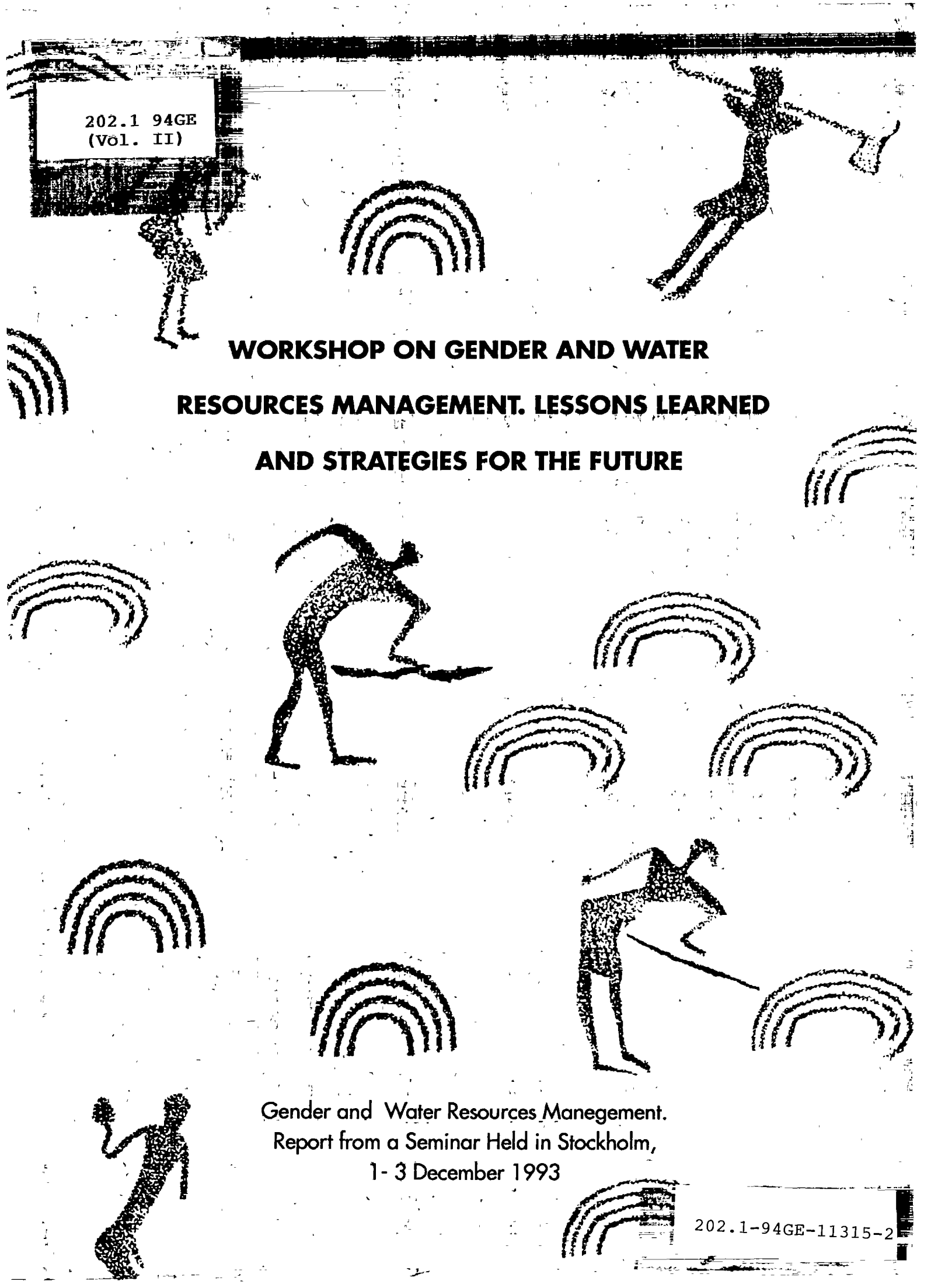


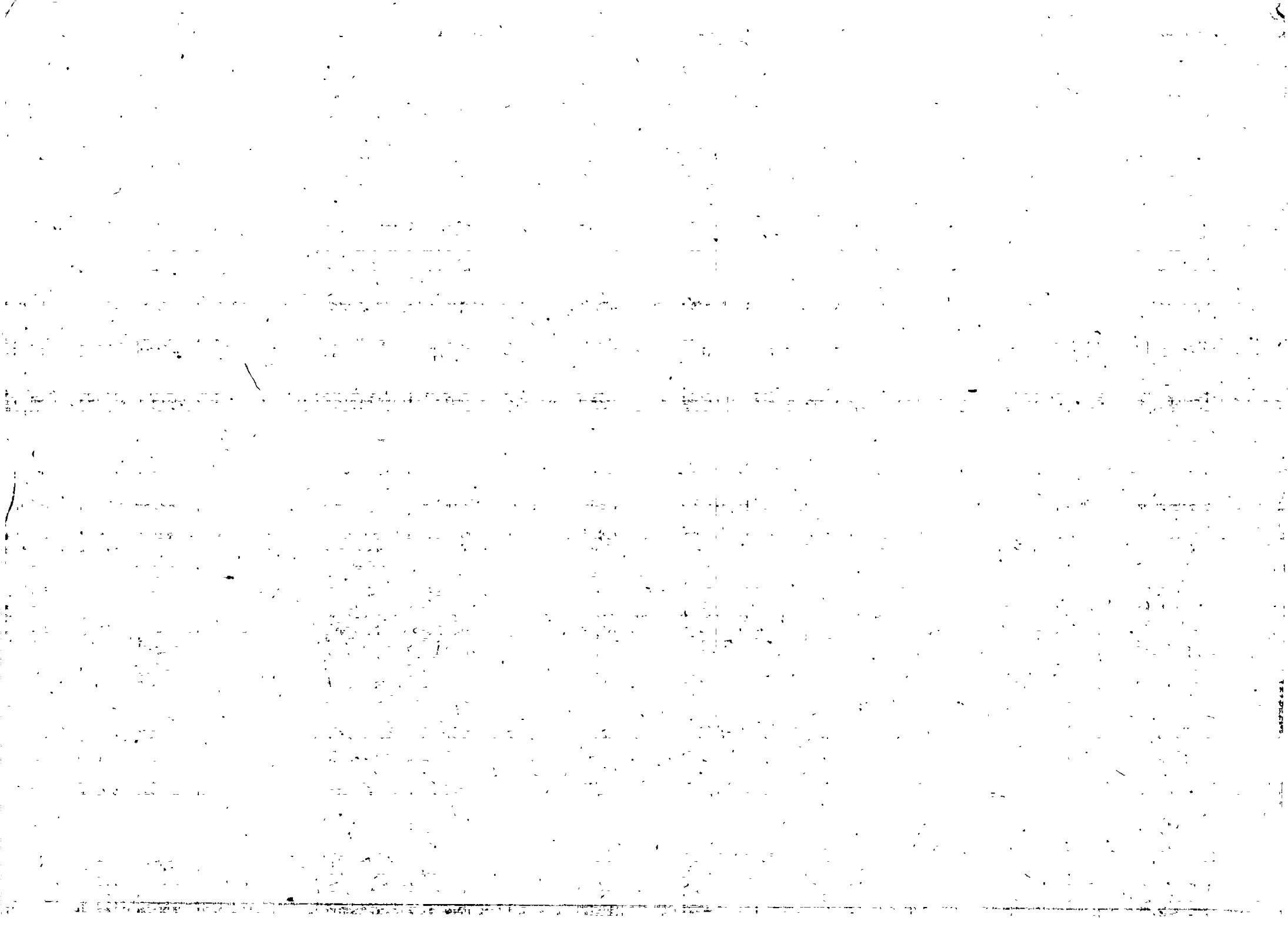
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The background of the cover is filled with stylized, high-contrast black and white illustrations. There are several human figures in various poses: one in the top right with arms raised, one in the center left, one in the center right, and one in the bottom left. Interspersed among these figures are numerous rainbows, each depicted as a series of concentric, slightly irregular arcs. The overall style is graphic and minimalist.

**WORKSHOP ON GENDER AND WATER  
RESOURCES MANAGEMENT. LESSONS LEARNED  
AND STRATEGIES FOR THE FUTURE**

Gender and Water Resources Management.  
Report from a Seminar Held in Stockholm,  
1- 3 December 1993

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**GENDER AND WATER RESOURCES  
MANAGEMENT**

**REPORT FROM A WORKSHOP HELD IN  
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**VOLUME II**

**THE PAPERS PRESENTED  
AT THE WORKSHOP**

**WITH AN INTRODUCTION**

**BY**

**BETH WORONIUK**

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Gotab, Stockholm 1994

## PREFACE

The current gender policy of the Swedish International Development Authority was established in 1985. This policy has the goal to improve women's situation and promote increased equity between women and men. The main strategy utilized is to integrate consideration of the roles, access to and control over resources, decision-making powers, needs and interests of both women and men into all development cooperation. This is achieved using gender analysis and gender planning methodology. These efforts at integration are complemented with special inputs for women.

Within the domestic water supplies, environmental hygiene and sanitation areas women and children have been clearly established as target groups. However translation of the goal to integrate women into programmes in these areas, as in all sector areas, requires the development of relevant strategies and tools. Much has been achieved, in particular in relation to participation in implementation. It has, however, proved more difficult to find ways to increase women's access to planning and decision-making processes. Integration involves a process requiring changes in both attitudes and behaviour.

The development of the broader concept of water resources management within development cooperation constitutes a new challenge. New approaches and tools are required. A workshop was held in Stockholm December 1-3, 1993 to initiate the process of developing strategies and methodologies for working with gender in this broader perspective. The workshop, "Gender and Water Resources Management. Lessons Learned and Strategies for the Future", was organized by SIDA for the OECD/DAC Expert Group on Women and Development.

Water resources management specialists and gender specialists with backgrounds in water resource management met to share experiences in the areas of domestic water supplies, environmental hygiene and sanitation in both rural and urban areas, irrigation, wetlands management, flood control and overall river basin planning. The focus was on discussing the lessons learned in the different sub-sectors, and potential strategies for future action.

The preparations for the workshop received strong support from the OECD/DAC Aid Management Division which was also represented at the workshop by the head of the division, Carl Wahren, and by Elisabeth Thioleron. The workshop facilitator was Clifford Wang and the rapporteur was Brian Appelton.

The workshop resulted in the two volumes of this report:  
**"Gender and Water Resources Management.**

**Report from a workshop held in Stockholm, 1-3 December 1993**

**Volume 1: Report from the workshop**

**Volume 2: The papers presented at the workshop  
with an introduction by Beth Woroniuk."**


The workshop also resulted in two documents which were presented by the OECD/DAC Expert Group on Women and Development to the High Level Meeting arranged by OECD/DAC in May 1994.

**"Gender and water resources management (Note by the DAC Expert Group on Women in Development)"** prepared by Carolyn Hannan-Andersson

**"Towards a framework for including a gender perspective in water resources management",** OECD/DAC Expert Group on Women and Development.

In particular the framework which was initiated at the workshop, and further developed at a subsequent meeting, involves a break through in relation to methodology for working with gender and water resources management. Taking the starting point in existing established sectoral concepts and "unpacking" them in terms of social aspects and gender provides a new entry point for work with gender and for closer interaction between water resource management specialists and gender specialists. This methodology could be usefully applied to other sector areas.

The most important output of the workshop is, of course, not the documentation emerging (though it is hoped that this will also be of use) but the process which has been initiated in terms of applying a gender perspective to water resource management in a broader context, and in terms of stimulating a broader cooperation between water resource management specialists and social/gender specialists, as well as the promotion of greater exchange between the different "sub-sectors" of water resource management.



Carl Tham  
Director General

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**Gender and Water  
Resources Management:  
Introduction to the  
Workshop Papers**

*Prepared By:*

Beth Woroniuk  
Goss Gilroy Inc.

March 1994

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## LIST OF PAPERS PRESENTED

## 1.0 Introduction

This introduction highlights the major contributions of the papers presented during the *Gender and Water Resources Management: Lessons Learned and Strategies for the Future* workshop held in Stockholm, December 1-3, 1993 and sponsored by the Swedish International Development Authority. It begins with the overall policy context, discusses the primary themes that emerge and then concludes with several areas for future exploration.

Readers are encouraged to dig deeper into the full collection of papers. They cover a wide range of issues and perspectives. A summary of this nature does not do full justice to the ideas and experiences related in each paper and readers should turn to the complete text for further elaboration of the issues sketched out here.

During the workshop there were a number of presentations that were not accompanied by written papers. These are listed in the appendix.

## 2.0 The Policy Context

Decisions around water resource management are not taken in isolation from broad policy concerns and the international context. General economic trends and development directions are influential. International conferences (such as UNCED) and events dedicated to discussions of water (like the International Drinking Water Supply and Sanitation Decade and the Mar del Plata, Delhi and Dublin meetings) play important roles in setting the policy environment and providing direction for programme design and priorities.

