

SITUATIONAL ANALYSIS OF WOMEN WATER PROFESSIONALS IN SOUTH ASIA

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Introduction

Since the last decade or so, interest in the issue of gender and water seems to be increasing. It is partly because women's movements and struggles have made a mark and equally because many funders have come to insist on their inclusion. This has compelled 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 become a mere lip service or remain partial. This is evident from the knee-jerk introduction of programmes in the sector, which seek women's participation in community-based domestic water programmes. However, most of these programmes focus on poor rural women and their collectives to regenerate and effectively manage the resource. Little research has been done related to the professionals who are in key decision-making positions or implementing organisations, the bureaucracy and elsewhere and on how their actions or inactions set the agenda for policy and programmes in the water sector. Further, little thought has been given to the women who work as water professionals in the different subsectors 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 democratic at the macro level? 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. The literature on gender and water points to a clear sectoral divide – the domestic and the other productive uses of water. Women's participation in the water sector is, therefore, seen as synonymous to their participation in the domestic arena, which in fact, is an extension of their domestic roles. This reflects the strongly embedded male culture of the sector. It is then important to understand how this culture shapes the water sector as a whole. This reveals why action at the community level alone is inadequate and 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 opening up and analysing the sector and developing a typology of women as users and planners.

This study is an effort to do just that. It was part of a larger project, called 'Crossing Boundaries' (CB), initiated by SaciWATERS 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.

The study located in Bangladesh, India Nepal and Sri Lanka was primarily of exploratory nature to understand the profiles, numbers and constraints of WWPs in the South Asian region. Although the focus was mainly on women professionals in the water bureaucracy, we have spoken to a few WWPs from NGOs and academic groups as gender water advocates. We also bring in a few insights from the Sindh province in Pakistan where secondary data was collected and a few discussions were conducted with WWPs in the Sindh Irrigation and Drainage Authority (SIDA).

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. In the last decade, all of these countries have introduced various reforms and policies in the water sector. Many of these policies mark a paradigm shift from a techno-centric supply driven model to a demand driven and participatory model. With this shift in thinking, questions of participation, accountability and inequity have come to the fore and inadvertently the '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 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 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 one another.

Admittedly new reforms and policies have at least mentioned gender concerns at the micro level. However, they have not gone into the detailing of how that would be feasible. Despite these policy spaces for gender mainstreaming in the sector, the answers for why this is so 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 elsewhere.

Policy analysis with a gender lens shows us that gender justice receives little attention at macro-meso-micro levels. Unpacking 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 WWPs in the water bureaucracy. What are their numbers and why are they so few?; What are their concerns and do 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.

Objectives and Scope of the Study

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. The objectives and scope of the studies done in both the phases were the same, but the methodology differed to an extent and this is evident in the data. Although a full fledged study was not done for Pakistan, we share 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 WWPs 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 WWPs across the diverse cultures of South Asia.
4. Bring visibility to this group and their concerns.
5. Make recommendations for policy and action for WWPs.

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

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, each divided into 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 the national capital, Dhaka.

The IWM is a specialised 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 the centre - 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 headquarter office and district level offices. The LGED also comes under the Ministry of Local Government and Rural Development. It is responsible for irrigation of 1000ha of land or less in local level water management. It has its headquarters in Dhaka and district level and sub-district level implementing authorities.

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

In 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 in Mumbai, the state capital. Following new legislation in 2005, 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 Maharashtra. Further, there are different divisions and subdivisions 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 design and construction of water supply (costing more than Indian Rs 7.5 million) in rural areas and sewerage schemes in urban areas and mobilisation of resources on behalf of the State Government and 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 restructuring 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 regional office.

The RSPMU deals with the 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 important to the study. The RSPMU has their central office at Mumbai. They have district level teams 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 from 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. 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 twelve divisions and two project offices for implementing of the

various schemes..

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 two special command area offices. The HMWSSB comes under the Municipal Administration and Urban Development Department. The Board is responsible for planning, designing, constructing, maintaining, operating & managing sewerage treatment works and potable water supply in the Hyderabad Metropolitan Area.

