so far there is no commitment by the management'. It should be noted that the provision of day care facilities is not the norm in either the public or private sector workplaces in Sri Lanka. The women who worked in the laboratory had issues relating to occupational health. They complained of lack of office space with one desk for two Chemists and one computer with internet facilities for the laboratory. A more serious issue was the exposure to chemicals. She said 'we are exposed to chemicals because we are confined to the lab eight hours of the day. There is expensive testing equipment which needs to be protected and therefore the air conditioning is on the full day which aggravates the problem. We have brought this to the attention of the management but so far they have not responded to our requests'. This health hazard is especially detrimental to pregnant women. She suggested allocating office work such as writing of reports during the period of pregnancy and nursing commenting that occupational health standards have to be introduced and maintained in the sector.

The problems of those who went to the field pertained primarily to transport, accommodation, and security. The major concerns expressed by engineering assistants and field workers included the riding of motor cycles that are provided to them; staying overnight in unknown places and travelling alone in the night. This insecurity was more the result of the violence and criminal activity than due to social norms although cases of sexual abuse are not unknown. Engineers were provided vehicles for travel to the field. Both the Department of Irrigation and the NWSDB have circuit bungalows for the use of their staff that go to the field. However these facilities are not available in remote areas.

For women there were also the problems of toilets especially during menstruation. The discussants were of the view that as higher officials are mostly men they do not appreciate these physiological needs of women.

Maternity Leave and Other Benefits

Women can avail themselves of the statutory maternity leave entitlements. The period of maternity leave in the public sector is longer than in the private and non-governmental sector. Women in the public sector are entitled to three months of full pay leave, six months of leave on half pay and a further three months without pay. They are also entitled to a one and a half hour nursing interval for a period of three months. In the private sector women are allowed six weeks of full pay leave. However, studies (Jayaweera et al., 2008) have shown that granting of maternity leave was looked upon as a burden to the organisation. Although no empirical studies exist the view has been expressed that the extension of maternity leave from the earlier six weeks has prompted managers to discriminate against women in the childbearing age at the point of recruitment. Organisations usually do not plan for the granting of maternity leave and make ad hoc arrangements to cover the work of those women who take their maternity leave entitlements. This study showed that women have not been denied their leave entitlements although the focus group discussants revealed the negative attitudes of the hierarchy when women had to be given maternity leave. These attitudes arose from a general lack of awareness of gender issues among superior officers. The extension of maternity leave and the granting of paternity leave recognize the essential social function of child birth and nurturing of the infant. But officials rarely viewed it from that perspective. Consequently the granting of maternity leave has emerged as a problem to the organisation. The work of the department has to be adjusted and another officer assigned to cover up the work of the woman who is on maternity leave. Women felt that their biological functions including physiological needs when they work in the field and their perceived roles in the family deserved recognition and consideration.

Other statutory leave - casual, annual, medical - was also available but not flex time. Late attendance is usually covered up by working after hours. The retired General Manager of the NWSDB said that as compared with men women took more leave although the tendency now is for males to take their entitled leave unlike earlier. He had shown sensitivity when he said that there were occasions when he had approved extra leave to a woman staff member who had to attend to a child with special needs.

Sexual Harassment and Related Support

Very few, if any, government agencies have a gender policy or a policy on sexual harassment. Consequently no special redressal mechanisms are available in workplaces to address any problems relating to harassment by superiors or colleagues. However, studies have shown that sexual harassment, which is a criminal offence under the law, is known to exist in workplaces but many women do not confront the person who harasses nor make a complaint due to fear of further reprisals. Complaints can be made under the normal grievance procedures and legal remedies can be availed of in instances of harassment. In the present study, all those who were interviewed stated they had not been subject to any sexual harassment. However, one interviewee said that it may be happening at lower levels but nobody is complaining.

Some women, while aware that sexual harassment is a punishable offence, placed the onus of preventing harassment firmly on women, revealing the ingrained attitudes regarding the 'correct' behaviour of women. The hydrologist who was interviewed said that women should know how to behave themselves and maintain a good relationship with colleagues and the hierarchy. She said 'If women behave according to our culture, nobody will try to be funny with them'.

Although there were a few women who said that there are sexual innuendos, most women did not recognize subtle forms of sexual harassment. For example, one interviewee said that the staff attached to the hydrogeology section of the Water Board, which is male dominated, has a superiority attitude and 'tries to boss us around because they are of the opinion that they have the ownership of the projects brought into the Board'. She failed to recognize it as a form of harassment. Another said, '...there were times when comments and remarks were made when we were attired in trousers. This made us feel uncomfortable'. The response of the woman however, had been to give in to the harassers and stop wearing trousers to office although she admitted that wearing the trouser is easy and safe for her as she had to travel by train all the way from Meerigama.

There were also internal conflicts that affected the women. An interviewee said '*...at the Water Resources Board, my immediate Senior Officer created problems for me. This was because they were having conflicts with the management and expected me to join them and be on their side, which I resisted. Therefore they started harassing me. I don't think this is because I was a woman, but it was due to my not falling in line with them*'. A retired General Manager too confirmed internal conflicts within the organisation but he said that these were not related to gender. However, the response of women to the issues around conflicts differed, with many preferring to remain neutral due to the preference of women to keep aloof of organisational politics.

Attitudes of women and officials with regard to sexual harassment often determine the action taken to prevent it. Internalization of patriarchal norms, low self esteem, fear of further harassment and discrimination, lack of clear cut policies to prevent sexual harassment at the workplace and grievance mechanisms contribute to making women subject to sexual harassment.

Normative Woman

There were no special expectations from women regarding their behaviour except adherence to work norms, and rules and regulations. There was no special dress code and women were free to dress the way they wanted but field workers said they should be 'properly attired'. However, women are expected wear sari on Wednesdays, which is a day of the week set aside for the public to meet State officials. The management had stipulated that women should wear a sari, the colour and the design of which was decided by the authorities but the men had no such restrictions and could wear whichever colour they wanted. This, the women felt, was discriminatory and the perception that women are the bearers of culture is seen clearly in this instance. The female clerical staff had opposed this decision but to no avail.

Women were also expected to behave 'properly'. One interviewee said, '*Women should not be abusive in public or in the office. It is alright for a man to be abusive but not for a woman. Women are expected to behave in a certain manner and we should always try to conform to those traditions*'. Her response illustrates the acceptance of different standards of behaviour for women and men. The attitudes towards work performance of men and women became evident from the focus group discussions and interviews that were held. There was no disagreement on the efficiency of women, their productivity, and work commitment. Women were equal to men and even surpassed them in efficiency. Giving the example of a woman who outshone all the men being promoted to the position of Regional Project Manager in an important region, the Director in charge of Projects (a man) said that if a woman worked well there was no problem about getting a promotion. Women, on the other hand, asserted that more often than not, they had to prove themselves, and work harder than men. An interviewee, citing an example of a draftsperson being given clerical work, said that there are very committed women workers but the Board, instead of motivating them actually de-motivates them. While there are men and women who are inefficient it is women's inefficiency that gets highlighted, attributing the inefficiency of one individual to all women. The discussants were of the view that men did not attract condemnation the way that all women were stigmatized. But the men did not see it as discrimination against women.

The focus group discussant also said that there were women who created difficulties by refusing to go to a station despite being trained in that area of work, because they did not want to leave their original station which was more comfortable. These women used the plea of family and their gender to overcome official rules regarding transfers. It was also pointed out that some women who had participated in training courses would not go to the station that required their acquired expertise. Many were condemnatory of women seeking special treatment because of their gender. This situation had prompted the administrators to request the Project Director not to recruit women. The point of view of the women was that there were also men who did not leave the station they were in. The men were also prone to taking leave, shirking work and were involved in office politics.