In their paper, *Gender and Water Resources Management: Integrating or Marginalizing Women?*, Diane Elson and Frances Cleaver argue that the general context in which policies regarding water resources management are made has changed profoundly over the past decade. There has been a fundamental shift in the perceived role of the state, which has ceased to be seen as a provider of water resources, and is now primarily viewed as a promoter or facilitator with the primary role of creating an "enabling environment" for others to provide and use water resources. They situate this change within the general context of widespread economic policy reforms relating to structural adjustment and point out how these general economic policies are reflected within recent international statements on water management.

In reviewing the general context, Elson and Cleaver also outline three current related forces which they see as displacing women in the management of water resources. First, there is the ongoing marginalization of health issues around which women have gained substantial expertise and influence. The move towards viewing water as an economic good and the resulting emphasis on devising ways of valuing the economic benefits of water has meant that less attention is devoted to the health and social benefits. Second, the commoditization of water overshadows the view of water as a basic human need. They warn that the focus may shift to supplying water to sectors where the economic benefits are obvious (ie. giving priority to agriculture and industry), and thus the importance of the sectors where the economic benefits are not as clear (for example, domestic water supply) might be downgraded. Third, the move to increase the formalization and bureaucratization of institutions (primarily at the local level) tends to ignore existing informal management systems and often further marginalizes women in the decision-making process.

A different element in the broad context is explored by Irene Guijt in her discussion of Agenda 21 (the final document of the UNCED, the 1992 earth summit conference). Given

international attention to environmental issues and sustainable development, there would appear to be opportunities to merge the discussions of gender and water. Yet, Guijt demonstrates how, all too often, these discussions are conducted in isolation from each other.

Guijt is quick to point out that there are important characteristics of Agenda 21 that influence its standing as an international document. It was adopted by consensus, its recommendations are not binding and funds to implement these recommendations have not been forthcoming. Furthermore it is internally inconsistent and avoids discussions on difficult issues such as necessary tradeoffs, the problems inherent in an economic development model premised on growth, and gender.

Guijt is critical of the individual presentations of both gender and water in Agenda 21 as well as their lack of convergence. Although water is perhaps the most frequently referred to resource in the document, discussion "tends to focus on solving water-related problems at the macro-level, with technology, and with a superficial consideration of water users at the community level". There is also no definition of priorities.

A specific chapter is dedicated to women (Chapter 24 - Global Action for Women Towards Sustainable and Equitable Development), yet a gender analysis has not been integrated throughout the document. According to Guijt, "gender is not dealt with well" even though there are numerous references to women throughout the chapters. Where women are mentioned, it is often their traditional roles and responsibilities that are emphasized.

Guijt points out that there are few explicit references to women and water resource management and no consideration of the gender implications of a water resource management strategy.

Despite these concerns, Guijt believes that Agenda 21 remains an important document. Governments and organizations now refer to Agenda 21 in their environmental policies and plans. It provides "options to move forward on sensitive issues" as "the range of recommendations provides sufficient argument to emphasize or formulate suggestions by those agencies who are keen to support gender-balanced development of the water sector" (p. 17). She offers a number of suggestions to improve the recommendations that revolve around the incorporation of a gender-sensitive approach and the guarantee of financial allocations.

## 3.0 Workshop Themes

The papers presented at the workshop cover a wide range of issues from different perspectives. Some deal with specific sectors, others with case studies, and still others with individual institutions. Despite these different approaches a number of common themes emerge.

### 3.1 The Relevance of a Gender Analysis

#### 3.1.1 Benefits of a Gender Perspective

One of the predominant themes of the papers is that the integration of a gender perspective in water resource management policy and programming will have important benefits relating to both the efficiency of water projects and programmes, and a move toward a more equitable society.

Fabiano Kwaule's case study from Malawi, Christine van Wijk's review of sanitation projects, Cecilia Kinuthia's paper on managing water resources in an environment of scarcity, Linden Vincent's review of a gender perspective in river basin planning, Kathleen Cloud's overview of irrigated water management issues and Norah Espejo's discussion of drinking water supply in urban communities in Latin America all highlight the importance of recognizing the different roles and responsibilities of women and men as an essential element to ensure basic programme efficiency.

Cecilia Kinuthia, for example, looks at three case studies (from Kenya, Burkina Faso and the Sudan) and explains how the understanding of women's roles and the promotion of women's participation (along with the participation of the community as a whole) contributed to the overall success of water supply projects.

In her paper, *Gender Aspects of Sanitation: The Missing Slipper of Cinderella?*, Christine van Wijk argues that the incorporation of a gender analysis may be the key to the increased effectiveness of sanitation projects. She traces the various stages of the project cycle [preparation of projects and programmes; contributions to construction and O & M (operations and maintenance); education and training; management; and monitoring and evaluation] and shows how and why a gender approach is relevant at each stage and how it can support the basic efficiency of the programme.

In addition to efficiency justifications, equity considerations are also raised by a number of authors. One of the "lessons learned", cited in Sinikka Antila and Eero Kontula's overview of the FINNIDA experience, is:

FINNIDA-funded projects need to address the equity issues inherent in working with women in rural societies. Thus as well as aiming to achieve the concrete benefits for women of a reduced burden and improved health, water supply projects should also have the objective of improving women's position and status in rural societies, through involving them on equal terms with men. (p. 6)

Kathleen Cloud urges the consideration of both efficiency and equity effects of proposed design changes in water systems. "Simply remembering to ask 'What do women do?' and 'How will women benefit?' in every analysis of a water management system would go a long way towards improved design and implementation." (p. 12)

One paper did challenge the assumption that efficiency gains will always result from the adoption of a gender perspective. Margreet Zwarteveen throws an interesting wrinkle into the efficiency discussion in her paper on gender and irrigation management. She points out that the efficiency benefits may only be evident when the broad picture is taken into consideration and issues outside the normal scope of the (in this case) irrigation system are included in the calculations:

Unfortunately there is not always a direct positive correlation between greater gender awareness and a better performance of irrigated agriculture. Sustaining gender biases may in some cases even be functional for achieving some of the irrigation system's objectives. However, in most cases gender inequities will pay off in terms of other objectives, such as health; environmental sustainability; the productivity of other crops; etc. (p. 14)

Thus benefits that are easily seen by a social planner or gender analyst, may not be so obvious to engineers or technical planners. If the focus of these technicians is the delivery of water (rather than broad social development objectives), they may have a very different idea of what is and is not "efficient".

### 3.1.2 Why a Gender Analysis rather than a Focus on Women?

Another important lesson documented during the workshop is that a gender analysis (an understanding of the roles and responsibilities of both women and men) is preferred to an exclusive focus on women.\*

Fabiano Kwaule's case study offers an important example. He describes a project that sought to develop improved community-based approaches to piped water supplies in peri-urban and rural communities in Malawi. In the initial stages, little attention was paid to a gender analysis or to an active promotion of women's participation. As a result, women were marginalized in the "tap committees" and numerous problems resulted (inactive committees, ineffective extension services, leadership problems, operational problems, financial management problems and mismanagement of funds). During a second phase, the project used several strategies to address gender issues and increase the involvement of women. They examined the constraints facing women and sought to overcome them. The effort was successful as the female membership on Tap Committees rose from 20% to 60% and eventually to over 90%.

These new Tap Committees produced several positive results, including more effective extension and hygiene education; improved financial management; and better maintenance of the pumps and surrounding area. Yet new problems arose. In some cases, although women constituted the vast majority of Tap Committee membership, men continued to dominate decision-making. In technical issues, women still continued to rely on men. New conflicts among women around decision-making on the Committees developed.

Project workers concluded that the promotion of women to the Tap Committees had been too successful and that it was important to ensure men's participation as well. A balance between the participation of each group was seen as desirable.

Thus the project points to the importance of a gender (as opposed to women in development) analysis that looks at the roles, responsibilities and participation of both men and women.

---

\*Tabeth Matiza points out that, in some cases, there is a need to clarify what is meant by gender perspective. She reports that many planners in Southern Africa see the term as synonymous with women.



The contrast made between male and female dominated Tap Committees has clearly shown that women make good managers of local drinking water supply and sanitation facilities, however simply including women on water management organizations is not sufficient. Much depends on the quality of the overall participation process, on men's and women's perception of the programme and what they see as their roles and responsibilities in the programme. (p. 23)

### 3.1.3 Women's Multiple Roles

An important, but often overlooked, aspect of a gender analysis is the recognition of women's multiple roles: in addition to the often cited domestic sphere, women play active roles in productive activities and community organizations. In this collection of papers, several writers do give particular recognition to the multiple roles of women, specifically their role in production. Norah Espejo points out that in planning water supply systems it is important to recognize that water is an important input in women's income generating potential. Many women in urban areas rely on water to produce other products for sale.

Both Celicia Kinuthia and Deo Binamungu recognize the importance of women's productive role when they argue for programmes that increase women's income or access to credit as important elements to accompany water programmes.

## 3.2 Water Resources Management as a Sector

Although discussions on women, gender and water have tended to focus on domestic water supply and sanitation, water resources management encompasses a much broader territory. Jan Lundqvist presents an overview of this "sector" and the current challenges that it faces. He argues that the prevailing notion of water as a free good has led to unjust allocations, abuse and environmental problems. Thus strategies and principles for water resources management must be grounded in three facts: 1) the amount of water available is finite; 2) water is a vulnerable resource; and 3) there is no substitute for water.

Lundqvist argues that the need and demand for water will continue to escalate, but hydrological circumstances will not permit a corresponding increase in supply, thus there is a need for a "new professionalism with regard to water resources and their management". He maintains that there will be pressure to use existing supplies more

efficiently, through the reduction of unproductive evaporation losses, the improvement of the efficiency and productivity of water usage and through the development of criteria and mechanisms for the allocation and re-allocation of scarce amounts of water between competing needs and demands.

Lundqvist also urges us to see water as an economic good instead of a free good.\* For example, if farmers were to pay a price for water that reflected society's investment in water supply, it is likely that water usage would change in both the efficiency of water delivery systems and with regard to choice of cropping patterns.

The breadth of this sector is also demonstrated in the papers by Tabeth Matiza on wetlands management; Linden Vincent on river basin management; Kathleen Cloud on irrigated water management; Helen Thomas on flood control, drainage and irrigation in Bangladesh; Margreet Zwarteveen on irrigation; and Sinikka Antila & Eero Kontula on FINNIDA's experience (specifically their discussion of an urban water supply case). One of the common themes of these papers is that although there has been significant work on the role of women in domestic water supply and sanitation initiatives, the gender implications of other areas still require questioning, research, and documentation.

Tabeth Matiza, for example, points out that wetlands are very important ecosystems that provide important benefits to communities living around them: hydrological functions (groundwater recharge and discharge, flood and erosion control) and productive functions (fisheries, pasture for livestock and wildlife, transportation, tourism). While gender is a widely used concept, within the field of natural resource management and utilization in Southern Africa it is not very well understood or appreciated by policy and decision makers, planners or natural resource managers.

Given the growing challenges in the field of water resources management, advocates of a gender approach are well advised to become part of the current debates in this area. Various themes are now up for discussion (for example, demand management, demand orientation, and water as an economic good), and it is important to understand and communicate what a gender analysis brings to these deliberations and policy considerations. Simply urging others to "adopt a gender analysis" with little concrete assistance or insight into what this signifies will, more than likely, be ineffective. There is a need to demonstrate concretely the benefits and implications of a gender analysis.

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\*This was one area of disagreement among the workshop authors. See the paper by Diane Elson and Frances Cleaver for a different perspective on the implications of defining water as an economic good.

### **3.3 Integration of a Gender Analysis Rather Than a Women's Sub-Project**

Proponents of a gender analysis argue that projects and programmes must often be reconceptualized and the implications of a gender perspective integrated throughout an initiative. Understanding that there is an important social division along gender lines that influences the way people participate in development activities and the benefits they derive from these projects, has significant implications for all stages of programme development, from conception/design through implementation and evaluation. The addition of a specific project for women is insufficient.

In her discussion of irrigation projects, Margreet Zwarteveen points out that these broader issues are rarely raised and efforts to address gender remain limited and marginal. For example in irrigation initiatives, common responses of donors and project implementors have included a small-scale income generation project for women or the allocation of a small plot within the irrigation system for women to use for vegetable production.

Irene Guijt's discussion of Agenda 21 offers another example. Rather than integrate a gender analysis throughout Agenda 21, the drafters often considered women one more "vulnerable group". Women were often added to a list that included indigenous people and youth, downplaying the fact that there are also young women and indigenous women and that gender considerations crosscut these groups.

### **3.4 Community Participation**

It is difficult to talk about the involvement of women, if "people" in general are not involved in a programme through all stages from conception through evaluation. The importance of community participation is highlighted by a number of authors: Helen Thomas, Deo Binamungu, Silvia Arrais, and Christine van Wijk. Sinikka Antila and Eero Kontula write that the FINNIDA experience confirms that community participation is required to ensure the sustainability of water supplies and to create the link between water and health.

Yet it is extremely important to point out that a specific understanding of "community participation" is called for: one based on a strong recognition that this "community" is not homogeneous. Following the advice of Diane Elson, Frances Cleaver and Irene Guijt, the authors are all careful to "deconstruct" the community, seeing the different groups, interests and decision-making structures within this broader entity.