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

In Pakistan, like the rest of South Asia, the water sector is male dominated. The Sindh Irrigation and Drainage Authority (SIDA) is an organisation working for water reforms in the Sindh Province, and was established in 1998 under the SIDA Act. Later, the SIDA Act was replaced by the Sindh Water Management Ordinance, promulgated in 2002, which sets the stage for a complete rollout of the reform programme financed by the World Bank. The key elements in the proposed reform are the transformation of the Irrigation and Power Department (IPD) into autonomous organisations and irrigation management transfer to users. The reformed framework envisions farmers' participation to increase accountability, transparency and equity. Women's employment was introduced in 2004, under the water reform programme. Currently women are working for different departments of SIDA, mainly in the secretariat including field offices. All employees (male and female) working for the reform programme are contractual employees, but the organisation itself plays the role of prime change agent for water reforms in the province and has a multi disciplinary team rather than only engineers.

In Sri Lanka, the study focuses on two departments: 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.

Methodology and Tools

Definitions, Analytical Framework,

Broadly, as already mentioned, 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 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 Zwarteveen (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 nonsensical i.e. falling outside the domain of the formal knowledge systems and hence needing no attention.

According to Keller (1978), this unexamined association between gender and science has been internalised 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. Feminist critiques of modern western science and technology as gendered processes have come from a wide range of disciplines. What kind of knowledge do these sciences provide 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 1960s 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 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 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

¹Thomas 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 Popper believed that scientists' subjective experiences made science a relativistic discipline and that science gets developed and practiced in a social context.

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 path-breaking work, which informs this study, is that of Evelyn Fox Keller (1978) who draws on psycho-analytical 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, and are manifested 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.

The continuing exclusion of women scientists in the disciplines such as engineering and physics is argued by many scientists of reflecting not only gender bias but also institutionalisation of male bonding which render such disciplines particularly inhospitable for women scientists. In fact, some feminist historians go as far as to say that the very definition of scientific genius remains an essentially masculine trait while some others challenge these positions by saying that these are further inhibiting the process of change by perpetuating gender stereotypes. Within the feminist critiques of science one sees a debate between those who are perceived as anti-science as it is seen as anti-feminist and those who see a positive role of science and conceptualise subjectivity and objectivity as different from the mainstream Baconian and Cartesian views of science.

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.

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 important locations 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 common sense 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.²

In Bangladesh and India, the study was conducted at the same time, 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 52 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 as well as written correspondence with them. The details of the primary data collected are included in the interviews below.

In Bangladesh, 32 women and 18 men from across the different departments were interviewed in depth 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. For both these countries, a large amount of secondary data (which is only

²Society 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.

partially presented here) was collected to give us a picture of the number of women in the water sector and where they stand in the hierarchy.

In Nepal, the study was conducted between April and May 2008. The study includes both case studies from women water managers at the 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) Graduates who have studied water resources at the Bachelors, Diploma and higher levels in formal education that open an opportunity to work in the water sector;
- b) Those who do not have an academic background in water resources as such, but were/are involved in water activities in the later phase of their career;
- c) Those involved during water policy formulation and implementation;
- d) Researchers in the water sector and;
- e) Educators teaching water resources at universities and colleges.

Most of this information collected was part of the PhD work of the researcher in Nepal.³ Data collection tools, such as open-ended interviews, e-surveys, FGDs and tracing the careers of WWPs from college to their present work, were used. Both qualitative and quantitative data were collected.

In Pakistan, we did not do a detailed study, but conducted one FGD with the SIDA. In Sri Lanka too, an independent researcher conducted the study, based on published and unpublished 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 in the work in 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.

³The study was done by Pranita Bhushan Udas who is currently completing her PhD work under the guidance of Margreet Zwarteveen in Wageningen University, Netherlands.

Typologies

One of the main aims of the study was to develop a typology of WWPs. Categorised very broadly, they include the technical as well as the non-technical professionals. In each country studied, we can see some uniformity and some differences. A typical exercise in typology would involve a detailed classification of WWPs working in different organisations such as NGOs, INGOs, the government, the academics and even the private sector. That would be an important and interesting exercise where we could map the extent of WWPs, the 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 focussed 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, those working on site and those who do desk work like designing, scrutinising, sanctioning, etc.), hydrologists, geo-hydrologists.
2. Technical Type 2: Professionals who are not qualified as engineers but do support their technical work -like draftsmen, assistant draftsmen, 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 officer, 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 low ranking, those classified in India as 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.