The responses of focus group discussants clearly show the differential work standards expected from women and men. Women had to work harder, prove themselves and any lapse on the part of a single woman is attributed to all the women.

Women in the Hierarchy

The study did not interview the officials under whom women worked or the staff working with or under them. However it could be surmised from responses of the interviewees that there were a few gender related problems in the work environment. The tendency to put women down by males was related by one woman. On the other hand, one woman said that her immediate supervisor was a woman Deputy General Manager who had been given the freedom to make decisions at the site level and did not interfere or boss her around. There was also a tendency for women to work as a team respecting the experience of junior staff.

Women did not appear to provide special concessions to subordinate staff insisting on maintaining discipline. She related an instance where most of the female staff were in the habit of having breakfast after signing in. '*I had to put a stop to this and requested that they come early and have food.*'

Consequently even when the spouse was supportive and helped in domestic work the main responsibility remained with the woman. The women found it difficult to cope with a demanding career and attending to the needs of children especially. Their attendance was poor because of family obligations. In this context, female engineers faced a dilemma. Some did not see that they could neglect the family while others were of the view that once work was assigned and accepted, it had to be performed satisfactorily, irrespective of their other commitments. These role conflicts often result in women not aspiring for positions with greater responsibility and avoiding transfers to difficult stations.

Women adopted several coping strategies to overcome the dilemma they had in balancing career and domestic responsibilities. These included depending on the extended family if available, hiring domestic workers, declining to accept transfer orders, which sometimes is accompanied by promotions, and opting out of more lucrative job opportunities in the private sector. The lack of child care facilities, a family friendly environment, and flexible work hours as well as attitudes of superiors when having to take maternity leave and other leave entitlements, were identified as factors that made coping with family responsibilities more difficult.

'After completing my five years in the Sewerage and Maintenance Unit, I requested a transfer to the Planning Division, which is less demanding. I am completing my five years in this unit and hope to request a similar less demanding position.'

'At the moment I have not decided whether I would take up the transfer as I hope to start a family. Usually the Board gives one month notice prior to a transfer so I will decide during that period. My colleague here is not married so she most probably will take up the transfer.'

'There are higher diploma programmes available in the Institute of Chemistry, but I was reluctant to apply due to my family responsibilities.'

Section VIII: Training Needs

Engineers and technical assistants are recruited based on their possessing basic academic qualifications. While the engineers are required to be graduates, the engineering assistants of the Department of Irrigation are selected after the General Certificate of Education (GCE) Advanced level examination. Subsequently they are trained at the Department's Irrigation Training Institute at Galgamuwa and receive a diploma after two years of training. After a stipulated number of years of service, the engineering assistants may study for Part I and II of the engineering degree. They could also obtain the National Diploma in Technology (NDT) from the University of Moratuwa. Women engineers had had the opportunity to obtain higher qualifications either in Sri Lanka or overseas. An engineer working at the NWSDB said '*the Board has a marking system and selection criteria for staff training which is very fair. I myself was sent abroad for training programmes and on inspection tours which were very useful for my career.*'

While there was provision for engineers and engineering assistants to enhance their capacity and skills in technical areas, the participants at the focus group discussions said that women lacked other skills such as the ability to make presentations, prepare project proposals, and managerial and decision making skills. Communication and leadership skills were also lacking.

'If more women are encouraged to enter this sector there has to be programmes to build their confidence, social skills, general knowledge and public relations. To compete with men for such jobs, women need to acquire expert knowledge on the subject and be willing to perform any task'. - Retired General Manager, NWSDB.

Breakfast before 8.30. Although they protested to this I had to be firm.' At the same time this very same officer had 'looked the other way' when female staff brought children to the office. She also was critical of a female clerical staff member who was not disciplined and resisted institutional development programmes. Although no conclusions can be drawn from one statement of an interviewee who said 'I felt that she was not taking me seriously' and had to 'reprimand her through the General Manager', the possibility of women subordinates not taking women superiors seriously does exist.

Section VII: Gender Relations at the Household

Despite social acceptance of the career woman, the cultural determination of the distinction between private and public roles still exists. This pattern of contradiction came out clearly in the interviews and focus group discussions - supportive spouses and families on the one hand and the inability to cope with office and household work because of unequal household gender division of labour on the other.

'I am married with two school-going kids. Although my husband helps me out with some housework, I find it difficult to cope with both my demanding roles as a career woman and a mother. As I don't have domestic help, I get up at five in the morning to attend to cooking and children's work. In the evening I have to supervise my children's studies and take them to tuition as well. The entire responsibility is on me'.

'My wife who is a Civil Engineer worked in outstation offices for a number of years. I had no problem with that. But of course our parents helped and we had domestic help'.

The support of the spouse was one factor that enabled many women to reach the positions they are holding at present. Some women stated that if the husband was in the same field marital problems were minimized and that it was easier to be committed to their work.

'Most often we have to mix with males of varied categories when working on site. Unless there is a supportive and understanding husband, this could lead to misunderstanding and friction'.

The spouses did not appear to object to women aspiring to reach the top of their profession. Several spouses were even found to be actively encouraging women to find employment commensurate with their qualifications. They had not objected to their even working overseas, participating in training programmes and continuing higher studies.

'My husband was pushing me to find employment more suited to my education and as a result I applied for a vacancy for a chemist in the Water Resources Board and was selected'.

'...these programmes lasted nearly two weeks and my husband had been very supportive and encouraging during long absences from home'.

But because domestic work is still the responsibility of the woman even when the spouse lends a helping hand, the women were constantly under pressure. All the women with children felt that childcare was a priority and bemoaned the fact that organisations were not sensitive to this fact.

'The flexibility with regard to time would be an advantage because I am married with a child. When the child is sick I would be free to take the child to the hospital or if I need to attend meetings in school I would have the freedom to go for them. This was one reason why I didn't try to find other more attractive jobs. The private sector jobs are well paid but more demanding'

Other studies have also shown that personality traits of women such as diffidence due to lack of confidence are constraints not only to women's career advancement but also to entry into lucrative employment especially in the private sector (Jayaweera, 2004). In this study we found that women professionals themselves replied negatively when asked about serving outside the resident district.

The interviewees also said that they were not aware of the opportunities available in the public and private sector, stressing the need for career guidance programmes. 'Only after we started searching for jobs after graduation, we realized that there aren't many jobs in public sector laboratories'. Women and even men have attitudes that need to be changed. Gender issues may not be recognized as such merely by being a woman. Further, males who were interviewed were also not aware of gender issues - one male interviewee said that with regard to issues related to water there are more important ones than gender.

A general lack of awareness of gender issues among superior officers emerged from the discussions especially relating to the biological functions of women and their domestic responsibilities in the absence of an equal division of household responsibilities. Therefore awareness programmes on gender across institutions are required.

Section IX: Recommendations

• The development and management of water resources affect almost every activity in which women are stakeholders. Therefore a policy is required for the water sector to address gender issues. The policy will include the participation of women and men in the decision making, planning, implementation and operational aspects of water related organisations as well as the development of a more gender equitable organisational culture.

• While increasing the number of women water professionals should commence with the encouragement of girls to enter engineering and scientific fields the recognition of the multidisciplinary nature of the sector and including professionals from other related fields will provide the opportunity for more women to work in this sector.