Diane Elson and Frances Cleaver point out that there are a number of myths around the notion of the community. First, the "literature and policy documents conflate the concepts of a water-using community with a decision-making community but these are not necessarily one and the same." Second, many policy documents expect the community to be competent in undertaking tasks in areas where governments have failed (identifying needs, choosing technologies, providing adequate funding, implementing to a high standard and maintaining facilities indefinitely). Finally, it is often assumed that the community will ensure distributional equity among its members, despite the clear evidence that communities are generally hierarchical with a highly uneven pattern of resource distribution.

Thus although community participation or mobilization is seen as essential, it is equally essential to use a gender-sensitive understanding of community participation. Special mechanisms will be required to promote the participation of women. Margreet Zwarteveen's paper contains an interesting discussion of difficulties women encounter in their efforts to be more involved in project organization and management.

The implementation of a gender-sensitive community participation approach is not easy. Some of the difficulties are highlighted in Deo Binamungu's review of the HESAWA (Health through Sanitation and Water) Programme in Tanzania. He describes a project that has had difficulty in involving women as actors, despite a strong commitment to community participation within the project and the existence of a gender policy and guidelines.

Several authors (Espejo and Kinuthia, for example) highlight the role of women's organizations, pointing out that these groups can be useful channels for women's input. It is important that these organizations not be seen just in an instrumentalist fashion to improve programme delivery or efficiency. Women's organizations can also strengthen the ability of women to define their own needs and participate solving broader social issues.

### **3.5 From a "Technical" Problem to a "Technical/Social" Issue**

When water issues are seen primarily as technical problems requiring technical solutions, numerous problems arise. Kathleen Cloud's reminder that irrigated water management involves more than the management of water (it also involves the management of people, funds, equipment, information and political relationships) is valid across the entire range of water resource management issues.

When people are left out of the equation, water systems often do not meet the needs of women or men and are not sustainable. Mayling Simpson-Herbert describes a situation in Botswana where the establishment of the physical infrastructure of water delivery was not sufficient to guarantee health benefits that were supposed to result from the improved water supply. Although the access to water had improved, an attitude and practices study revealed that water-related hygiene practices in homes were not good.

Difficulties can be identified at two levels: first the definition of the "problem" can be cast principally in technical terms and second, the importance of community participation can be recognized in the programme design but not followed through during implementation stages.

Examples of this first type of difficulty come from Helen Thomas and Christine van Wijk. In her discussion of building gender strategies for flood control, drainage and irrigation in Bangladesh, Helen Thomas points out that the analysis of the water resource sector is usually presented in technological or physical/environmental terms. "Until very recently, there was almost no inclusion of the political or socio-anthropological factors that govern the impact of and interaction between technology, the environment and the people whose entire lives revolve around the awesome forces of water in Bangladesh."(p. 5) Within this discussion, Thomas maintains, women's roles and contributions have been under-valued.

According to Christine van Wijk, even in the field of sanitation, emphasis is still on coverage targets and related goals of hygienic use and the proper maintenance of facilities. She points out that "far less attention is paid to the development of capabilities of local men, women and communities to make their own improvements, and to the development in sanitation agencies of the attitudes, skills and knowledge to provide the assistance for such an approach." (p. 15).

Examples of the second type of difficulty are found in the papers by Beth Woroniuk and Eva Poluha. Their reviews of both UNICEF's and SIDA's water programmes found that, despite the importance granted to social mobilization in programme planning documentation, this element was weak during implementation. Community participation is more difficult to bring about (and more difficult to measure) than drilling or construction.

One positive example was presented. Silvia Arrais outlines an innovative urban water supply programme that builds on both technical innovation and strong community participation. In Recife, Brazil, the municipal government has embarked on an ambitious programme to involve urban dwellers in the management of urban services. Through a

series of decentralized discussions involving municipal politicians, technicians/engineers, and residents, priorities are established for specific areas. Given the shortage of resources, water and sanitation programmes are built according to a "condominal" model which involves a less expensive infrastructure (up to 60% less) than a conventional structure and relies on a high degree of community organization. Companion programmes for the recycling of materials are also part of the initiative. Although women have played a positive role to date, Arrais comments that there is room for significant improvement in this area.

### **3.6 Technical and Professional Training for Women in the Water Sector**

The importance of an increased participation of women in the managerial and technical sides of water management is highlighted by a number of authors. Looking at the experience of a programme to supply drinking water to rural villages in Botswana, Mayling Simpson-Herbert relates that a shortage of women in technical positions was seen by programme planners as a major weakness. She outlines the set of recommendations that were developed to try to improve this situation. Tabeth Matiza also signals this shortage as a serious impediment.

The issue of professional women in the field of water and sanitation is explored by Morag Bell and Margaret Ince. They argue that an increase in the number of women professionals will have an overall positive impact as "evidence suggests that more attention will be given to the special needs of women at grass roots both within the sector and beyond." Over the last decade, they maintain, attempts to promote the participation of women in this sector have built upon broader debates in the development community.

These discussions have focused around national and international citizenship (and the growing recognition that the hiring of women can increase development efficiency), social justice and empowerment (hiring women as an equity issue), and the democratization of knowledge and management styles (the openness to new management styles often associated with women). These debates, maintain Bell and Ince, have all contributed to an improved general climate for professional women in the field of water and sanitation.

Yet despite these debates and this new openness, the experience of one training institution [the Water, Engineering and Development Centre (WEDC) at Loughborough University in the United Kingdom], demonstrates that there has been a delay between the development of rhetoric on female involvement in water resources management and an increase in the actual numbers of women being trained. They cite a number of areas in

which greater policy and funding emphasis could promote and produce higher female representation in professional cadres.

### **3.7 The Institutional Context**

The importance of a strong institutional WID/gender policy and organizational support for the integration of gender issues was explored by several authors.

In her analysis of UNICEF's WID Policy and its integration into water and sanitation programmes, Beth Woroniuk looks at the difficulty of integrating gender considerations into sector programming. She argues that despite a clear WID policy, UNICEF, as an organization, has failed to develop the supporting mechanisms to ensure its implementation. This failure, combined with an emphasis on the "technical" side of water and sanitation projects, led to the implementation of programmes that failed to recognize women's roles and responsibilities and that fell short of involving women to the desired extent (and even further short of the goals outlined in UNICEF's WID policy).

Eva Poluha, also reports that the existence of a gender policy is insufficient to ensure women's full participation in water programmes. Looking at water and sanitation programmes supported by SIDA, Poluha concludes that SIDA with its gender strategy and emphasis on community participation has made progress toward its most general goal of providing people with better quality water at a closer distance from home. Popular participation has also increased, however the involvement of women still remains weak, despite SIDA's emphasis on gender and development.

Poluha outlines three major causes for the limited involvement of women in the programmes she studied:

- people are not always aware of women's limited participation as gender disaggregated data is usually absent;
- decisions about water programmes usually take place at general community meetings where women's participation is often limited;
- positions created by the project are skewed in favour of men (men receive training and salaries as pump mechanics, masons, plumbers, etc. whereas even though women often receive training as pump attendants, these are rarely paid positions).

### 3.8 The Specificity of Each Situation

A final theme seen throughout the papers is the importance of applying a gender perspective in each sector or geographic location and not generalizing from one situation to another. Although trends may be similar across different areas it is important to understand the individual characteristics of each specific set of circumstances.

Linden Vincent's paper on gender and river basin management is based on this idea. She avoids making statements that describe all river basin examples:

My own feeling is to avoid sweeping generic claims about what women do in water resources, about the existence of gender roles and biases in river basin planning, or where these lie. Such claims can polarise views about the roles women can and should play, and may inadvertently allow governments and donors to narrow the field in which they direct special initiatives to involve women. What we can say with certainty is that river basin planning can be improved by attention and action on gender issues in different parts of the water sector, but that these will vary regionally. (p. 11)

Instead, Vincent outlines a series of questions that could be asked in five different areas of river basin planning: water rights and legal contexts; the nature of catchments; water sources, water users and water uses; the planning and allocation process; and river basin planning under public sector financial reform.

The importance of flexibility and the need to consider the specific of each situation from another angle is mentioned by Eva Poluha. She explains that local variations in the relationships between men and women have to be considered. "In every community it is necessary to find out, from the women themselves, what they want to do and how they want to be involved." (p. 31)

Furthermore the papers highlight differences across regions and demonstrate that assumptions from one continent cannot be carried to another. The state of women's organizations and the nature of women's participation in community activities is not the same in various parts of Africa as it is in Latin America, as can be seen in the differences outlined by Kinuthia, Matiza and Binamungu versus the examples of Espejo and Arrais.



## 4.0 Strategies for the Future

### 4.1 Merging Water Resources Management and Gender Analysis

The adoption of a gender analysis in a specific sector or field is amazingly simple and paralytically complex. Simple, because at an initial level, it merely involves the understanding that the population or community is not homogenous and that men and women experience the world differently, do different work, have different responsibilities and have differential access to resources. Diane Elson and Frances Cleaver outline two keys to the achievement of greater gender awareness in sectoral planning for water resources:

- 1) understanding that actors in the sector are differentiated by gender
- 2) understanding that policy instruments have different implications for men and women. (p. 12)

Yet, it is also complex (at times to the point of paralysis and inaction), as it is difficult to draw out and act on the implications of these basic statements. First in order to understand the different impacts by gender, the focus of the development initiative must be people. If development is seen as a series of technical issues, then it is difficult to move community participation past perfunctory lip service. If the primary target of water resources management is water, and the field fails to consider water users in general, then it will be just as difficult to talk about women's involvement as it is to talk of men's involvement. Second, data disaggregated by gender is not always available to planners or project workers.

Third, a clear understanding of the specific sector and region is required. Advocates of a gender analysis often phrase their advice in very general terms ("a gender perspective should be adopted", "all gender-related issues should be specified", or "a gender analysis should be integrated into all aspects of the project"). Planners (often with technical backgrounds and training) lack the experience (and in many cases, the interest) required to convert these general exhortations into specific programme or project elements. Thus there is also a need for proponents of a gender analysis to become more sophisticated in their analysis and develop concrete examples from all aspects of water resource management. Zwartveen's paper argues:

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\*For example, Eva Poluha, in her study of SIDA-supported water and sanitation projects, discovered that this information was not routinely included in project documentation at SIDA headquarters.

while it is true that irrigation planners and engineers seem to make few real efforts to address and accommodate gender, gender professionals have also done a poor job in making themselves understood by irrigation professionals. Irrigation professionals and professionals dealing with gender related issues speak completely different languages, they have different objectives and they have entirely different conceptions of the reality of the irrigation world. (p.2)

An open dialogue between water resource professionals and gender specialists could be very fruitful. A number of authors point out the importance of developing multi-disciplinary project and programme teams with the goal of bringing the different forms of expertise together.

The papers demonstrate that a considerable amount of work has gone into the documentation of the roles and responsibilities of women in domestic water supply and sanitation, however there are still significant gaps in other areas of water resource management. Documentation of the implications of a gender analysis in these other specific situations would provide useful information.

## **4.2 Gender-Sensitive Community Development**

Involving the affected population in all stages of the water programme continues to be both an important strategy and goal. There is an ongoing need to develop specific mechanisms to ensure the participation of both men and women, not merely as beneficiaries, but also as vital actors and architects. This particular set of papers highlights the importance of developing a clear understanding of the different components and dynamics of each community, with an emphasis on gender differences. Understanding the roles and responsibilities of men and women will increase the basic effectiveness of the programme. Understanding these gender roles is also of importance to those with the more ambitious goal of building equitable relationships between men and women. Building on these insights implies that special measures to promote women's meaningful participation are an essential part of any programme.

While not diminishing the importance given to community mobilization and participation, there is an important caution not to overestimate what the "community" can accomplish or assume that it has a natural internal equality. Development workers should be careful not to see community participation as the marvellous key that will magically unlock the puzzle of development sustainability and effectiveness. The inherent difficulty of outsiders facilitating a true process of gender-sensitive, democratic, cost-effective, sustainable community involvement is also clearly demonstrated in this set of papers.

### 4.3 Institutional Development

One of the questions that emerges from this collection of papers is "if there are so many good reasons to adopt a gender analysis and to involve communities in meaningful ways, why does it happen so rarely?"

While this question requires more study, Zwarteveen offers an important insight from the field of irrigation. Professionals working on gender issues, she argues, often fail to understand the mandates and capacities of irrigation management institutions:

The little success achieved so far in making irrigation planning and management more gender sensitive can be partly attributed to wrong expectations about the capacity of existing irrigation management institutions to respond to new demands. Too much emphasis so far has been given to what is desirable (empowerment of women) and too little to what is possible. (p.14)

She points out that the main task of these institutions is to deliver the right amount of water at the right time to the right place and thus to ask them to be interested in women's empowerment (let alone expect them to have the capacity to do something about gender inequities) is unrealistic.

While this observation may hold for local institutions with limited mandates, it does not explain the inability of donor agencies and larger institutions to move on gender issues. These organizations have explicitly adopted the commitment to integrate gender considerations into their work.