Each of the country reports gives a detailed typology of women as water professionals, but here we use two broad categories i.e. technical and administrative. Technical 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.

Table 1: Department-wise Typology of Women Water Professionals for India, Bangladesh and Nepal

Country	Department	Technical Employees			Administrative Employees			Total Employees		
		Total employees	Female employees	% of female employees	Total employees	Female employees	% of female employees	Total employees	Female employees	% of female employees
India (Maharashtra)	MUP (entire state)	1429	74	5.18	5122	502	9.80	6551	576	8.79
	Irrigation (5 circle offices out of 35)	933	18	1.93	1390	157	11.29	2323	175	7.53
India (Andhra Pradesh)	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 (Hyderabad city)	323	13	4.02	53	7	13.21	376	20	5.32
Bangladesh	BWDB (entire country)	1400	46	3.29	6060	399	6.58	7460	445	5.97
	WARPO (entire country)	37	2	5.41	17	2	11.76	54	4	7.41
	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	1696	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

Source: CB Project, SasiWATERS

Low Numbers

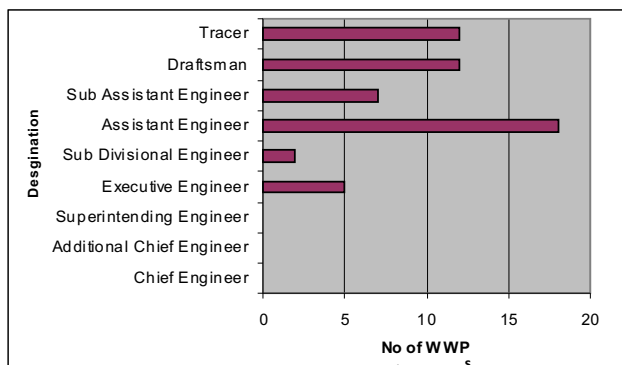
All of the countries show that a very small number of women are working as WWPs in South Asia. Table 1 shows that except for three departments in India and Bangladesh, the women in technical posts are not more than 5% and in some departments like the irrigation department in Maharashtra and Nepal, it is as low as 1.9 and 1.5% respectively. 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, we see a complete absence of sociologists or any other social sciences experts in the mainstream government departments. In a later section, 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 is discussed later.

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. Out of 231 irrigation engineers, 41 or 17.4% 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

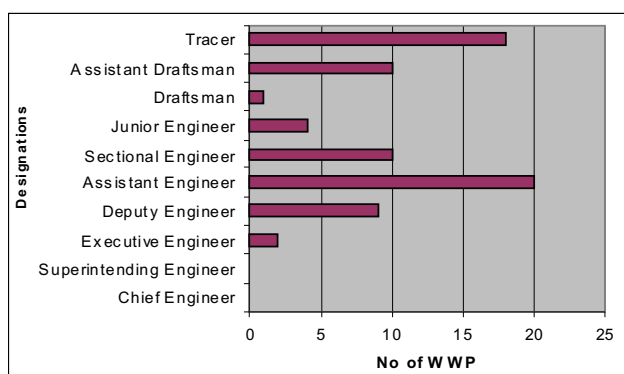
Charts 1–3 show the posts at which women are currently employed. These are representative charts of one department each in India and Bangladesh showing women in the technical hierarchy in the MJP (Water Supply and Sanitation Department, Maharashtra, India), the Bangladesh Water Development Board in Bangladesh 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, 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 is a very dynamic young professional in charge of a division. In Bangladesh too, we do not see women in these two posts but five of them are executive engineers, which is certainly a positive change.