- SaciWaters should intensify its current training programme to develop more water professionals.
- Women have to be trained in areas such as leadership, decision making while enhancing their confidence.
- Gender awareness programmes are essential for both women water professionals and their male counterparts to ensure gender responsiveness in the work of water related organisations.
- Gender awareness programmes should also be conducted at the universities.
- Employers should introduce proactive policies that would enable women to balance their domestic and work responsibilities more effectively. These should include flexibility with leave and hours of work, and availability of child care facilities.
- Occupational health issues have to be addressed.
- Transport and safe lodging facilities are needed for field workers.
- In depth research into issues identified in this study is required.
- Maintaining sex disaggregated data in relation to staff employed and all aspects of human resource development and beneficiaries of water projects should be mandatory.

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Acknowledgement

CENWOR expresses its appreciation to SaciWATERs for initiating a study into a little researched area and providing financial support to undertake it, Kamini Vitharana for undertaking the study, the focus group participants for their valuable insights, Kusum Athukorala for her support, and Leelangi Wanasyndera for coordinating the project and editing the report.

**CENWOR
Colombo
December 2009**

SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN SINDH, PAKISTAN

Shaheen Ashraf

List of abbreviations

FGDs	Focus Groups Discussions
FOs	Farmer organisations
NDP	National Drainage Program
SIDA	Sindh Irrigation and Drainage Authority
SIPD	The Sindh Irrigation and Power Department
TMAs	Taluka Municipal Administrations
AWBs	Area Water Boards
HAD	Hyderabad Development Authority
LIBIS	Sindh's Lower Indus Basin Irrigation System
MAF	Million Acre Feet
MTDF	Medium Term Development Framework
MTIP	Medium Term Investment Plan,
MUET	Mehran University of Engineering & Technology
NED	NED University of Engineering & Technology, Karachi
NTEs	Non Technical Experts
PEPCO	Pakistan Electric Power Company
PHED	Public Health Engineering Department
QUEST	Quaid e Awam University of Engineering, Science and Technology
SIPD	Sindh Irrigation and Power Department
WAPDA	Water and Power Development Authority Water Wing
WASA	Water And Sanitation Authority
WWPs	Women Water Professionals

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Section I: Introduction

Current water scenario Sindh, Pakistan

Pakistan is one of the world's most arid and water stressed countries. Most of Pakistan's water resources come from the Indus River with an annual runoff of 151 million acre feet (MAF), of which 104 MAF is used for irrigation, 10 MAF is lost to evaporation, and the remaining water flows to the Arabian Sea. Pakistan's dependence on a single river system means it has little of the robustness that most countries enjoy by virtue of having multiplicity of river basins and diversity of the water resources. Water availability per capita is low and decreasing rapidly because of the increasing population and growing urban concentrations.

Sindh is the second largest province of Pakistan according to population. The province covers an area of 140,900 km²- 17.7% of the total area of Pakistan and has a population of about 40 million, 23 % of total population of Pakistan. It is bounded on the North by the Punjab province, on the West by the Balochistan province, on the East by India and on the South by the Arabian Sea (See location Map Figure 1). Sindh is particularly arid with annual average rainfall of 180mm compared to the national average of 240 mm. As Sindh relies so heavily on the Indus, it is particularly vulnerable while being at the tail of Indus river system. To address water scarcity, infrastructure was developed to distribute water over almost 15 million hectares in the world's largest contiguous irrigation system, of which 5.4 million hectares are within Sindh's Lower Indus Basin Irrigation System (LIBIS). The LIBIS consists of 3 barrages, 14 main canal systems, with 21,294km of canals of which 1,976km are main canals. There are 43,000 water courses.

With population growth and urbanization, need for agricultural production is expected to increase. It is estimated that by 2025 the irrigation water requirements of Sindh for agriculture would increase by about 50% if the current irrigation practices continue. The current water use is about 52.6 Bm³ (42.6 MAF). This means that an additional 26.3 Bm³ (about 21.3 MAF) will be required to maintain the current balance between supply and demand of agriculture products. A similar increase is expected in the municipal and industrial water requirements, where about 3 Bm³ (2.4 MAF) of additional water will be needed. As the major municipal water requirements in Sindh are met from the surface water source, these requirements will reduce the water availability for agriculture use. For meeting the water requirements in 2025 it has been estimated that an additional 29.3 Bm³ (23.7 MAF) of water would be required

New reforms and policies

There has been much deliberation in Pakistan in recent years on how to reorient the state to meet the massive water development and management challenges. At the national level it includes deliberations reflected in the Ten Year Perspective Plan (Planning Commission, 2001), the National Water Policy (Ministry of Water and Power, Draft 2002) and the Pakistan Water Sector Strategy Study (Oct 2002) that includes three main documents; the National Water Sector Profile, which summarizes and details all aspects of the water availability as they exist today; National Water Sector Strategy, which identifies the key issues and objectives for the water sector and proposals for planning, development and management of water resources and their use in all sub sectors and the Medium Term Investment Plan, which identifies the key programs and projects which should be undertaken by 2011 and which are designed to achieve the initial objectives of the strategy.. Although the water policy, drafted in 2002, has not been formally adopted, but it has been applied in both the long term "Pakistan in the 21st Century - Vision 2030" (August 2007) and the "Medium Term Development Framework 2005-2010" (MTDF),

Sindh does not have a specific water policy but follows national policies and participates in national programmes. The federal government plays an important role in establishing the overall framework and guidelines for the provincial-level operation in the water sector, and has made attempts at promoting better water allocation, planning and management. The Provincial government emphasizes the need to increase agricultural productivity not only to address food security needs but also to reduce rural poverty.

In 1997 the province introduced reform in water sector and 2007-08 almost doubled the development budget for irrigation and water management to increase availability of water and better manage irrigation in the province

Gender Scenario

Pakistan is leading South Asian Region in terms to have large number of women (21%) in its policy and legislative institutions. Despite women's participation in political processes, women are seldom appointed to decision-making position. There are significant gender disparities in public sector employment; only 5.4% of all civil servants are women. In the federal government, there are no women in grade 22, and women hold only 1% of grade 21 posts and 2.5% of grade 20 posts. No woman serves at the Supreme Court, and only two women are high court judges. Only 6% of judges in the subordinate judiciary are women.



The under representation of women in water sector is also evident, with little scope of immediate changes in masculine domination in institutional practice. In Sindh Pakistan, water is still considered outside the purview of women, as such there are only few women who have become prominent at higher level. We do not find any example in the history that shows water related ministries/commissions are ever led by women. The most recent Labour Force Survey 2007-8 by the Govt. of Pakistan reveals that in Sindh Province only 0.01% female (10 years of age and above) is employed in Electricity, Gas and Water industry division occupations.

Rationale for the study

After reviewing literature and looking at the water institutions, it became clear that water is purely male domain. And since there are so few women in water organizations, their issues, concerns and constraints have remained a mystery, there was very little written on this topic. Bulk of the available material speaks only on women and water at grass root level. There seems to be

a fascination regarding inclusion of women professionals in water sector and a need for published work based on scholarly research that explores the experiences of women working in male dominated water sector. In response to this need, this study is designed to find out what is the level of women's representation in water organizations? why there are so few women in water sector? What challenges and opportunities WWP identify? To what extent water organizations making greater claims of reforms and representativeness are responsive to women employees?

Section II: Scope of the study and methods used

Water Institutions under study

In Sindh province, there are several large and small, governmental and non governmental water organizations involved in water management in many ways (for list PI refer annexure 1). Water government organizations especially were designed to meet a specific need at a particular historic juncture. With the passage of time these institutions have witnessed many changes in terms of size, policies, programs, laws and in some cases also shifted their focus from centralized bureaucracies to being concerned substantially with ways in which the institutions could be more decentralized, representative and participatory in nature. These various water institutions work under different federal and provincial ministries. There are also several other research and academic institutions involved in water research and International and national Non Governmental Organisations running different water projects and programs in the province.