Future exploration of the institutional or organizational level could prove fruitful. Programmes and projects are carried out by people working within institutions. Organizational practices, norms, structures and procedures have a significant influence on the conception and implementation of water programmes. Several papers point out that the existence of a gender policy is an insufficient condition to ensure the incorporation of gender considerations in water programmes. Thus a greater understanding the institutional context may yield important insights. Numerous questions could be raised, for example: are there institutional barriers that work against the implementation or mainstreaming of a gender approach? are there institutional mechanisms that could be developed to facilitate the implementation of this type of policy? what are the basic institutional prerequisites? how do organizations change and adapt to incorporate new learnings?

LIST OF PAPERS AND PRESENTATIONS FROM THE WORKSHOP  
"GENDER AND DEVELOPMENT,  
MANAGEMENT AND UTILIZATION OF WATER RESOURCES:  
LESSONS LEARNED AND STRATEGIES FOR THE FUTURE"

I. Papers

Sinikka Antila and Eero Kontula, *FINNIDA Experiences*

Silvia Cavalcanti Arrais, *Gender and Sanitation Programmes in Urban Areas*

Morag Bell and Margaret Ince, *Women Professionals in Water and Sanitation Development: The WEDC Experience*

Deo Binamungu, *Towards Gender-Responsive Planning in the HESAWA Programme: A Critical Review*

↘ Kathleen Cloud, *Irrigated Water Management: A Gendered Analysis*

Diane Elson and Frances Cleaver, *Gender and Water Resources Management: Integrating or Marginalizing Women?*

↘ Norah Espejo, *Gender and the Management Of Drinking Water Supply in Low Income Urban Communities in Latin America*

↘ Irene Guijt, *Water and Gender on the Agenda: A Review of Water Resource Management and Gender Issues in Agenda 21*

Cecilia Kinuthia, *Gender and Management of Water Resources in an Environment of Scarcity*

Fabiano Kwaule, *Gender and Peri-Urban Water Supplies in Malawi*

Jan Lundqvist, *General Introduction to the Concept of Water Resources Management*

Tabeth Matiza, *Gender and Wetlands Management: Issues and Challenges in Southern Africa*

Eva Poluha, *Gender, Water, Environmental Health - An Inventory of SIDA-Supported Programmes*

Mayling Simpson-Herbert, *Gender and Management Issues in the Water Sector: Women and Management, the Case of Rural Botswana*

Helen Thomas, *Building Gender Strategies for Flood Control, Drainage and Irrigation in Bangladesh*

~ Christine van Wijk, *Gender Aspects of Sanitation, The Missing Slipper of Cinderella?*

~ Linden Vincent, *Gender Perspectives in River Basin Planning*

Beth Woroniuk, *Against the Current: Mainstreaming, Women and Water in UNICEF*

~ Margreet Zwarteveen, *Gender and Irrigation Management: Issues and Challenges*

## II. Presentations that were not accompanied by formal papers

Deo Binamungu, *Gender Training*

Rehka Dayal, *People's Participation in Rural Water Supply: Experience from South Asia*

Rehka Dayal, Bruce Gross & Burjana Bulajich, *Experiences from UNDP/World Bank, INSTRAW & the Collaborative Council*

Irene Guijt, *Gender and Mangrove Swamp Management*

Irene Guijt, *Gender and Participatory Rural Appraisal*

Mercedes Juarez, *Gender, Environmental Health and Sanitation in Latin America*

Mayling Simpson-Herbert, *SARAR Methodology*



# **FINNIDA Experiences**

**by**

**Sinnika Antila and Eero Kontula**





Ministry for Foreign Affairs  
 Finnish International Development Agency  
 FINNIDA

Workshop on Gender and the Development, Management and  
 Utilization of Water Resources, Lessons Learned and  
 Strategies for the Future, Stockholm 1-3- December, 1993

#### FINNIDA Experiences

Presentation in the Workshop by

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The part I of this paper will briefly describe the results of the recent review of FINNIDA Water Supply and Sanitation Project and Programmes which was carried out in order to learn how gender aspect was integrated into them. Part II will go in more detail in explaining the experiences of one of the urban case- studies, Hanoi Water Supply project.

#### PART I

##### 1. BACKGROUND OF THE REVIEW OF FINNIDA WATER SUPPLY AND SANITATION PROJECTS

As part of FINNIDA's task of providing practical tools of guidance to its staff, a review was carried out in July-August 1993 to study how the gender aspect had been integrated in seven water supply and sanitation (WSS) projects and programmes of FINNIDA. The following seven projects/programmes were reviewed:

- Tanzania: Mtwara-Lindi Water Supply Project
- Zanzibar: Urban Water supply Development
- China: The Wuhan Waste Water Treatment Project
- Kenya: The Kenya-Finland Western Water Supply Programme
- Sri Lanka: Kandy District Water supply and Sanitation Project
- Vietnam: Hanoi Water Supply Programme
- Nepal: Rural Water Supply and Sanitation Project in Western Development Region.

The review was undertaken as a desk-study by Dr. Mary Rojas, with technical guidance from WIDAGRI Consultants Ltd. The purpose of the review was to draw lessons learned from FINNIDA's own experiences and on that basis as well as on international experiences to prepare a practical guide to help those personnel who are involved with the preparation, implementation and monitoring of water supply and sanitation projects and programmes, both rural and urban. The review also prepared immediate observations/conclusions on the seven projects reviewed. The part I of the present paper is mainly based on the report of the review by Dr. Rojas.

## 2. GENERAL CONCLUSIONS AND OBSERVATIONS OF THE REVIEW

### 2.1. NEED FOR COMMUNITY PARTICIPATION

FINNIDA experience confirms that true community participation is needed, especially for the following two reasons:

1. Sustainability of water supplies requires community management

2. Community participation is needed to create the necessary link between water and health: The experience showed that the link was not automatic and provision of clean water without hygiene education did not improve the health status of the people. (Example: It was observed by the Nepal WSS project that water use was purely ritualistic and naturally not satisfying the hygiene purposes.)

#### Gender Analysis

Using community participation to assure the sustainability of water supplies and to make connections between water and health assumes participation of men and women at the local level. It also assumes that the capacity of the community to manage their water supplies includes the talents of both men and women and that the institutions that support community participation reflect the interests of both men and women. In order to be able to identify the different interests and needs of men and women in the community, gender analysis is needed to be applied throughout the process of preparing and implementing WSS project, based on community participation. Thus gender analysis partly uncovers the information that women-in-development has long documented on the crucial role of women in WSS, but it also stresses the need to include men in sharing responsibilities concerning household WSS, like e.g. in hygiene practices.

Thus one evidenced benefit for using gender analysis is that it brings men in the picture. Example: The Finland-Kenya Western WSS Project found in a survey that women were paying 74.7 % of the water supply maintenance fee and men were paying 24.3 %. Focusing too much on women might have an passivating effect on men: they did not feel responsible for anything linked to household water anymore.

#### A New Face for WSS

Community participation, gender analysis and women and development can change the face of WSS projects and programmes and the institutions and policies that support them. "Construction first" reflex applied by many engineers implementing WSS project needs to be adapted to the demands of community participation. This may sometimes mean even revolutionary changes in thinking and in behavior. Non-traditional skills are introduced: The Kenya WSS project reports "The choice of women as pump attendants was surprising to many people in the rural area of Kenya where tasks are highly segregated...It didn't occur to a man that a woman can know what he knows or learn anything." Urban and rural WSS projects have their own features with respect

to community participation. The new thinking requires institution building and new policies.

## 2.2. ENABLING ENVIRONMENT

Enabling environment for inclusion of gender aspect to WSS projects and programmes requires policies at all different levels as well as institutions which are supportive of community participation, gender analysis and involvement of women.

### Enabling Policies

#### The International level

One example is the International Drinking Water Decade. One of its eight lessons was: Women need to be included, because they are the water managers. Women are also important as professionals in WSS. Both of these objectives are seen as a way to sustain water supplies and make links to sanitation and health.

#### The Donor level

For example FINNIDA Policy Paper "The Role of Women in the Finnish Development Cooperation" states the general principle of promoting women's economic and social development and notes that "Women, in spite of their central role as the main water users and collectors of water, rarely take part in planning and implementing water projects from the beginning." The FINNIDA Project Design Guidelines as well as the Practical WID Programme sets the requirement of using gender analysis as a systematic part of project design and implementation.

#### The National level

Example: One policy of His Majesty's Government of Nepal in water supply and sanitation sector is "People's participation to the maximum extent and women in particular in all aspects of planning for, providing and maintaining water supply systems and sanitation facilities."

#### The Local level

It is important that the project sets a clear policy on women's participation, because experience has shown that unless explicitly targeted, women often are overlooked. The Project document for Phase I of a WSS project in Nepal makes it clear that "As many project issues address the tasks and role of women their special requirements shall be paid due attention. Gender-specific questions shall not have a separate status but be integrated in the general project planning and implementation."

### Enabling Institutions

Institutions involved in WSS must be supportive of community participation. A WSS project in Zanzibar stressed the importance of creating enabling institutions for women

by stating that "The participation of women in all training activities of the project must be emphasized. This does not mean only education at the community level, but also improvement of professional capabilities and the employment situation of women."

### 3. THE RURAL CASE - MTWARA-LINDI WSS PROJECT

There were several rural cases among the reviewed WSS projects and programmes. The Mtwara-Lindi WSS project in Tanzania has been chosen as the case here, because of its longevity, experience and similarity to other rural projects. It provides an excellent example for examining the inclusion of women in rural water supply and sanitation projects. The Chronology of the project is as follows:

#### 1. The Beginnings

The Project started in 1972 with the development of a regional water master plan and a feasibility study. The implementation was vested with an engineering firm and its main objective for the most of its lifetime was the construction of water supplies in rural areas. As a consequence, when the project commenced, no socio-economic or socio-cultural study had been conducted in the area, although some general data gathering was done. In fact, the first socio-economic study was conducted only after 14 years into project.

#### 2. Rural Women Introduced

In 1984, influenced by the United Nations Decade for Women, a FINNIDA-financed study was conducted on the effects of the Mtwara-Lindi project on the lives of women. The results of the study were as expected: a) that women's participation in the planning and implementation of the project had been very low and, b) that the proportion of women in the project training had been minimal.

At the same time, there were several other studies on the effects of Finnish development cooperation on Tanzanian women. However, the subsequent Mtwara-Lindi project documentation at no time refers to these studies in any substantive way.

#### 3. Rural Women Targeted in Project Documents

The Project Document for Phase IV of the Mtwara-Lindi Project assumed a strategy according to which "special efforts would be made to involve women in all stages and aspects of the Project, particularly in planning and maintenance of water supply and sanitation systems as well as health education." There is, however, little evidence of special efforts actually made.

#### 4. Participation of Women Stressed

In 1987 it was noted that some 50 % of the water supplies were not functioning. The Evaluation Mission of 1987 gave a statement about women's participation: "Efforts to improve

water use practices in the villages should have the support of the women in order to be successful." The mission expands the argument to another point "to encourage the participation of women, at all stages of water supply development from planning through implementation to operation and maintenance, is to be endorsed...If the Project fails to inform and involve this level adequately little actual benefit can be derived from the water supply facilities development however high their technical capacity."

#### 5. From Rhetoric to Practice: A Slow process

Despite the strong statements by the Evaluation Mission on the participation of women, there is no mention on women in Phase V Project Document for 1988-1990. There were efforts to include women, but often too late, like how it was reported on the village water committees: "women were involved at later stages when the Village Water Committees had already received their training for the project, thus rendering women committee members disadvantaged."

In the final project phase 1991-1993, gender analysis is applied to distinguish women's crucial role and women are included explicitly in the project document as a target group:

"Women of the region, as the main users of water, will be a special recipient group, and the success of the Project will greatly depend on their attitudes and participation. Being responsible for the hygienic handling of water and for the hygienic habits in homes they play a decisive role in the achievement of the health related objectives of the Project. In the present situation, economic development that can be foreseen to result from the improved water supply situation will be achieved mainly by the release of women's energy and time from long-distance water fetching to more productive activities."

Finally also the project reports from the last VI phase indicate that systematic strategies for involving women are being put in place, for example:

- community participation manual to reach women are included in the syllabus of a community participation course
- a special course on women, water and sanitation is offered
- the role of women in village participation is considered at some length
- the statistiques are beginning to be disaggregated by sex.