Chart 1: WWP in BWDB Technical Hierarchy, Bangladesh (Entire Country Data)



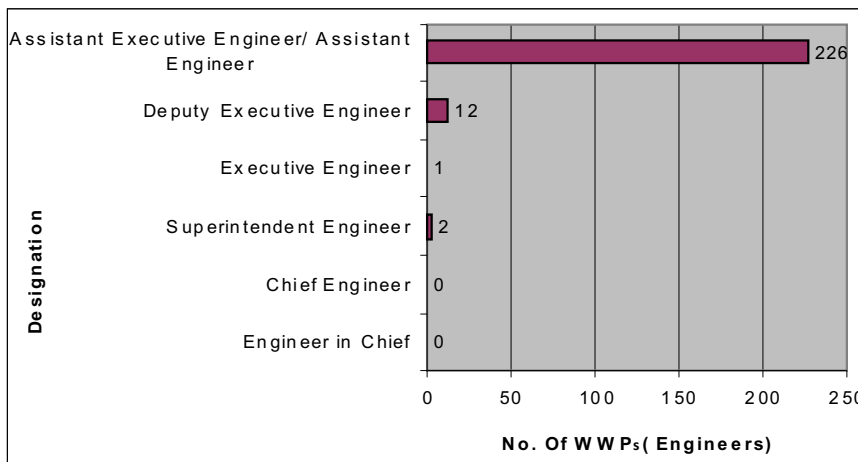
Source: CB Project, SaciWATERS

Chart 2: WWP in MJP Technical Hierarchy, Maharashtra, India (Entire State-level Data)



Source: CB Project, SaciWATERS

Chart 3: WWP's in APSIDC Technical Hierarchy, Andhra Pradesh, India (Entire State-level Data)



Source: CB Project, SasiWATERS

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 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

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 multidisciplinary 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 some sociologists and other social scientists are 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.

The data in Tables 2, 3 (both Pakistan) and 4 (Maharashtra, India) below are indicative of the changing scenario in the sector.

Table 2: No. of Employees, SIDA, Secretariat, Sindh Pakistan,

Table 2: No. of Employees, SIDA, Secretariat, Sindh Pakistan,

Type	No. of female employees	No. of male employees	Total no. of employees	Comments
Technical and managerial	01	28	29	Includes, MD, GM, Engineers, social scientist specialists, advisors, analysts etc
Administrative and service staff	05 (all Social Organizers)	83	88	Assistants, directors, operators, field social mobilizers, office managers, surveyors
Service Staff	01	23	24	
Total	07	134	141	Women are 5.2% of total employees, based in the secretariat

Source: SIDA office

Table 3: No. of Employees, SIDA, Field Teams Sindh Pakistan

Type	No. of female employees	No. of male employees	Total no. of employees	Work background of professionals
Group leader	00	01	01	Irrigation engineer
Social mobilizers	05	32	37	Social and community mobilisation
Administrative and Service Staff	00	18	18	
Total	05	51	56	

Source: SIDA office

The above tables for Pakistan show a very small number of women in the Irrigation department.

In Maharashtra, 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 change indicated in the profile of the water department (Table 4) is only a temporary as after a seven-year experience, the state government is thinking of dismantling the entire structure of Jalswarajya, retaining only the 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 and Non-Technical Experts	Administration and 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
	Percentage of female employees	12.09	11.54

Source: CB Project, SasiWATERS
(Data for 26 districts of the state where the programme is currently implemented)

The Women With Whom We Spoke

From across South Asia, about a hundred WWPs working in different set-ups were interviewed in detail (Tables 5, 6, 7 and 8 provide some details). These women were selected on the basis of their position in the hierarchy, nature of work and in the Indian context, on the basis of their caste. These diversities are enumerated in greater detail in the country reports (Reference).

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
Total					122

Source: CB Project, SasiWATERS

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

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

Source: CB Project, SaciWATERS

Age and Education Profiles

Table 7: Age Profiles of WWPs Interviewed, India and Bangladesh,

Age	India (Maharashtra)	India (Andhra Pradesh)	Bangladesh	Total
20- 25	0	3	0	3
26- 35	16	6	21	43
36- 45	9	5	9	23
46 and above	10	9	2	21
Total	35	23	32	90

Source: CB Project, SaciWATERS

Table 8: Education Profiles of WWPs Interviewed, India and Bangladesh

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

Source: CB Project, SaciWATERS

After speaking with 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: a) Constraints that come from the type of work women do and are expected to do. b) Constraints connected with the related but distinct category of content and structure of engineering science itself.