The SIDA was established under the Sindh Irrigation and Drainage Act, 1997 and now operates under the Sindh Water Management Ordinance, 2002 which replaced the Act. The legislation was part of reforms promoted by the World Bank's National Drainage Program (NDP), to achieve a shift in policy and strategic decision making responsibilities to autonomous public utilities and end users. One key success factor has been establishment of a core reform team with a non-irrigation background. The key elements in the proposed reform are the transformation of the prime institution SIPD into an autonomous SIDA, the arrangement of responsibilities on the basis of hydraulic units (canal commands), self-financing of irrigation and drainage services over 7-10 years and decentralization of O&M responsibilities to Farmer organisations (FOs).

Methodology

The study supports in-depth semi-structured interviews of and focus group discussions (FGDs) with women as feminist tradition and the nature of the research problem under study that specifically focuses on the experiences, knowledge and perspectives of women water professionals in relation to their low presence in water sector. For this study, in Sindh I conducted fifteen in-depth semi structured interviews and five FGDs with women currently working, including those previously employed on various projects and programs by the water organizations under study. The reason for including former women employees is to make sample more representative by including all; social scientists, engineers, administrative and support staff members. In interviews and FGDs their opinions are sought on several themes by using similar questionnaire guide particularly developed for South Asian Report. In addition to interviews and FGDs, study also analyzes the secondary data collected from water organizations under study including; sex disaggregated enrolment data of three public engineering universities in Sindh. The enrolment data are collected to understand the trends in educational and career choices of men and women including gender gap. Prior informed consent of women was obtained and relevant information about the research and the researcher was also provided in advance. Tape recorders were used with prior permission of interviewees.

In order to understand women's nominal representation and limited visibility in water sector from women's perspectives, it was quite difficult to select organisations particularly for this study. Because during initial consultations with several government water organizations, it was shocking to learn that in most of the organisations there were no women employees, or 1-2 women serving only as receptionists such as; Sindh Irrigation and Power Department (SIPD), Area Water Boards (AWBs) and Public Health Engineering Department (PHED). Finally, it was decided to concentrate on organisations at least having few women employees working as technical, non technical or administrative staff members. While keeping in view the limited resources and time constraints, study only looks into particular wing/sections of the government organisations mandated for water management and institutions, where slow and conscious efforts are made under institutional reforms to introduce women's employment, only in Sindh Province. These kinds of criteria for considering water organisations provide more suitable context to evaluate water institutions from women's perspectives based on the experiences of women water professionals (WWPs). Therefore, considers following water organizations for the study;

WAPDA – Water Wing South (WAPDA- WW)

The pressing water challenges of Pakistan in the first decade after independence were to build the infrastructure necessary for water and energy security. The Pakistan Water and Power Development Authority, was created in 1958 as a Semi-Autonomous Body for the purpose of coordinating and giving a unified direction to the development of schemes in Water and Power Sectors, which were previously being dealt with, by the respective Electricity and Irrigation Department of the Provinces. Since October 2007, WAPDA has been bifurcated into two distinct entities i.e. WAPDA and Pakistan Electric Power Company (PEPCO). WAPDA is responsible for water and hydropower development, whereas PEPCO is vested with the responsibility of thermal power generation, transmission, distribution and billing.

The Authority comprises of a Chairman and three members, each heading Water, Power and Finance Wing. For effective control, the entire country is divided into north, central, south and west zones; the Sindh province comes under South Zone. This study only gathers data on WAPDA's Water Wing South that functions under Member (Water). The Planning Division of Water Wing, headed by a General Manager, looks after all planning activities on the water side.

Water And Sanitation Authority – (WASA)

WASA was created on 1st July 1977, working under Hyderabad Development Authority (HDA). The HDA is responsible for over all development, improvement & beautification of urban areas including development of housing sector and preservation of historical buildings. However, the WASA is particularly responsible for operation and maintenance of existing and newly developed water supply and sewerage system, providing and maintaining quality and quantity of water supply and sewerage and preparing water and sewerage bills. It may be important to mention here that WASA is solely responsible for providing water and sewerage services to three Taluka Municipal Administrations (TMAs) only, other cities/areas in the province are dealt by their own respective TMAs.

Sindh Irrigation and Drainage Authority (SIDA)

The Sindh Irrigation and Power Department (SIPD) is the prime irrigation institution, operating under the Sindh Irrigation Act 1879 and Sindh Canal Rules of 1934. SIPD directly manages 11 of the 14 canal commands and indirectly manages the other 3 through the dependence of the Area Water Boards (AWB) on SIPD's resource of professional engineers, and sub-engineers.

The major hazards in a study of this kind are that a focus on women in isolation from their male counterparts and non verified self reported claims of women professionals. This study believes that yet with so small a number of women professionals in water sector, any attempt at a sophisticated level of comparative analysis is equally dubious. However, field observations during interviews and organizational visits also constitute data and helped in validating self reported claims of women professionals.

Section III

Typologies

Like other South Asian countries, for Sindh, Pakistan case, I follow the similar typologies. To a greater extent WWP fall under following five categories:

Technical type 1:	Engineers
Technical type 2:	Professionals who are not as qualified as engineers but do support in their technical work like draftsman, assistant draftsman, tracers and lab assistant
Non Technical Experts-NTEs:	Social Scientist, Environmentalist, consultants and etc
Administrative:	Who do administrative work/accounts officers, clerk, steno, typist, store superintendent etc.
Service staff:	Employees who provide different services like; sweeper, driver, cleaner, watchman, labourers, electrician, gardener, lineman, pump operator, wireman etc

A key finding of our field work towards writing this report confirms that water is highly male dominated sector in Sindh, Pakistan. For instance the prime Sindh Irrigation and Power Department has more than 32,000 employees working at different levels that hardly include any female employee. The SIDA is an organization leading water reforms in Sindh Province. The reformed framework envisions farmers' participation to increase accountability, transparency, representativeness and equity at all levels. Under water reforms, efforts are made to integrate gender into irrigation. SIDA's Gender Mainstreaming Strategy is landmark in this regard that provides gender equity framework for the whole programme, setting up of women employment quotas in various projects and hiring social mobilizers and gender specialists during various times are major breakthroughs. The construction of washing sites in channels/minors/distributaries to facilitate rural women and mobilization of women farmers are also welcome moves by the Authority. But it is important to notice that women professionals are rarely appointed on senior bureaucratic or key decision making positions. The classic examples are SIDA Board and SIDA Management; both operate as single sex decision making forums. The Board and the management consist of 16 and 5 male members respectively; but these highly important policy and decision making forums have no representation of women.

As SIDA employees work on contractual and project basis, the total number of men and women employees always changes. In 2008-9, Table I there were more women (5.2% of total employees) working for reform program in SIDA Secretariat, who lost their jobs as SIDA's funding and projects declined. But recently collected information Table-2 clearly shows that women constitute only 2 % of total employment. There are only two women engineers, mainly engaged in deskwork. It is apparent that despite greater claims of representation, participatory management, affirmative actions such as employment quotas for women, water institutions remain as gentlemen's organizations.