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### **Lessons Learned: The Rural Case**

- 1) It is essential to include community participation in water sector projects during the preparatory phase of project development, using gender analysis to help in the construction of strategies and indicators for reaching women. These strategies and indicators should be consistently monitored and evaluated.
  - 2) In selecting an engineering firm for a water supply and sanitation project attention must be given to the firm's understanding of community participation, gender analysis and women and development.
  - 3) Many projects, including the Mtwara-Lindi Water Project, have available excellent studies on women within the project region. Project personnel should read and make use of them and they should be available for evaluation missions.
  - 4) If the role and status of rural women is given priority in a project, the role and status of women as managers and professionals within the project should be examined. The project structure should reflect the project's goals.
  - 6) FINNIDA funded projects need to address the equity issues inherent in working with women in rural societies, "Thus as well as aiming to achieve the concrete benefits for women of reduced burden and improved health, water supply projects should also have the objective to improve women's position and status in rural societies, through involving them on equal terms as men." (41)
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#### 4. THE URBAN CASE: HANOI WATER SUPPLY PROJECT

##### 4.1. RURAL VERSUS URBAN WSS

Generally, it seems to have been easier to recognize the importance of community participation in rural water supply and sanitation project than in the urban, large-scale engineering projects, designing and building treatment plants and installing piped water systems for hundreds of thousands of residents. Also, through gender analysis, the important role of women in water management in rural societies has for long been recognized, unlike in urban areas where it is only now started to be defined. As a consequence, many urban projects, like the Hanoi one, apply no true community participation. The reasons for this in the Hanoi case were basically the following:

1. There was a need for an urgent improvement of the systems by putting in place new water treatment plants, new pipelines and new house connections. As the project puts it: "As the poor water supply situation in Hanoi called for immediate improvements, a "crash" programme approach was chosen..."
2. Engineering firms design and implement urban water supply projects and they often lack the expertise in community participation and mobilization, not to mention gender analysis.
3. There is not much experience in using community participation with large urban projects and often project staff are unsure how to do about it.

##### 4.2. CHRONOLOGY

The Project started in 1985 and the two first phases concentrated in the technical rehabilitation, upgrading and extension of the water supply system of the City of Hanoi. The Phase III revised the project strategy to achieve more of a balance in "establishing a technically sound water supply system, serving the people at an affordable level of service, institutional development and the overall socio-economic and environmental impact of the project."

The Project recognizes the need for more community involvement : "The problems and lack of consumers involvement was recognized in 1989. The sustainable water supply and sanitation systems require the full commitment of the users of those systems, as they have to assume an active role in the rehabilitation of internal installations, in ensuring proper use of systems, and in taking remedial measures against vandalism and illegal connections which often occur when improvements are perceived as inadequate or too slow. Until now the consumers have not contributed financially to the improvement. The more socio-economic and consumer oriented approach will be developed during Phase III."

Consequently, Phase III of the Hanoi WSS Project has a component to strengthen the information and education for water consumers and to involve consumers. The achievement indicators are: 1) "Increased awareness of general public and water consumers on the policies and strategies of the

programme and 2) Increased involvement of consumers in the programme defined."

#### Public awareness campaigns

The project began the public awareness campaigns, but no progress was made on the involvement of consumers. The impact of this type of short-term public awareness campaigns can be restricted and it is recommended by the new socio-economic study that more more permanent ways of transferring information for the consumers be developed.

#### Socio-economic study

A socio-economic study was conducted, which also confirms the need for further involvement of the consumers and emphasizes the role of women: "Women are the main water users, contributing altogether to over 70 % of water usage. This is quite obvious, as they are usually responsible for preparing food, washing clothes and cleaning the house. Women are also more often paying the water bills, as well as in contact with water supply company's staff." It further recommends: "As women are the most important water users, any information and education on water usage should be designed and directed in such a manner that it is attractive to them. It seems that the water supply project and the water supply company should evaluate their activities according to their gender-specificity, and in case such gender-specificity may be identified, to revise the actions/plans/strategies accordingly. This is relevant especially in issues related to information, education, and fruther studying of water usage."

### 4.3 HOW TO ACHIEVE TRUE CONSUMER PARTICIPATION ?

The consultant reviewing FINNIDA WSS projects suggested at least the following aspects to be clarified and decided upon in order to be able to advance towards true participation of consumers:

#### 1. The Plan

A plan should be elaborated on how to proceed with the consumer involvement.

#### 2. The Personnel

The Project team should be complemented by a member skilled in community participation based on participatory approaches, including gender analysis. It is also important to identify counterparts who can work continuously with the project in its community participation component.

#### 3. Preparation

Preparation of the community participation should include a review of all the existing literature and research on local socio-cultural background and the role of men and women in the project area. Local organizations working with local people should be identified and consulted. Systematic



rapid urban assessments should be conducted and data should be collected disaggregated by gender.

#### 4. Policy

The project should adopt a clear policy on community participation as a process and a philosophy. Its content should be tailored for the Hanoi WSS Project.

#### 5. The Implementation

The implementation would then include components, like media campaigns, institution building, socio-economic studies, and strengthened consumer involvement, perhaps first in selected pilot areas to test and to learn of the approach.

Part II will go in more detail to the problematics of the Hanoi case study.

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### **Lessons Learned: The Urban Case**

- 1. Even if "crash" water supply construction is needed urgently, a community participation plan, based on gender analysis and the realities of the urban area to be served, should be developed at the inception of the project.**
  - 2. The engineering firm that is to implement the urban water supply scheme should be chosen for its engineering expertise and for its understanding of community participation, gender analysis, and institution building.**
  - 3. Often increased water fees and tariffs are an issue that demand an understanding by the engineering firm implementing the project of water consumers, both men and women.**
  - 4. An urban project needs a gender and community participation expert as a team member from its inception to address community participation, environmental education, institution-building and consumer relations**
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## PART II

BRIEF ON THE CONDITIONS, ENVIRONMENT AND EXPERIENCES  
OF HANOI WATER SUPPLY PROJECT

At first glance Hanoi water supply programme seems to be a straight forward urban water supply project where the task is to improve the distribution of potable water from wellfields to consumers. It was assumed that the consumers will be satisfied when provided a certain amount of good quality water and that will solve all the other problems.

After ten years of development inputs nothing looks so straight forward anymore. The production capacity is increased to a level, which was expected to meet the need compared to any international standards. Anyhow the consumers are not satisfied, the service level is low, the water is not reaching the consumers in an eligible way and the operation and maintenance is neither financially nor environmentally sustainable. Today the question is how to brake the interlinked circle of water resources, pollution, satisfaction of consumers, water use habits, cost sharing as well as operation and maintenance of the water company. A more specific focusing on consumer relations and gender issues may be the solution.

## HANOI

Hanoi is a town with very special character and environment because of its location and history. Without understanding that it is very difficult to understand the project and gender issues related to the project.

Hanoi is a mix of rural, periurban and urban areas located on a delta area in a very specific ecosystem of irrigated rice fields, fishing ponds, lakes and rivers ( map 1 ). Administratively the City of Hanoi consists of an area of 2139 km<sup>2</sup> with a population of 3 000 000 inhabitants. The urban city area is about 50 km<sup>2</sup> with a population of 1 000 000. The population growth has been 2% per annum, but the development potentials and increased pressure on rural people may result in higher growth rates.

The urban area originating from the colonial days was developed along the right bank of the Red River. In recent years the urbanization has extended and there is pressure to overexploite the urban area by developing the recreational areas and ponds to housing and commercial areas as well as by allowing high rise houses.

The Red River is about 1 - 1.5 km wide in the vicinity of Hanoi. The fluctuation of the flow is considerable. The highest recorded water level of + 14.13 is well above the level of the city, which varies from + 4.5 to + 11.0. An embankment with a crest level of + 14.3 is constructed to protect the city from flooding.

## WATER RESOURCES

Hanoi is using groundwater. There are aquifers on two levels under the city area. The water of the upper aquifer is contaminated due to fertilizers, pesticides and seepage of drainage water. The water company is using the lower aquifer. The groundwater from the lower aquifer needs only minor treatment to be of acceptable quality. The aquifers are recharged from Red River.

The wellfields and their recharge are depending on pumping from each other in a complex way. A model has been developed to be able to measure the yields, recharges and subsidences of each wellfield separately as well as to monitor the whole aquifer. The estimated yield of the whole lower aquifer is 700 000 m<sup>3</sup>/d. The abstraction today is 500 000 m<sup>3</sup>/d. In certain wellfields overabstraction exists and subsidence is visible.

The estimated future need of water is increasing by 30 000 m<sup>3</sup>/yr, which means that within 7 years the source will be in maximum use. The water of Red River is salty at level of Hanoi. The nearest unsalty surface water source is 100 km upstreames.

## WATER USE

There is a difference between the amount of water produced and recorded for consumption. Production figures give an average supply of 300 l/ca/day for households and institutions. The sosio - economic survey anyhow revealed an average consumption figure of 100 l/ca/day during summer season and 70 l/ca/day during winter season at households with house connections.

The water is usually not metered so the figure given by the consumers is only their estimate. The water is billed based on flat rate. In most cases the consumers believe that the flat rate is based on a too high consumption estimate. 25% is using public taps, where water is free.

A consumption figure of 100 l/ca/day seems correct and sufficient compared with the standard of water using equipment in households.

50% of the households have a toilet but only 5% shower or washing machines.

The figures show that water is wasted. Some of the wastage is due to leaking distribution pipes and negligence in repairing them but also the households are wasting water without thinking that it is part of their consumption. Very often the leakages from internal pipes are not in anybody's interest.

One source of wastage are the public taps. There is a strong opinion that the free water from taps together with unregular supply is creating a careless habits in use of water.

To reduce the wastage of water and improve the water use habits are the core problems to be solved in order to secure an economically and environmentally sustainable water supply.

## HANOI WATER SUPPLY COMPANY

The company has been established to operate and maintain the water production and distribution. The company is not an independent company, but a department of Transport and Urban Public Works Service under Hanoi People's Committee. It has the right to make consumer agreements and collect revenues, but it can not invest.

In earlier years the company was subsidized by TUPWS. Now the subsidies system has been abandoned and the target of self-financing has been set to the company. This has left the company in an awkward situation. The company has no own depreciation money for maintaining and replacing the fixed assets or for investments and no subsidy, but taxes to pay. To make the situation even more worse the company has no power over tariff policy.

Most of the running costs is created in production i.e. in pumping and treating the water. In general the energy and chemical costs stands for 70% of the recurrent costs. The company is also in need of money for rehabilitation and extension of the reticulation network. An open issue is the investment in water meter, house connections and internal appliances. At the moment the company is not in a position to invest and later collect from the consumers. The target of the company is to operate on self-financing terms and covering 40% of the investments by the end of 1994, but it seems unrealistic.

The estimated need for investments are about 7 000 000 USD/year for the next 20 years.

The level of water supply is considered by the consumers inadequate. The main problems faced by the consumers are:

- acute shortage of water 15.4%
- irregular supply 36.4%
- poor network pressure 59.4%
- inadequate quality 21.2%

Anyhow the service level, tariffs and investment policies will influence very much the water use habits and access to water supply of the households.

## PUBLIC HEALTH

The personal and food hygiene are on high level in Hanoi and serious epidemics of water borne diseases have been avoided. Drinking water must always be boiled according to the local tradition.

In terms of health indicators, clear difference between the old and new network can be seen. In the old network as much as 22% of the households had suffered during the last two months of typical water-related disease, whereas in the new network the percentage of morbidity level was 7.3%.

Level of sanitation and waste disposal affect the hygienic safety

or the water supplies. At the moment about half of the population has a water toilet others using double septic tank toilets or pit latrines. The sewage from the households is channelled to the lakes, rivers and ponds through underground sewers or ditches by the road. In the oldest part of the city sewage flows by the streets in open small ditches, which create acute health problems. During heavy rains the sewage spreads all over the streets, and as the pressure is almost nil in the old network, water may easily infiltrate to the water supply network. Especially the open or poorly protected "wells" or pits constructed by the households themselves are in danger to get polluted. Through them pollution can easily penetrate also to the whole water supply network.

Wastes are also often found in the surroundings of water points and taps. This endangers also the safety of the system.