The two constraints are intertwined and cannot be separated and each of these categories also have the interplay of other factors of class, caste, religion, education, age and hierarchy of position etc. determining the presence or absence of women. Here for clarity we deal separately with our findings on the socio-cultural issues that determine women's presence or absence in the bureaucratic organisations and our findings on women's absence as a result of the nature of the sector itself.

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. Here we present findings that can be sifted out from the general organisational issues, although, as discussed earlier, there is only a fine separation between these.

Making Educational/Career Choices

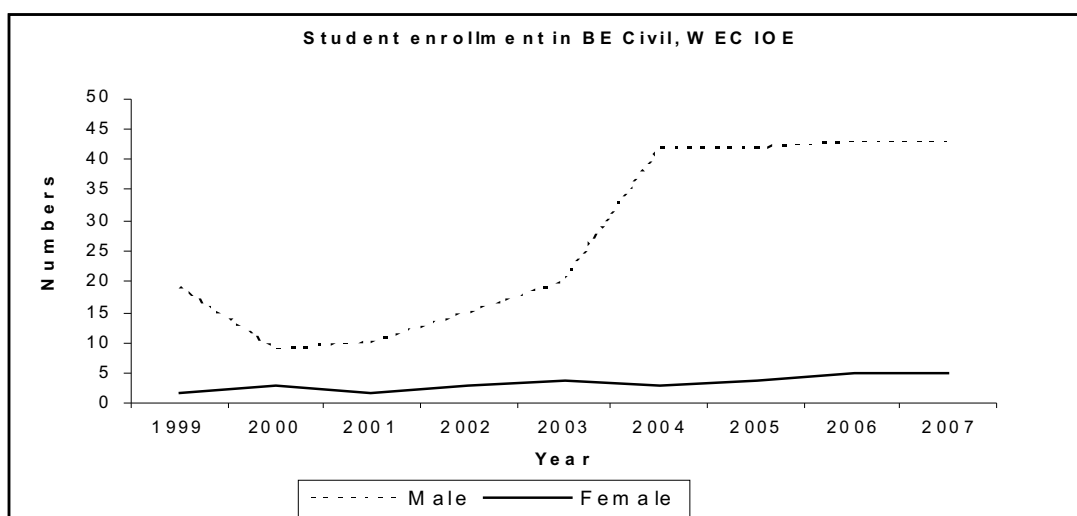
Looking at both our secondary and primary data, we see that there are very few women in the sector and fewer still in the higher positions. One of the major reasons cited by women for the low numbers in the sector is that very few women opt for a career in civil or water engineering and secondly, the 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 MSc in hydrology says, 'I aspired to do 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'. An assistant engineer from BWDB Bangladesh says, 'Nurse, teacher 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 in the public sector and it creates national assets. I knew I was going to work in a good department'. However, 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 (December, 2003), shows that there are 4524 registered engineers in Nepal Engineering Council, out of which women engineers are 195 (4.56%).

Enrolment of female students in Civil engineering courses is very low as compared to male students in Nepal (Chart 4, Table 9). 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



Source: CB Project, SaciWATERS

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
Post-graduate			
Session	Male	Female	Total
1993-95	502	64	566
2001-02	593	54	647

Source: CB Project, SasiWATERS

Table 10: Admissions for Engineering Course by Universities, 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
2002/2003A	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 post-graduate course, it shows a downward trend. In Sri Lanka too a similar picture is seen in all the prime universities.

Nature of Women's Work in the Water Sector

Of the hundred odd women interviewed across South Asia, a majority, especially those from the engineering field, are involved in varied deskwork. 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 under-utilised 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 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 Bangladeshi professional says 'mostly women are working in less important places, like drafting letter, and other communications, dealing with administrative problems, etc. My case is different, as I have already proved my capabilities, 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?'

One of the deputy engineers of the MJP, 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 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 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 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 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 who decided not to 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 them away from sanctioning finances 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. Says an MJP engineer: '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?' Similar feelings are 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?

Images, Symbols and Metaphors

Any description of a good water sector officer started with a 'he'. Most of them 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 attitude 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 and 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 women are perceived as 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 both 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 work and home 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.