Table I: No of employees, SIDA - Secretariat 2008-09			
Type	No of female employees	No of male employees	Total no of employees
Technical Type 1-2	01	28	29
Administrative and NTEs	05 (all Social Organizers)	83	88
Support Staff	01	23	24
Total	07	134	141 (Women are 4.9% of total employees, based in secretariat)

Source: SIDA Office

Table 2: No of employees, SIDA Secretariat Nov 2010			
Type	No of female employees	No of male employees	Total no of employees
Technical – 1	2	12	14
Technical - 2	0	7	7
Non Technical Experts	0	36	36
Administrative	0	2	2
Service Staff	1	70	71
Total	3	127	130 Now women are 2.3% of total employees, based in secretariat

Source: SIDA Office

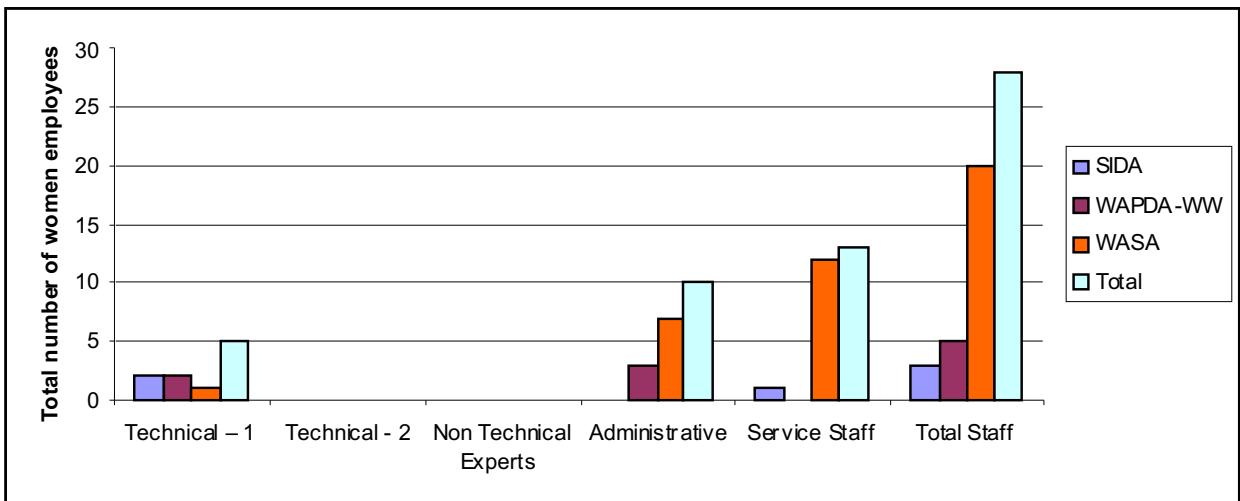
The women's presence in two other organizations such as WASA and WAPDA-WW is not much different than SIDA, except that majority of women are among permanent staff members. Though WAPDA is one of the largest employers of human resources in Pakistan, but WAPDA –WW South Table 3 shows that only 5 women are serving in the department. Women constitute just 1% and 0.8% of total employment of WAPDA-WW and WASA respectively refer table 3.

Table 2: No of employees, SIDA Secretariat Nov 2010

Type	No of female employees		No of male employees		Total no of employees	
	WASA	WAPDA WW	WASA	WAPDA WW	WASA	WAPDA WW
Technical – I	1	2	20	128	21	130
Technical – 2	0	0	39	21	39	21
Administrative	7	3	116	126	123	129
Service Staff	8	0	1173	721	1181	721
Total Permanent Staff	16	0	1348	0	1364	0
Contract employees	4	0	926	0	930	0
Total Staff	20	5	2274	996	2294	1001

Source: WASA and WAPDA-WW Office

Figure 2: Low number of women professionals, comparison across departments



What comes so loudly out of these statistics that extremely low numbers of women are employed in water organizations in Sindh, even lower in higher and technical positions. The women engineers mainly work in offices, perform desk work, and rarely occupy leading engineering positions in these organizations. Most of the women employees fall under the categories of administrative and support staff members. A complete absence of women non technical experts (NTEs) such as sociologist/social scientist/environmentalist highlights that in purely technocratic water organizations social aspects largely remain ignored and women are not employed even for such positions, as in case of SIDA - 36 NTEs are all men - refer Table 2.

Section IV

Profile of the women interviewed

For the study, I interviewed 15 WWPs in the age cohort of 32-45 years. 70% of respondents were married and 30% of them were single at the time of interviews. The educational status of the respondents reveals that all women possess at least bachelor degrees with significant work experience 5-12 years in their respective fields. 5 out of 15 interviewed WWP inform that they possess post graduate degrees in civil and irrigation water engineering. Some of the WWP have also acquired international exposure, trainings and skills by availing various scholarships. The Respondents with diverse educational and professional backgrounds were consciously selected for this study to capture the greater essence of multidisciplinarity of water sector. However, respondents include women engineers, social scientist, gender specialist, accountants and clerks.

Table 4: Brief profile of the women interviewed

Age	between 32-45 years,
Job status	15 women interviewed including both; 10 currently working and 5 ex-employees
Marital Status Married Unmarried	15 women interviewed including both; 10 currently working and 5 ex-employees 10 5
Children	between 1- 3
Education	All of them possess bachelor degrees, some of them also posses postgraduate degrees specialized in the areas of; Business Administration, Social Sciences, Civil and Irrigation engineering and Information Technology.
Work experience	between 5- 12 years, all appointed through competitive process
Religion	majority Muslims, 1 Christian,
Family background of respondents	Majority of the respondents (80%) have come from middle / lower middle class families, having single parent educated mainly father and mothers as house wives.

Section V: Culture of the water sector

Education and career choices:

All women respondents agreed that there is a low presence of women in water sector. Women engineers particularly pointed out that very few women actually apply for engineering positions in water organizations. An analysis of the sex disaggregated enrolment data of three major public engineering universities (Mehran University of Engineering & Technology -MUET, NED University and Quaid Awam University of Engineering, Science and Technology -QUEST) in Sindh can provide very useful insights into the career choices that have been made by men and women in last five years. A note worthy and worrying trend is that the gender gap in public engineering universities in Sindh did not narrow, refer Figure 3, it has widened much more over this period 2003-08. Only in 2003, the gender gap is narrowed due to a low male enrolment that has increased significantly from 1457 to 3125 in five years, as compared to female enrolment 465 in 2003 to 748 in 2008. For most of the years, the enrolment rates for girls remained below that for boys. This clearly shows that every year despite slight increase in women's enrolment, men outnumber women in all engineering disciplines.