#### ENVIRONMENTAL DETERIORATION

The environmental risks are related to the pollution of Hanoi waters in various phases of the hydrological cycle:

##### Water resources

- risk of pollution of Red River due to domestic and industrial waste water upstream of Hanoi and intrusion of polluted water to ground water
- risk of pollution of Red River due to biocides or fertilizers, eutrophication of the river and intrusion to ground water
- floods due to increased sedimentation

##### Raw water

- pollution of different layers of ground water by intrusion of contaminated surface water; microbiological and chemical
- change of ground water conditions due to oxygen consumption and dissolving iron and manganese to water
- change of ground water conditions due to overexploitation causing permanent draw down, insufficient water quality and soil subsidence

##### Consumption

- microbiological contamination of water storage tanks of houses due to poor water use habits or undeveloped hygienic conditions
- uncontrolled private water supply or draining of industrial waste waters making the chemical pollution of lakes and ponds possible and overloading the ecological self purification capacity
- reduced aquatic ecological capacity and hydraulic capacity due to waste water load and failure to harvest aquatic production

##### Agriculture/aquaculture

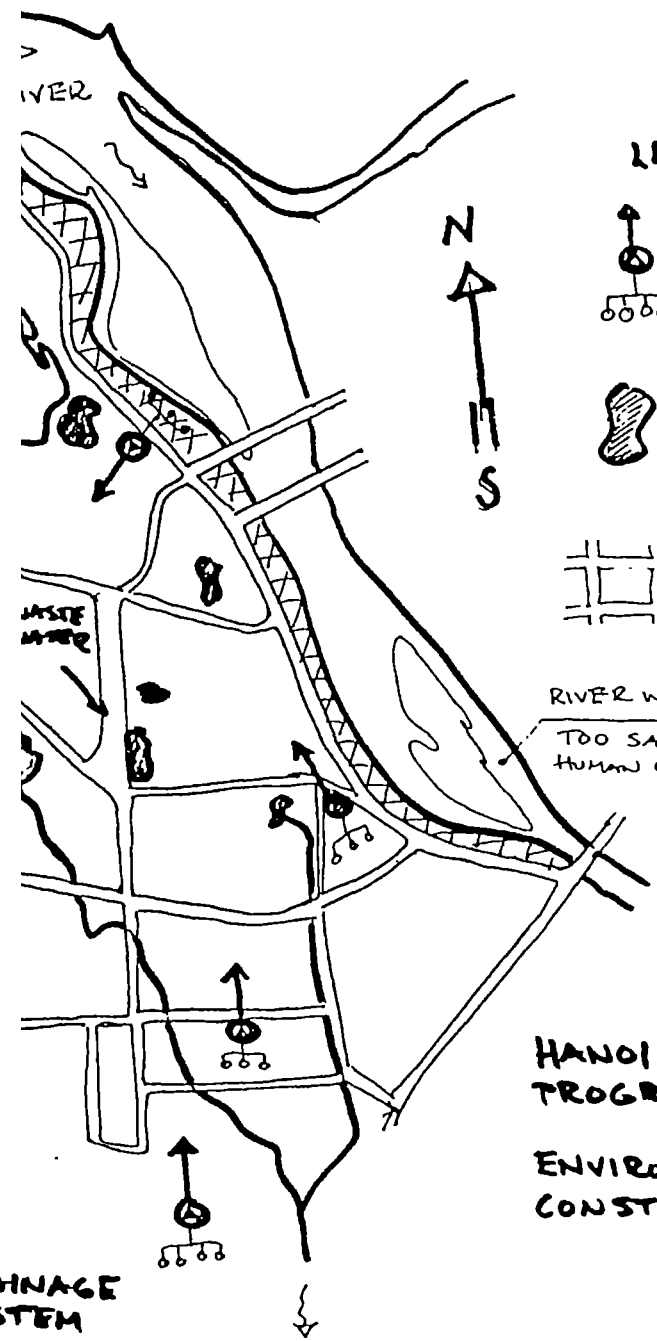
- practice to use fresh excreta and sludge from septic tanks in fields and aquacultural ponds without proper biological stabilisation
- tradition to store nutrient containing water for irrigation and aquaculture in the suburban areas increasing infiltration of polluted water and accumulation of surplus nutrients
- big amounts of artificial fertilizers from fields to surface waters near ground water wellfields

## KNOWLEDGE AND INFORMATION ON WATER SUPPLY



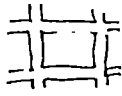
At the moment the overall level of knowledge on water supply issues as well as on the services and procedures of the water supply company is rather poor. As much as 34% of the interviewed consumers had no idea upon the services of the water supply company. The functioning of a water supply system was poorly understood and there is a great need of improvement in the understanding of saving and hygienically safe way of using water.

People had got most of the information concerning water supply and sanitation through the local authorities, either directly from the representatives of the local cadre or the water supply branch, or through the local information systems mainly local radio.

Most of the information is the official information, which is biased. No open dialogue between the company or people's and consumers do exist. A hot line to the consumer relation office is opened and proven popular dealing with minor brake downs. The open discussions concerning tariffs including the cost of water and house connection policies as well as the efficiency of the company are still on a waiting list.



### LEGEND

-  WELL FIELD AND PUMPING TO SUPPLY
-  PONDS USED TO STORE DRAINAGE WATER AND FOR AQUACULTURE
-  BLOCKS FOR HOUSING OR INDUSTRY

RIVER WATER  
TOO SALTY FOR HUMAN CONSUMPTION

HANOI WATER SUPPLY PROGRAMME

ENVIRONMENTAL CONSTRAINTS

DRAINAGE SYSTEM



**Environmental Hygiene, Health Education and  
Sanitation - Gender and Sanitation Programmes in  
Urban Areas**

**by**

**Silvia Cavalcanti Arrais**



ENVIRONMENTAL HYGIENE, HEALTH EDUCATION AND SANITATION

GENDER AND SANITATION PROGRAMMES IN URBAN AREAS

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11/20/1993

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# GENDER AND SANITATION PROGRAMMES IN URBAN AREAS

## SUMMARY

### 1 - INTRODUCTION

### 2 - CITY HALL WORK

Social politics  
Priority action  
Main Programmes/environmental hygiene and  
health education

General Programme -City hall everywhere  
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-Selective refuse collection

### 3 - EVALUATION - Problems/difficulties/gender

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Limits of institutional vision/gender issues  
Evaluation of women participation

### 4 - PROPOSITION - A gender approach

An analytical view  
Experience: a surmount strategy

### 5 - FINAL CONSIDERATION

## 1. INTRODUCTION

The City of the Recife, Capital of the state of Pernambuco, is situated at Northeast of Brazil. This is a littoral city that covers 209 square kilometres of a hot and damp weather and presents a temperature between 25 and 30 degrees C.

A high politic and economic centralization of the nation, has strong reflections on the poverty and dependence of the city, especially on the Northeast region, one of the most precarious of the country; the wage of 70% of this population is around USD 60,00 per month.

So, Recife, as the majority of the Brazilian cities, is characteristic by the small amount of sanitary systems and services, with many completely destitute areas of any kind of basic sanitation.

The high incidence of hydraulic transport diseases, as the recurrence of eradicate epidemics, like cholera, reinforce our preoccupation and the investigation of alternative solutions for draining, water supply, sewerage systems of urban cleaning, in intending to put full service rendering in perspective, for a more complete comprehension of the environmental problems and a real improvement of the quality of life.

A serious aggravation of the environmental questions in Recife is its draining system, because of its origin, from uncontrolled landfill in low quotes and its rivers, channels and swampy altes where most of the sewer is threw.

In this context, passing over one of the most serious national crisis, in socio-economical and politic-institutional aspects, and confronting the cruel reality of having no more than 20% of its urban areas have a basic sanitation infrastructure, and more, in face to the failure of the conventional solutions, it becomes indispensable of the development of appropriated and low cost technologies, with a democratic methodological conception and management in partnership.

It is also important to consider such a posture finds a strong resistance, from the own institution, or in result of our cultural characteristics which keeps the people arrested on a paternal vision of the state, don't moving towards change.

As a result, the population needs to create a new behaviour, awaking every one to a conscience of responsibility and rescue of their citizenship.

It is remarkable, in all aspects, a higher sensibility and effective participation of women, in a growing and constant movement, which potential have not been developed by the institutional power.

## **2. CITY HALL WORK**

Inserted into this context and moved by propositions of transformation, the actual staff of the city hall, invest on reducing the serious environmental problems, by introducing, infrastructure and public services, especially those in relation to draining, sanitary sewerage and urban cleaning following the determination of the organic law and of the director development plan of the city, the municipal power is conducted by directives and social politics of large participation, through decentralization and regional division, by developing all the actions into a general programme of partaking management, involving all the organisms in a planning and operating process, integrated with the needs of the community, in plenary sessions.

### **- The programme "The city hall everywhere"**

The city is divided in six political-administrative regions; every six months, systematically, all the staff, loaded by major discusses in all the regions its problems and the actions to be realized in the period.

In function of the issues, smaller groups are created, where technical propositions are discussed.

At the infrastructure group, all the needs and possible solutions are debated and integrated, in relation to the civil construction or public services for the city.

Together, people and power, define the priorities to the further action.

This process promotes a slow but progressive take of conscience of the environmental importance based of the choice of the more serious problems and by the participation level of the community to reach, the solutions.

That is a first approach to the environmental hygiene and health education.

## **OPERATION**

1. Sessions with the mayor and its advisory region, every six months to discuss:

- The last months expenses relator;
- The financial programme for the next months;
- The realized work (actions evaluation);
- The work to realize, over people requests(planning);
- The efficiency and the participation way.

2. Sessions with the technicians in every region, every two months, to make:

- The structure to follow and monitor to control the services and work.
- A general evaluation of the quality of the work and its consequences and maintenance.
- Into this process should be the representatives of the municipal council but they hardly participate, only sending their requests (also considered).

- So, the main participants are the representatives of the popular organization which in future will constitute the regional councils (as an official participation channel). That will compose the Municipal Planning System now integrated by councils (health, education, infrastructure) and by an urban development council for according to the general politics (according to the director development plan).
- About 120 entities take part of the program in each administrative region.

The program, based on articulation and partnership, obeys to the sectorial determinations, in order to open processes which determine the participation into the specifics projects.

## **SANITATION PROGRAMMES**

### **- Condominal Project**

The sanitary rational situation, of increasing disregard (80 million inhabitants without an adequate solution) is very serious but at the national level, anything has been done.

The few conventional systems, are concentrated at the higher social classes and present:

Inadequate technology (soaring cost investments; operational incapacity):

- An extensive collecting (modernization of piping);
- Centralistic of the final processing (and maximation of transport);
- Technocratic view of the problem (and of the solution)
  - From the institutional (distance from users)
  - Exclusiveness for public financial resources.

In order to revert these factors, we propose an increasing of the sanitary system (actually, under 30% of the city is collected) through alternative systems, beginning by the need and problematic areas.

That results in the following proposition:

Systems of building and maintenance conjoined (institution / community);

Processing and basic network

- Located in public areas (streets): institutionally built and operated.

Condominal branches (condominio-square)

- Located in private areas (lots), built and kept by the community.
- Decentralization of final processing, producing expressive reduction of transport (piping).
- Constructive simplification, reducing all cost.
- Gradual implantation and participation as a mean of priority definition.

## **Main Advantages**

- Reduction in global investments up to 60 %.
- Meaningful participation (potential) in the private investments.
- Fast execution (lower pipes and less excavation).
- Employment during the period of works.
- Economy and simplicity of operation and maintenance.
- Adaptability to distinct urbanization (even in slums).
- New sector's attitude taking.
- Educating aspect and communitarian mobilization.

## **- Goals of the Model**

- To put full service rendering in perspective.
- To rapidly increase the health level of the population.
- To halt/interrupt the environmental degradation.

That technological solutions has been implanted in many places in Brazil, since 1982, as example:

Petrolins/Pernambuco (125 359 inhabitants)  
- almost 100% of the city

Brasilia/Federal Capital (1 513 470 inhabitants)  
- 600 000 connections (in work)

Racife/Pernambuco (1 296 995 inhabitants)  
- About 8 000 connections.

## **- The programme " The city half eveywhere"**

The city is divided in six political-administrative regions; every six months, systematically, all the staff, lead by mayor discusses in all the regions its problems and the actions to be realized in the period.

In function of the issues, smaller groups are created, where technical propositions are discussed.

At the infrastructure group, all the needs and possible solutions are debated and integrated, in relation to the civil construction or public services for the city.

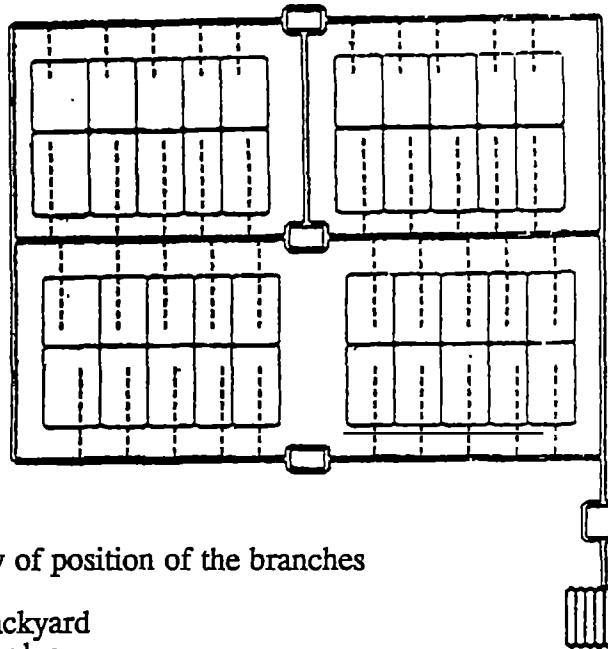
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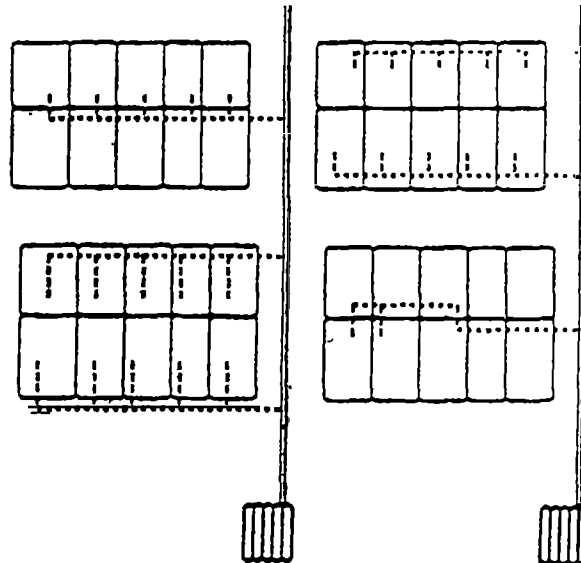
### Conventional system





Possibility of position of the branches

- in the backyard
- in the garden
- in the sidewalk

### Condominal system



#### LEGEND

- Lots division
- Condominal branches (private investment)
- ==== Basic net (public investment)
-  Final processing
-  Elevation

## - COMMUNITARIAN SELECTIVE REFUSE COLLECTION

Among the environmental problems, that of the solid waste has become a real challenge of our days.