Difference in Thinking and Understanding of Water Issues

The gender difference in thinking about water issues 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.

The study found that 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 normally says - 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 the Pakistan FGD, 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 one would otherwise assume. 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 a Nepal FGD, 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 observation 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. Moreover, women colleagues can help internalise fellow male colleagues and address 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, '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 women from the village 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 affects the participation of women in the field'.

Gender and Organisation Related Issues

In this study, we have specifically focused on the bureaucratic organisation, which has its own culture. We discuss a range of organisational issues from physical infrastructure and facilities to rules, hierarchy, work atmosphere and work 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, 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 the SIDA office 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 35 women interviewed, only four 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 on 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 Engineer in the Irrigation and CAD, AP where she says despite her seniority 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 when they become pregnant. In different countries, the experience of rules for maternity and childcare varied. None of the contractual employees got maternity benefits, unlike other permanent government employees. In most of the countries, the maternity leave is not more than three months though women are demanding of 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 professional if they ask leave for maternity/reproductive health problems or deny working late hours.

In Nepal, the leave granted is only 45 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 45 days on paid basis for two pregnancies. In addition women can have unpaid leave for an extended period. Interestingly, women feel quite pressurised about this extended unpaid leave. Indeed women in Nepal say that they prefer not to go for extended period of unpaid leave when they are in a better location place job-wise such as the ministry and department in Kathmandu, 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 rejoined later than 45 days then I would have been posted in some remote districts'. So she resumed work after 45 days, leaving her child at home and tried for alternate feeding arrangements besides regular breast-feeding.

Most offices do not have childcare facilities. There is no facilities for infants or 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 32 women interviewed only seven said that their office had 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 the "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 contractual employment and so was scared to give a written complaint. . . We sympathised with her, and suggested that she should take a break 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. The 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. Significantly, 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 the '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 aware of 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 the way he thinks women should not do so'. 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 sleeved blouses, as wearing sleeveless blouses 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, 'Women are always 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 said repeatedly that they were not corrupt and did not indulge in power politics within the organisations. In Nepal, men said that women brought decency to the office space, that is legitimacy to the otherwise corrupt place.

Many of the male bosses and colleagues we spoke to also reiterated 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, the men said. Male bosses were actually 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 sub-ordinate 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 neither have the time to engage in organisational politics nor the initiative to involve themselves in corruption. So more than lauding women's values 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 at work, but senior in age 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 mixed responses 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 a good relation both with my boss and my juniors. One should focus on work and the outputs but not the gender. I do not discriminate based on gender. There should be positive relations between 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

organisations.

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 discipline, 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, of her sensitivity to women and their roles and responsibilities. Most men, who were not too happy to see a young woman boss, gave 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.

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 overstressed because of many 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 their career grew. 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. The smallest of mistakes are not spared. 'Woman Engineers are expected to be perfect but the same is not expected of male Engineers, they 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 it 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 perceived as escaping 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 administrators says, 'I am not dominant kind of a senior, may be because of my caste (Dalit/Scheduled Caste (SC)). I have always taken a submissive role. So even as senior I am not bossy'. A young Dalit (SC) civil engineer in the head office in Mumbai says, 'I never faced caste related discrimination. Maybe people feel or express their jealousy but it is among themselves, I do not know any. Never experienced it on the face because people are aware that it could be termed as harassment'.

Way Forward and Recommendations for Government Polices

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 in water sector and in 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.

More Numbers can Make a Difference

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 policy of 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 sociologist, social worker, graduate in environment science and professional from other disciplines is very important to bring in a socio-technical perspective. Those with Masters degrees in 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 to work in the water sector is considered less as compared to engineers.

Basic Amenities and Benefits

Almost all the women in each of the countries asked for improvement in sanitation facilities at the work place. Apart from this, they asked for increase in the duration of maternity leave upto six 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. Trainings 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 there were no trainings done with them after the induction trainings and exposure. A few of them who had attended trainings on communication skills, building rapport with communities etc. found it very useful and wanted more such trainings. Women in Pakistan underscored the need for gender sensitivity trainings for the male staff and said that no change would be possible without that. In Bangladesh, all the WWPs 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 liaise with other women's groups . 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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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
WWP	Women Water Professional