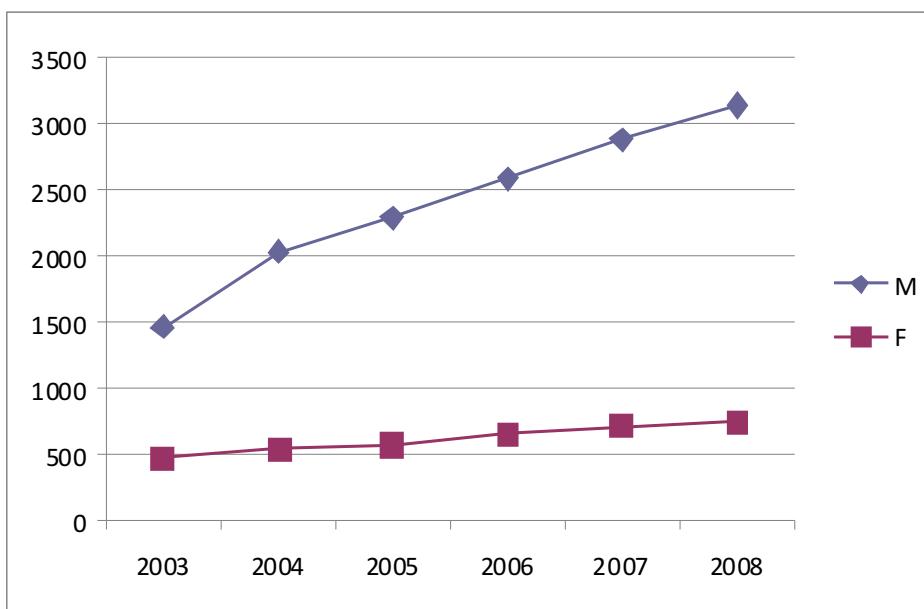
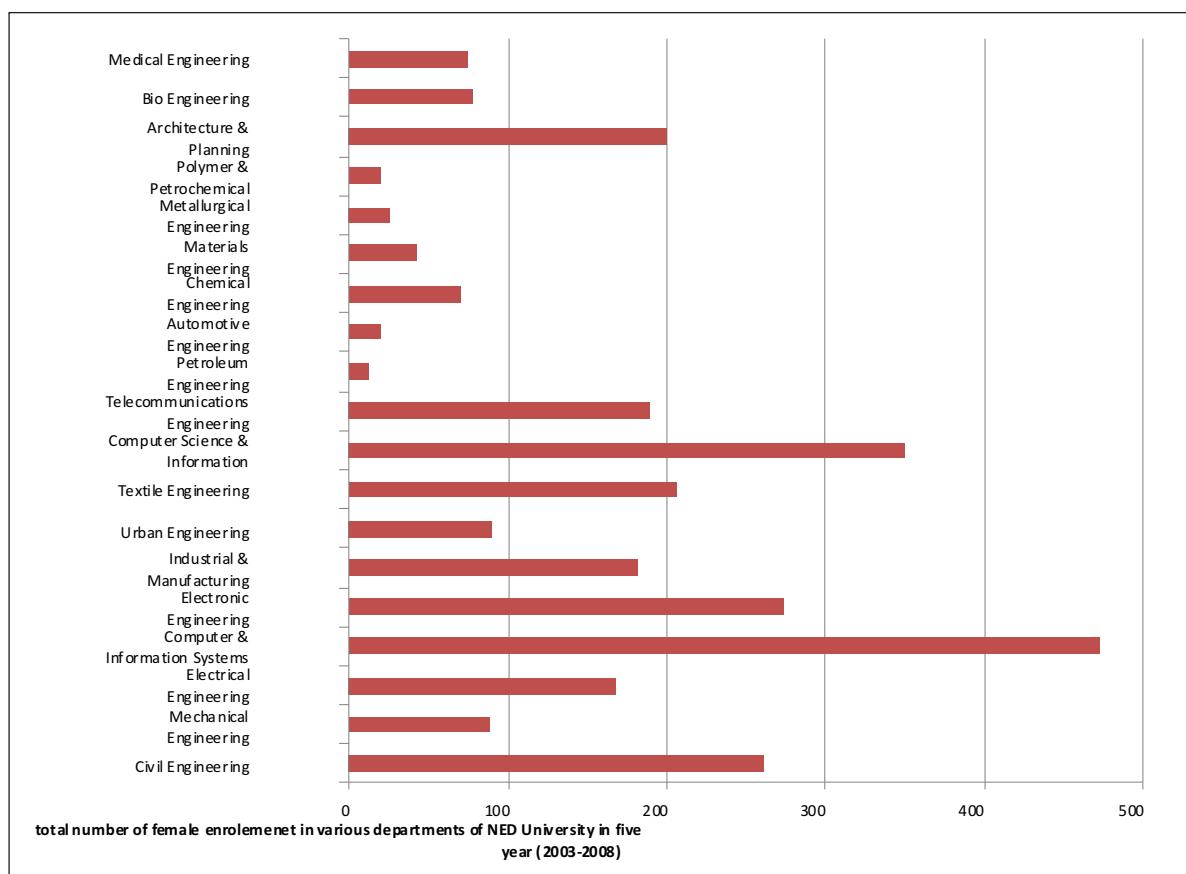


Figure 3 Total Enrolment by gender in three public engineering universities (MUET, NED & QUEST) in Sindh

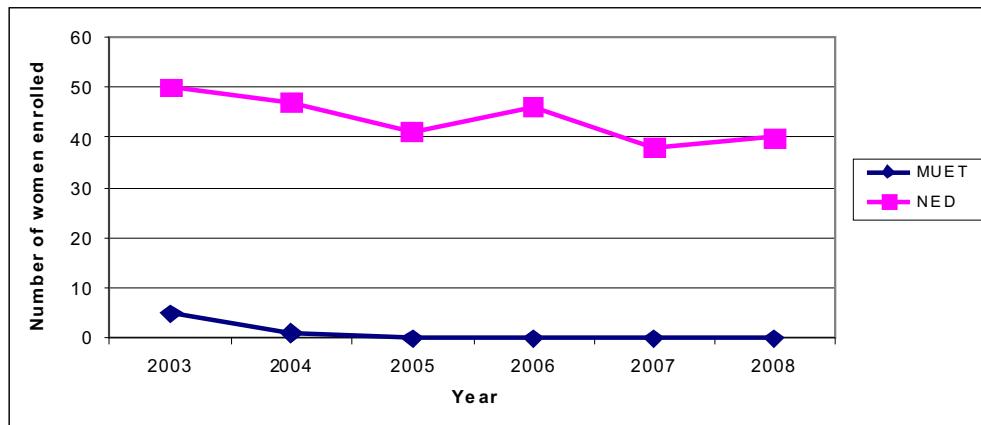
Yet in Sindh at engineering universities women are still concentrated in certain disciplines like computer sciences & information technology, telecommunication and electronic engineering. At NED Engineering University, trends are highly variable within sub-fields: women earn 17% of Computer & Information Systems Engineering degrees, but only 9% in civil and 3% in mechanical engineering refer figure 4.

Figure 4 Total Female enrolments at NED University in five years 2003-08



It is particularly worrying to learn that women's enrolment in disciplines like civil engineering that can lead to career in water organizations has declined in five years, refer figure 5. For instance in MUET, 5 women were enrolled in civil engineering in 2003 and none in 2008. The declining trend can also be observed at NED University. The most women at MUET are enrolled for courses like telecommunication and soft wear engineering.

Figure A declining number of women in civil engineering 2003-2008



In interviews, WWP_s were asked to explain the low number of women in civil and water engineering. The explanations are complex; they defined that the absence of women from water sector is the result of a combination of social and institutional factors. The first theme that became clear was women tended to be confined to certain career fields i.e. education and health. These fields are socially acceptable and considered to have more appropriate jobs for females. As one said, 'from all sections of society, women are encouraged to become a doctor or teacher not a water engineer'. Women students look to choices which offer opportunity for balancing career and family. The issues of work-life balance are more significant for women making career choices. The complex of factors associated with women's commitment to the family and home as a result of the child bearing function ranked fairly high on the list of reasons which WWP_s suggested as accounting for the lesser number of women in field based jobs like water. A WWP offered another insightful statement that a dearth of role models in water sector is another contributing factor for keeping young women students away from such disciplines. WWP_s highlighted that women scientists may benefit from role models.

Women engineers when asked to reflect upon their own career choice they offered a rather different analysis, one said that 'I went for it as my father wanted to see me as civil engineer, but I feel it was a right decision'. Another also said that 'encouragement from my parents was a powerful force to choose water engineering as career choice, it is challenging....'. This clearly shows that women from urban educated families are being encouraged to go for field based discipline like civil engineering. It is also apparent in universities' enrolment data that urban based engineering university like NED has greater number of women in civil engineering.

One of the woman engineers pointed out that after getting degrees women find it difficult to get jobs in the water sector and said that 'women are discriminated at different levels, in fact are not preferred to be employed by water institutions'. While saying this she shares a job advertisement by the water engineering organization hiring civil engineers that clearly mentions that only male applicants are eligible. She disappointedly further said that 'under these circumstances should we expect more women would prefer to go for civil/water engineering as career choices?' According to majority of women respondents, one of the main hindrances to women's entry into water institutions is the deeply embedded culture of masculinity that pervades purely engineering water institutions. As one of the respondents who used to work as social scientist informs that 'it is man, who founded these institutions and for so many years inhabited them as a wholly male institutions'. She further adds that 'it is important to understand that the entry of one woman may disrupt the established masculine norms and hierarchies, that's why women are kept out'.