A growing population means an increasing consumption of goods.

These goods, as they are consumed, generate waste which, poorly conditioned, transported and/or discarded, bring about significant damage to the public health and to the environment.

This situation tends to be more serious in developing countries where economic and social imperatives jeopardize the adoption of technically appropriate solutions to the problems caused by waste and by the accelerated growth of our cities, which mainly occur in a disorderly fashion, through the development of slums (Racife as 780 slums).

All that become worse draining and sewer systems problems.

The incentive to recycling represents a consequent help to keep working these systems.

Therefore it generates financial support and represents an environmental and health protection, which are the structure of the health education programmes in focus.

## COMMUNITARIAN SELECTIVE COLLECTION

### Institutional participation

Environmental education

Guidance and support to home selection of recyclable inorganic materials  
Stimulation of industrial (recycle) and undertaking sectors (market) to negotiate with the entities of the community.

The management of this process, can be assumed by the institution, for some time, depending on the difficulties of the community.

The choice of areas for the projects is based on a few criteria:

Characteristics of the settlement (physical and socio-economic)

- Area of low-income settlement, with difficult access and traffic for collection vehicles.

Characteristics of the population

- Existence of community organization with interest in solving the environmental problems and take part of the project, makes possible the expansion of the process of selective collection, with an active performance in works of environmental education and management of recyclable material trade.

The main partner of this process is the woman, she awakes moreover to other recycle ways (as handicraft), opening new processes.

## **MAIN ADVANTAGES**

- Reduction of operational cost of the municipal urban clearing, by reducing the volume to be transported.
- Reduction of the environmental problems like water pollution (Recife has many rivers and channels).
- Effective increasing of recycling.
- Stimulation to the popular organization and to the emergence of a sanitary and ecological conscience.

The establishment among the population from 8 communities where the project has been implanted, involves about 5 800 families (25 000 people).

Relatively to the materials for food (main interest in the lower income areas), a total of 77 312 Kg corresponds to the distribution of 13 600 Kg of food (June-October 1993).

Part of that material, came from the community's own domestic selection and a sizeable amount, from donation of enterprises (to the entities) or from searching.

### **3. EVALUATION - Problems / difficulties / gender**

The most important aspect for a successful work is the conscience level of the population about sanitation and environmental aspects as a condition to change wrong habits.

It is also important the institutional conduct, to permit and support the potential and particular condition of the community, in order to surmount the problems.

The mentioned programs and projects, have a strong participative character, but still don't present enough flexibility to permit the ideal development of specificities as gender issues, in spite of the conscience.

The programme have the perspective of a new think about the question, towards an increase of the results and of the respect to women's condition.

The "city hall everywhere" program shows a clear view of the growing involvement of women into the social problems.

Among the almost 800 communitarian entities connected to the program, 2,5 % are leaded and represented by women.

About 8 or 9 years ago, their participation, was almost exclusively in mothers clubs or health groups (just discussing these issues).

Now, conducting general associations, even federative, or still in specific entities, they take part in all interesting subjects, fighting in a stand out way and getting a large respect.

The higher sensibility and conscience of the needs, comes from the bitter involvement with the housing environment, from the strong familiarity to the problems and it grows with a great relationship tendency to the neighbourhood, generating a special power of articulation and reproduction of ideas.

The care with the house is always assumed by the woman, even if she has a regular job; and usually, she stay home for a longer time.

That contributes for her stronger importance to keep domestic installation as the condominial systems, or domestic maintenance like the urban clearing.

The mentioned projects, have shown, among other reasons, because of the nature of the involved issues, (sanitation and domestic garbage) and because of the high level of management from the community, a considerable prevalence of the engagement of the woman (sanitation 65% and selective refuse collection 80%) in relation to the masculine participation.

This emphasis of women participation is more perceptible on the operation (to clear from obstruction the condominial branches or to select the domestic garbage) instead on the management and process leading.

ex - It is frightening for women, to trade every fortnight, 3 or 4 ton of recyclable materials.

About the sanitation, the usual approach (to the man) has made a very bad result, showing that it must be changed.

As a collective solution (square), it asks for a strong engagement to the operation and, unfortunately, we have a high deprecation of the equipments under responsibility of the community, further problems on piping originated from improper destination of garbage into the systems.

Based on research and observation, we inputs the relative carelessness with the equipments, to the superficial appropriation of the operation by women (the disregard for her importance by the institutional power). The woman is usually at home, is the main user of the system and is more sensible to these problems.

We still verified that the first experiences asked for insignificant finance contribution from the community and that looks to be another reason for the problems.

Aiming to change this situation, actually the community must cover the cost of the execution of the condominial branch (all the equipments located in the private area).

However, this change, in spite of reducing the institutional investments, and increasing the engagement of, the community in keeping the system, has shown problems, in the lower income areas, because of the low acquisition power, hindering the participation.

In relation to the communitarian selective collection, specially in the lower income areas, in spite of the elevated women participation, we still can observe, many problems like the great contribution of children, stimulated by their mothers, promote the true seek out of discarded material anywhere (on the streets, into the channels etc.), ignoring the high risks of the pollution.

It is an emergency to get a deep reflection about the environmental and health aspects and that must be done by the woman approach.

#### **4. - PROPOSITION / a gender approach**

The experience drove us to melt the work in the infrastructure area by an integrated approach, aiming to grow the available means.

In a municipal approach, and taking over the institutional power the conditions of a procedural inductor, eliminating the interests and the needs of the market in function of those of the community, around the environmental and sanitary issues.

All that, by increasing the involvement and contribution of the community through its more predisposing and available elements; the women.

#### **EXPERIENCE: a surmount strategy**

Aiming to surmount the numerous problems, by melting the related programmes, we try to involve the woman in the sanitation difficulties, in the same way we are getting on the selective collection.

And we also contribute to permit the participation of all, even those who have no financial condition, by the trade of the recyclable material,

This proposition is founded on the emphasis of women participation on the selective collection, as well on the worry about the invariable difficulty we have verified about the management of the condominial systems in relation to the responsibility of the community.

The experience is held in a suburb of the central zone of the city (Political - Administrative Region 5 / RPA 05), in a low income settlement (Mangueira) where we find a concentration of the serious environmental problem on draining and sanitation (a calamitous public health), worsened by a low environmental conscience and organization of its population, distant to contribute to the solutions.

The project area covers 94 squares comprehending about 3 200 residences.

It started with the participation of 17 squares (595 residences) at the first phase in two approaches.

#### **FIRST MOMENT:**

For six months, the condominial project was conducted as usual, presenting all the related problems specially about suspiçion of efficiency and financial difficulties to the implantation.

#### **SECOND MOMENT:**

For two months, after an evaluation of the weak response of the community, we practiced the integration of the two projects.

#### **THIRD MOMENT:**

Together, the institution, the representatives of the squares and the local entities, we discuss how to introduce the women's approach to the condominial project.

## MAIN ADVANTAGES

- Amplification of the sanitary ecological conscience, by the integrated discussion of the issues.
- Viability of the financial contribution (or part of it) to the participation in the sanitarian project, with the trade of the recyclable materials.
- Priority to access the benefit, in function of the participation level of the condominium (square).
- Guarantee of a stronger engagement in the process, which can contribute for a higher commitment to the further operation.

Now we can verify some differences on the woman participation:

- The most active entities (there are three) which commands the process, is leaded by women.
- Almost 55% of the representatives are women.
- From the most active groups (squares), 80% are under women conduction.

## 5 - FINAL CONSIDERATION

The observation about gender subjects, conducts to some reflection:

- In a general way, the woman is more opened to apprehend new costumes and concepts.
- As a consequence of an usual responsibility to the health problems of the family, the woman naturally is always looking for an orientation to avoid disease.
- The woman is usually the housing keeper, so consequently, she is more identified to the care of the domestic infrastructure systems (like water supply or sanitation) and of the public services like the urban refuse collection.  
ex:           The control of water waste.  
                  The correct use and immediate clearing from obstruction of piping.
- In contrast, the more complex attributions, as the management and trading of materials, and also the coordinating of workers are better conducted by men.

It is important a renewal of bad cultural patterns, that repress the development of a more fair society. We must break the limits of contribution of women, considering that whoever has problem, is a natural agent towards its solution.

**Women Professionals in Water and Sanitation  
Development - The WEDC experience**

**by**

**M. Bell and M. Ince**





**WOMEN PROFESSIONALS IN WATER AND SANITATION DEVELOPMENT:**  
**The WEDC experience**

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**Introduction**

This paper focuses on women professionals in the provision of water and sanitation. It considers how, over the last decade, attempts to promote the participation of this small minority in the sector have built upon a set of broader overlapping development debates which seek to influence public policy. These are national and international citizenship, social justice and the democratisation of knowledge. It then reviews the experience of one organisation, the Water, Engineering and Development Centre (WEDC) at Loughborough University. Since its formation in 1972, WEDC has played a leading role within Britain in training scientists and engineers for water and sanitation overseas. Through its conferences and short course activities it has also promoted and strengthened international networks among professionals for the exchange of ideas and knowledge. The paper summarises trends in the participation of professional women in courses and conferences organised by the Centre and highlights the contradictions which arise between international rhetoric and WEDC experience. In the light of this evidence, it considers the significance of the 'new' progressivism for concepts of citizenship, technocratic knowledge and the role of donor agencies.

**Celebrating alternative technologies and professional women in the sector**

Based upon the 'appropriate' technology tradition of E.F. Schumacher (1974), water and sanitation improvements in low income communities are widely interpreted among donors and national governments as a liberating force for 'marginal' groups including women. This 'liberation' is associated with the effects of appropriate technology upon the production of social infrastructure, the market for social services and the delivery system. Low-cost solutions to water supply and sanitation, including communal handpumps and pit latrines, offer effective substitutes for complex piped systems. These alternative technologies cater for a more extensive, varied and fragmented market than formerly while responsibility for their provision and maintenance can be shared with the beneficiaries. Promoting participatory practices challenges certain deep rooted assumptions about the nature and economic value of women. Underpinning these assumptions is the concept of difference: the application of certain physical, moral and mental attributes to those who, by virtue of their gender, fail to conform to a eurocentric and intensely masculine concept, the 'model' citizen. In incorporating women into mainstream development projects, shifting boundaries of difference can be discerned as women's apparently distinctive social and moral attributes are now celebrated as positive and progressive.

While much emphasis has been placed on the role of women as consumers and health promoters at local level, only recently has attention focused on the value of women as 'experts' with managerial power (Bell and Ince 1991). This 'new progressivism', arising from the convergence of feminist and development theory, the influence of international

women's movements and 'post-structuralist' writers, stresses the importance of women as influential decision-makers in economic, political and social spheres, and confronts the constraints upon their access to managerial power (Pietila and Vickers 1990; World Development 1989). The significance of professional women in infrastructure provision centres upon three prominent and interlocking debates in intellectual and political circles, within aid organisations and in popular discourse. These are national and international citizenship, social justice and empowerment, the democratisation of knowledge and management styles. In seeking to influence public policy, proponents of professional women in this technical intervention appeal both to the natural sciences, notably biological differences between the sexes, and to the social sciences, including concepts of cultural and gender difference, for their authority and legitimacy.

### **National and international citizenship - integrating technology with the social and environmental sciences**

For many donor agencies and national governments, providing water and sanitation involves much more than installing technology; it is about serving national interests and fulfilling the idealist goals of nation building. Based upon the long-established belief in western social and political thought that the physical and moral character of society is first established with the household, a clean domestic environment is interpreted as crucial to the creation of a physically and morally healthy citizen. But it is acknowledged that project implementation is complex; it requires knowledge of the social and cultural context, including the gender roles and relations, within which water and sanitation systems operate. These beliefs have enhanced the importance of professional women in two, albeit indirect, ways; first, by broadening the knowledge base required of the expert and second, by enhancing the value attached to women at grass roots level.

Broad acceptance of the need to integrate technology with the social and environmental context has given a new authority to the social scientist and, more recently, to the environmental scientist, in balancing the technical skills of the engineer. From the 1980s, donor agencies sought to employ staff and to promote organisations which would inject social knowledge into engineering and, by implication, into policy debate (Bakhteari 1987). Owing to gender bias within the professions, the social scientists involved in these organisations are frequently women. They have taken a leading role in producing articles, books and training manuals with an interdisciplinary focus including an emphasis on gender (Elmendorf 1990). Organisations like PROWESS, staffed at senior levels by women, have been more specific in seeking to raise international consciousness of gender issues in water and sanitation. More recently the importance of environmental science in engineering practice has also provided opportunities for women who tend to be better represented in the environmental sphere than in the engineering profession. The UNEP, whose current Executive Director is a woman, has a Senior Women's Advisory Group which has initiated regional assemblies and networks of women on environment and development issues (Mwagiru 1993).