This kind of situation reflects a declining trend of women going for disciplines that can offer greater jobs in water organizations. A combination of social and institutional constraints play significant role in keeping women away from particular engineering fields like water.

Nature of work women perform

Women working in water institutions are involved in varying kinds of jobs: like social mobilization, maintaining accounts and records, updating organizations' websites and assisting in drafting letters, moving files and etc. It was noticed that majority of them rarely go in field or get involved in financial and policy matters. Though, women engineers showed great dissatisfaction over their lack of involvement in field related activities, as some of them informed that they have never been in field. But it was accepted by them that it is beyond their control to push organizations for engaging them in fieldwork. Ex- Female social organizers informed that their field activities were constrained due to lack of facilities provided by the organization such as; transport, security and etc. A social mobilizer said that 'for sending women in field, organization has to make sure that women are provided proper security, accommodation, vehicle and etc. as organization was not providing such facilities, we also avoided to go in field'. But a female engineer rather offered slightly different statement and said that 'honestly speaking, I personally feel more comfortable at office, rather than going in field, due to my household responsibilities'.

Women working in other important sections like finance also seem neither involved in financial matters of the organization nor encouraged by their departments to manage accounts. An accountant reflects that 'though I am an accountant, but I am least involved in financial transactions or bothered to know what is happening behind the curtains. My superiors are also happy on my lack of interest. I am favored by them for my lack of involvement in some other ways like; flexible working hours and more casual leaves. Women deliberately keep themselves away from financial matters, as one reflects that 'there is a lot of corruption within departments, so it is wise not to get engaged in financial matters', but they enjoy other benefits.

Images, symbols and metaphors:

Most of the women respondents agreed that the culture of the water institutions embodies practices that reward traditional forms of masculinity, in that environment for women, it may be too simple to become men. These are voices largely of social scientists in the sector but also increasingly of sensitive women engineers, who are expected to behave like male officers to prove their worth as engineer. In case of challenging such established norms, women are considered non professional, as informed by WWPs.

In practice majority of WWPs describe water sector officer; male, engineer, corrupt, dominant, having support of influential/political people, field based professional. Such symbols and images reinforce gender divisions. As one said that 'the water officer is of course, a construct of a particular idealized masculinity that ignores women and femininity'. Women respondents believe that such behavior may persist long until it has become unacceptable in the society outside of the institution. Women describe the ideal officer as not one with technical competence alone but also one who has ability to communicate with people and establish a rapport with communities.

Do men and women think differently?

Women informed that men and women think differently, because they experience different realities in life based on different types of attitudes they face in society. WWPs think that there is strong correlation between women's presence and representation of women's interests. They complained that women's interests are usually discounted in their absence in decision making and claimed that women bring different set of values and perspectives to work. Women respondents strongly curb the approach usually followed for water programs. As one said that 'most of the male water engineers who dominate this field, follow economicistic approach for all programs that can only value things in terms of generating money but ignore human and social dimensions'. During FGD a respondent rather asked a question and said that 'why we ask question like "do women make any difference"? Have we ever asked men what difference they have made so far while dominating water sector since generations?

She rather emphasizes that women's inclusion in water sector must not be based on argument that women have to make any difference. She provides the most powerful argument of social justice and says that 'man has no right to dominate water sector'.

Men's collectives and women's collectives:

Most women informed that as such there are not informal groups at work places. They hardly find any time to think about these informal settings or groups, but underpinned the important of such forums for keeping them relaxed and providing an opportunity to discuss various issues. Some of them also reported that they do participate in activities of civil society forums for promoting human and women rights.

Section VI: Gender and organization related issues:

Work atmosphere:

Majority of WWPs were not happy with over all working environment of the organizations. Women in water organizations involved in everyday customer interaction complained that people enter into offices, threaten and abuse all staff members and some times smash and break windows/door/furniture especially, when they face water and sewerage problems in their areas. A similar situation was also witnessed during one of the interviews for this study, when lot of local people entered into offices, while shouting on the staff members. A woman interviewee immediately closed the doors and windows and informed that this is the situation they encounter almost everyday. Women were of the view that there always remain such kinds of threats to men and women who work in corrupt and mismanaged water institutions, as one said 'we are responsible to manage water properly, if we don't, we have to face difficult situations'.

Gender spaces and infrastructure:

It was a rude shock to discover that water organizations which provide water services to millions of people, are so insensitive toward women professionals in order to provide them safe, hygienic and proper sanitary arrangements in offices. Women in WASA informed that they use common toilets. SIDA office women said that management took years to decide whether women should be given separate toilet or not, later women were provided access to separate toilet but they are still using common toilets; because of its inappropriate location and unhygienic conditions. Lack of access to toilet had resulted in problems for women in offices and WWP call it 'marginalization of women'.

As one recalls her time of pregnancy and said that 'I never use the toilet for male employees, please tell me how is it humanely possible particularly for pregnant woman to keep herself from going to the toilet for more than 6 hours, six day of the week?'. During field visits to organizations it was also observed that male bosses particularly enjoy in-suite toilet facility. Women also mentioned that there is no proper place where we could offer prayers (namaz). As such there are not any rests or common room/s for women in offices, where they could sit, chat or take a cup of tea. It becomes particularly difficult for them when they are visited by any female friend/ guest, then they hardly find any privacy.

The other forms of discrimination faced by women are getting transport and accommodation facilities for field. Women in SIDA informed that they are often denied vehicles to go in field, cannot perform field related activities. Some of them also informed that during initial days of employment they were paying for fuel from their own pockets for which they were reimbursed later. Women in WAPDA rather informed that they never go in field, if women go in field, organization has to make additional arrangements. The security issues in field remain of great importance for women respondents.

Some of them also pointed out that being a woman and subordinate they are given special care and they showed their discomfort over such treatment as one said 'we are not their sisters, we are professionals'. While comparing men and women superiors WWP said that women in higher positions are usually unwilling to get involved in supporting women in leadership roles. They are intent upon being very male like.

Women in irrigation said that having an authority to regulate others water makes male engineers dominant in most settings. Similarly, they always try to control subordinate women; never like them to participate even in career development activities such as workshops/training. It is important to mention here that during focus group discussion, WWP immediately left in the middle of discussion when she received a call from her superior, complaining for not seeking his permission for participating in FGD for this study. It became a cause of discomfort for the facilitator as well. After FGD facilitator herself visited her superior's office and explained him about the research study, especially to protect WWP who voluntarily participated in FGD. While reflecting on her position she said that 'women working in offices are insignificant for them, women's issues are not their priority; they want to see women as subordinates to men'.

SectionVII

Gender relations at household:

Nearly all married WWPs mentioned that they were fully supported by their families and social networks especially; neighbors and friends in managing dual roles at home and office. However, almost all of the respondents mentioned continued pressure they had to face to shoulder their domestic and work related responsibilities. Women professionals confirmed that support, guidance and encouragement from spouse/partner helped immensely in their work and life. But many women noted that in highly unequal and segregated society like Sindh, it takes a very special man to be married to a woman with high ambition and drive to make any difference in male dominated water sector. One woman who describes her situation said that 'my husband was so supportive. He was always supportive of my desires, ambitions and needs and he has been throughout our married life. He was great with the kids. He enjoyed my accomplishments, and he felt satisfaction and joy at my success. He has truly been my friend'. Another WWP said 'he supported me in my work, and I supported him in his. Life was very complex and challenging with young children, but it was wonderful. I am a wife, mother and professional; my husband understands who I am'. Two of the WWPs spoke husband and in-laws not being supportive of their continued desires for advance education and professional life. WWPs also spoke of work-family conflict that often existed throughout the years. The women struggled with these issues sometimes by compromising their own wellbeing to manage dual roles. During interviews it was noted that single women also had competing demands on their time to work and look after parents, young brothers and sisters. Single women also suffer from extreme stress in managing these dual roles. They too are left with little time for personal leisure.

SectionVIII

Training needs:

As the finding of the study reveals that the level of confidence and capacity building needs of women vary according to their educational background and professional experience. Majority of women have received different types of trainings according to their jobs by their departments. They lacked confidence and knowledge regarding field matters, skills to promote women specific issues, networking and lobbying skills. The strong desire was felt among all WWPs for leadership skills and competencies so that they could satisfy both; their internal drive for accomplishment and their desire to make a difference.

Women complained that they are mainly discriminated in nominations for trainings abroad. Woman sociologist working for irrigation said that '10 people recently went to Turkey for training on participatory management, but none of the women have ever been nominated for such trainings abroad'. All women respondents strongly recommended for gender trainings of male staff members particularly policy makers, who have a greater potential to make gender sensitive decisions.

Maternity leave and other benefits:

Women working as permanent staff in WAPDA and WASA, enjoy government policies related to maternity leave. However women as contractual employees are denied such benefits. In SIDA mostly staff works on contract basis, women are only entitled for three months leave without pay, but as one informs that 'getting leave for maternity, menstruation/ miscarriage is a herculean job for them'. They further informed that it is not preferred by male officers to bring children in offices even for breast feeding. It is considered as highly non-professional act, in case if women leave office to go home for breast feeding. Moreover, none of the offices has any facility of child feeding or provisions/financial benefits to avail childcare within or outside offices.

Sexual harassment and related support:

Though, all women were not vocal to talk about sexual harassment at workplaces, but in one organization women reported some cases of harassment. There was a consensus among all that a low number of women itself is a problem, it creates uncomfortable situations especially when women find themselves alone in all male settings. Some of them were also of the view that if there is only woman in office, her all actions are unnecessarily noticed by men.

Some of the women offered candid information and said that 'one of our colleagues left her job, as she was constantly being harassed by our male colleague'. Another said 'We are also asked to perform their personal tasks not related to office jobs. For example writing/Preparing assignments of their children or writing personal papers/articles/book chapters for them'. A sociologist shared that how she was threatened by male superiors, when she went abroad for availing fellowship and attending course, 'on return I was harassed, forced for resignation and finally threatened to be terminated by male superiors'. Another gender coordinator explained that 'I was shocked when in interview for a job, a committee member asked me not to apply make up and dress up the way he thinks women should wear cloths'.

Another WWP then spoke briefly of her feelings. Of course these are only one woman's feelings but do provide interesting perspective. 'I am the kind of woman that was not threatened by male fellows. I have noticed some even very talented women felt compromised and they would come in offices deliberately in inappropriate dressing. In fact no man could have gotten ahead that way either..

I never see dressing and acting professional as a compromise'. A WWP who work in finance division, recently offered financial benefits as part of her promotion but denied any important positions within department informs that due to corruption in sector, for women and poor men it takes longer to be promoted to higher positions, she said 'neither we can offer bribe nor in a position to pursue our promotions by making several visits to superiors' offices'.

Normative woman:

All of WWPs admitted that women are judged differently than men, they have to prove themselves in a different way. One WWP explained 'I do think gender does matter in most of the official matters'. In offices women are expected to maintain their feminine style of work based on consensus, compromise, politeness and perfectness. Interestingly, many WWPs pointed out that they cannot shout/speak loudly in the offices, but for men it's a regular practice. 'Men can shout, laugh and sometime even exchange derogatory remarks among each other by ignoring women's presence in the offices' said women engineer.

Women in the hierarchy:

Women in these hierarchical organizations mainly stood in the bottom. Familial values within these organizations are often used in addressing office colleagues such as; Adeebahen (sister), Ada/Bhaee (brother) that means gendered hierarchies filter their way into everyday discourse. 'she is like a mother/sister to me', similar is used by women 'he is like a father/brother'. Such terms are often invoked to underline a sense of harmony and respect within organizations.

Section IX

Recommendations:

Understanding the experiences and perceptions of these women provides insight into water sector that are beneficial to understand why there are so few women. Findings of this report suggest that social and institutional factors contribute significantly towards low presence of women in water sector. After entering into water sector, women face patriarchal challenges and masculine cultures that discriminate against them at all levels; women are denied even basic human rights e.g. access to separate toilets. The majority of respondents suggest that the gender quotas in water institutions and engineering college and universities including scholarships, may be useful to enhance women's numerical presence. They define gender quota as a response and fast track strategy to bridge this continuing gender gap in water sector. But these women equally warn that it should not be expected that numerical presence of women will automatically lead to their active and effective roles in highly male dominated water organizations. Women making difference therefore, demand gender sensitive reforms and policies at all levels and enabling environment for them.

The development of support systems (child care, sanitation, and maternity leave), networks and training programs are critically important for the increase in women's presence in water sector and their professional development. In a backdrop of the limited capabilities of women professionals, training and capacity building should not be perceived as an activity but rather as an on going process which should have regular follow-ups and impact assessments. Women's enhanced presence in water sector and gender sensitization of water institutions cannot be achieved in isolation, introducing and teaching gender into engineering universities and making engineers more gender aware from beginning are important areas that need further support and strengthening.

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Annexure I

List of institutions involved water management/ running various water related projects/programs in Sindh

Water management institutions/authorities

1. Water and Power Development Authority
2. Irrigation and Power Department
3. Public Health Engineering Department
4. Water and Sanitation Authority
5. Karachi water and sewerage Board
6. Sindh Irrigation and Drainage Authority -
7. On Farm Water Management
8. Area Water Boards
9. Farmers Organisations
10. Local Government TMOs (small towns/villages schemes)

Water Related Research and training Institutions

11. Drainage Research Centre (DRC), formerly DRIP, Tandojam,
12. Spate Irrigation Research Unit Sindh under NRM, PARC
13. Institute of Irrigation and Drainage, MUET
14. Department of Irrigation and Drainage, SAU, Tandojam
15. Department of Land and Water Management, SAU, Tandojam
16. Budget Research Cell on Water and Sanitation, SAU, Tandojam
17. Center of Excellence in Water Quality (Name may be verified), S.U. Jamshoro.
18. Irrigation & Drainage Research Institute, IPD, Near Hala Naka, Hyderabad
19. Sindh OFWM Training & research Institute, Sakrand
20. Sindh Environmental Protection Agency

INGOs/NGOs running different water related projects

21. National Rural Support Program
22. Thadeep Rural Development Program
23. PCSIR
24. UNICEF Sindh
25. UNHABITAT
26. WWF
27. IUCN
28. WaterAid

End Notes

World bank 2006

See Sindh Finance Department Budget Analysis 2007-08 and Budget Speech 2008.

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Acknowledgement

I feel privileged to write this report on the requests of SaciWATERs and SOPPECOM, their confidence in my ability and potential has been humbling.

I take this opportunity to acknowledge the many distinguished women water professionals, who voluntarily and willingly took part in this study and provided valuable information and insightful statements. I would like to thank organizations (SIDA, WASA, WAPDA, MUET, NED and QUEST) and those who helped me in accessing organizational data and women respondents.

Finally I would also like to recognize my husband Ashraf Shah for his support, encouragement and enduring patience.

I hope this study will go a long way in meeting the objectives for which it was undertaken. I trust that it will serve to enhance the understanding of the low number of women in water sector.

**Shaheen Ashraf
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SaciWATERs