The second point builds upon the apparently unique skills of women, notably their central role as guardians of family health within the environment of the home and, by implication, in national renewal. As part of the rhetoric of mobilisation, representatives

of donors and governments frequently argue that in order to enhance women's influence as active citizens, the design and implementation of appropriate health and education programmes is a 'natural' responsibility of professional women trained in the health field. For women at community level to follow advice and implement decisions in environmental sanitation, health and population programmes made primarily by men is strongly challenged (ODA 1992; SIDA undated). As part of a broad drive for nation building and regeneration, this promotional role is carried out not only by women with professional qualifications but also by prominent political figures in many countries. Better Life programmes led by the Presidents' wives in Ghana and Nigeria illustrate this point. Within the 'spirit of Rio', as improved domestic water and sanitation has become part of a broader global environmental concern, the rhetoric of international citizenship and a common humanity has also strengthened the influence of professional women. Agenda 21, acknowledges women's role in natural resource management at local level and stresses the need for more women in senior positions, shaping and implementing policy and involved in training on environmental quality and conservation.

Clearly an appeal to biological categories, the 'natural' nurturing and caring role of women, and to the cultural context, including gender roles and relations, has legitimised women's professional influence within the linked spheres of environmental improvement and collective consumption. But in fulfilling their responsibilities, professional women do not remain passive. They have sought to change the policy agenda by broadening the narrow concept of citizenship often prescribed for women in development programmes and projects. This includes attacking the tendency towards analytical and institutional separation which can arise from linking women with welfare and which, by marginalising men, ignores their role in decision-making, including expenditure on social services (Lovel and Feuerstein 1985). Professional women have also been prominent in communicating both the practical (2) and strategic needs of women at grass roots to senior policy-making levels. They have emphasised the need to focus not only upon women's domestic roles but also on the broader range of constraints which influence their lives. Through active support for integrated multi-sectoral water and sanitation programmes they have sought to enhance not only women's living conditions and health but also their economic well-being through skills training and income-generation (Kudat and Weideman 1991).

### **Social justice and equity - mechanisms for 'bringing women in'**

Given that professional women are a small minority in the development field in general and in this technical sector in particular, it has been argued on grounds of equity that opportunity of access to managerial positions should be increased. In the spirit of gender-sensitive development practice, at the Global Consultation held in New Delhi in September 1990, the importance of recruiting more female staff was reasserted to ensure "the full participation of women at all levels in sector institutions" (UNDP 1990 p.2). It was restated at the Dublin Conference in 1992. This commitment challenges the cultural beliefs and values within many countries which inhibit women from securing senior managerial positions in many spheres but in the engineering profession in particular (Pietila and Vickers 1990). As part of a 'global' ethical discourse, the importance currently attached to democracy and human rights in the rhetoric of the New World Order gives renewed impetus to the drive for greater gender equality in decision-making not only at community level but also within senior management. A

range of mechanisms have been proposed and are employed by some organisations to encourage access and the promotion of professional women within the sector. These include quotas within organisations to be achieved over a specified time period. UNICEF seeks to employ a staff comprising 40% women during its current planning period. Guidelines may also be laid down on recruitment policy and the monitoring of staff promotions. Evidence suggests that positive discrimination by donor agencies in the allocation of scholarships for overseas training within the sector have been particularly important in promoting women to more senior positions on their return home. Organisations do, however, vary in their response to these initiatives. In these circumstances, support structures including networks and informal groupings established by professional women have proved to be important; particularly those at international level which draw together the small numbers of women often involved in the sector within particular countries (3).

### **The democratisation of knowledge - new management styles within the sector**

Crucial to the incorporation of women as professionals with managerial power has been the emergence of alternative models of infrastructure provision and, within these, the changing role of the 'expert'. Appropriate technology has been important in democratising knowledge and in promoting a 'new' science. A shift from complex structures has enabled public and private sector monopolies to be broken allowing responsibility for infrastructure provision to be shared with the beneficiaries. Participatory approaches have, in turn, had implications for institutional structures and forms of knowledge. They challenge 'top-down', managerial approaches controlled by the 'expert'. Opportunities have become available to transform planning from centrist design and mere 'hardware' projects to decentralised power and decision-making drawing upon local skills and knowledge. Evidence suggests that the degree of flexibility which organisations employ in defining norms, goals, procedures and staff composition influences the willingness and ability of organisations to promote innovative approaches to social policy and to 'bring gender in' both at management and grass roots levels (Kardam 1991). For many donor agencies and technical ministries within governments this attention to more decentralised, less authoritarian styles of management and to alternative forms of knowledge has presented a major challenge. It has also provided a timely opportunity for organisations confronting a new wave of financial accountability (4). Implementing decentralised models of service provision including community management can offer a convenient way of devolving power, authority and control from engineers, planners and bureaucrats to 'other' groups including women and NGOs (McCommon et al. 1990).

In these political and economic circumstances, a new space has become available for women trained in a range of professions to enter managerial positions. Such recruitment gestures towards the new openness required of organisations; implementing it frequently depends upon the initiative of a few 'enlightened' individuals. Equally, project design and implementation based upon diversity rather than homogeneity, flexibility rather than bureaucratic rigidity is widely regarded as characteristic of women. As engineers, women frequently confront the beliefs of male colleagues that the profession is inappropriate for them since it entails arduous work in the field. However, since participatory approaches involve discussion at community level, women engineers may also be valued as communicators with women

beneficiaries in particular. Beliefs about women managers, including their tendency to be more concerned with consensus, discussion and people-sensitive leadership than men, are open to dispute (Blackett et al.1992); both male and female managers require these skills. Nevertheless, our evidence suggests that recruiting a higher proportion of women in technical professions at managerial level brings a number of advantages. It helps women to establish the networks and credibility which contribute to combating discrimination within organisations. It also helps to ensure a more gender-aware perspective in environmental health programmes (Vance 1993). Training courses for both women and men provide one important forum at which alternative approaches to management can be communicated and discussed.

### **The WEDC experience**

WEDC is well-established as a training centre which stresses the interdisciplinary nature of engineering practice. While it does not focus specifically on gender, a central theme is social justice and a commitment to environmental and social improvement. Support for its activities has come from a range of funding agencies throughout the critical years of its existence. Through its conferences and training courses it has sought to diffuse knowledge of social and environmental science, alternative technologies and management styles, act as a support network for practitioners and influence public policy. [Annex 1 provides more background information on WEDC.] This paper concentrates on WEDC MSc programmes and conferences. A brief comparison is also made of MScs with shorter programmes in general and with the Community Water Supply and Sanitation Diploma in particular, as this latter programme does not have an honours degree as an entry requirement. The reasons for using these data include their discrete nature, their reliability, the twenty year time-frame available, and a balance of in-UK and overseas-based programmes.

### **WEDC ethos**

WEDC deliberately targeted professionals (of both sexes) at the outset of its provision of training programmes and conferences, beginning in 1972 and 1973 respectively. This meant that initial programmes and the majority of those offered now are at postgraduate level and that almost all participants have experience in agencies active in planning, provision, and management of infrastructure for low and middle income communities. Programme approach and content has been multidisciplinary from the start, although most of the personnel attending early programmes had engineering qualifications. The siting of WEDC within a Civil Engineering department certainly influenced the background of participants in the initial years. However as WEDC expanded, in terms of personnel and programmes, the breadth of experience of participants increased. Whilst being ahead in many aspects of development training, WEDC has, therefore, also reflected changes in the field.

All programmes have always contained social, health and development elements, even initially when participants were all engineers. Although still predominantly from engineering or science backgrounds, the number of participants employed as planners/managers, either prior to their attending a programme or shortly after their return home, is increasing. Feedback from those participating and from sponsors on

the usefulness of course inputs on management, led to the inclusion of 'community and management' aspects on **all courses**.

The MSc programmes began in the first year of the International Drinking Water Supply and Sanitation Decade (IDWSSD), hence analysis of data relating to these programmes reflects changes in development thinking, including that on gender roles, during and post decade. Similarly, analysis of the conference data, covering the period 1973-93 i.e. pre and post decade, provides valuable pointers to changes in the position of professional women in the water and sanitation sector (5).

### Data presentation and analysis

Data on courses and conferences will be presented separately followed by comments. These data will be discussed in relation to the sector as a whole and then recommendations to increase representation of females at the professional level will be made.

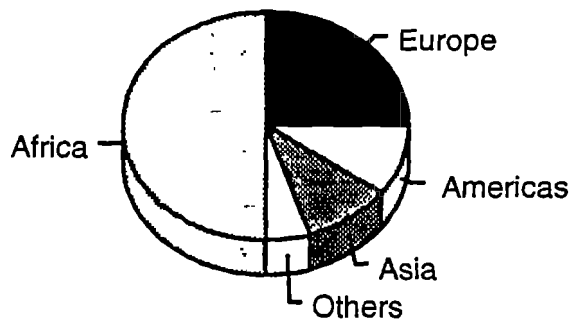
### WEDC post graduate programmes

Tables 1-4 and figures 1 and 2 present data on applications and attendance by women for postgraduate short (6-12 week) and MSc programmes.

#### **Applications**

Figure 1 shows that, over the period 1980-1993, 50% of all female applicants were from Africa and 25% from Europe. This reflects the number of women educated to degree level in these regions and also the language requirement for entry to UK courses. There are fewer applications from francophone Africa, Asia (excluding India and Sri Lanka) and South America where English is not an official language. Over the last 2-4 years the country balance of applications from African women has shifted from West Africa (mainly Nigeria) to East Africa. This may reflect change in the geographical pattern of funding for training of females.

**Figure 1 - Applications by women for UK programmes (1980-1993)**



Applications by course for 1992/3 are given in tables 1 and 2. Environmental programmes, open to non-engineering students, attracted a higher percentage of women than corresponding courses requiring an engineering degree; e.g. the WEM

and WWE courses attracted 26.5 % and 6.2%, respectively. There was a relatively high percentage of female applicants for the PreMSc programme as this feeds into all MSc programmes. This pattern reflects both the first degree discipline and the global funding priority given to 'environment'. An increasing number of female and male engineers are also requesting environmental programmes. This is partly attributable to funding opportunities but also to global concern for the environment and a desire to contribute to mitigation measures.

**Table 1 - Applications during 1992/3 for MSc programmes**

MSc course	WWE	WEM	UE/PMUS
% female applicants	6.2	26.5	7.7

**KEY**

- WWE - Water and waste engineering
- WEM - Water and environmental management
- UE/PMUS - Urban engineering/Planning and management of urban services

**Table 2 - Applications during 1992/3 for short programmes**

Course	PreMSc	SWEM	OTHERS
% female applicants	19	10	~3

**KEY**

- PreMSc - year 1 of a two-year MSc programme
- SWEM - Solid waste and environmental management
- Others - includes all other 6-12 week postgraduate programmes

**Attendance**

Over the 13 years of providing 'water' MSc programmes, ~8% of those attending have been female. This percentage compares favourably with female representation of 3-10% on the first degree courses of current participants on WEDC MSc programmes. There appears to be reasonable correlation between female representation at the undergraduate and postgraduate levels, i.e. in percentage terms women are equally (under)represented at both levels. This may reflect the determination of women to extend their knowledge ('a thirst for education') as well as the promotion of women for training by donors. These levels of representation are similar to those in engineering departments in the UK (~12% in Loughborough), in spite of the ready access of women to primary and secondary school education in the UK when compared with many developing countries. Attitudes supporting engineering as a male domain are often cited as reasons for this low representation in the UK. Whilst this may also be a contributing factor in developing countries, on the basis of discussions with current and former WEDC students, female representation at first degree level in science and engineering is comparatively high when compared to the percentage of girls completing secondary education.

Tables 3 and 4 refer to data on number and geographical origin of participants on MSc programmes. Those in table 3 support the trend towards higher female representation on the environmental programmes and an apparent shift from WWE to WEM for both sexes. Representation of women on the urban MSc courses remains low: the 2

successful female participants were both Sri Lankan. Urban engineering seems to be less acceptable as an area for females than water or environmental engineering.

**Table 3 - Female participants on WEDC MSc programmes 1980-1993**

YEAR (year started)	WWE/WEM	WEM	UE/PMUS
	1980/1	1987/8	1987/8
	F/T	F/T	F/T
1980/1	0/24		
1981/2	4/24		
1982/3	1/24		
1983/4	3/30		
1984/5	1/29		
1985/6	2/40		
1986/7	3/29		
1987/8	1/32	0/2	1/5
1988/9	1/22	0/4	0/7
1989/90	1/22	1/5	0/8
1990/91	3/23	1/5	1/7
1991/2	3/26	1/5	0/6
1992/3	3/13	1/3	0/4
1993/4	4/18	4/10	0/5
<b>TOTALS</b>	<b>30/358</b>	<b>8/34</b>	<b>2/42</b>

**KEY**

- WWE - Water and waste engineering
- WEM - Water and environmental management
- UE/PMUS - Urban engineering/Planning and management of urban services
- F/T - female participants/total participants

A brief comparison was made of the MSc data in table 4 with that for the CWSSD in figure 2. The CWSSD, a short course accepting both professional and sub professionals, began in 1984 whereas MSc programmes began in 1980. Over these periods, approximately 65% of females on the CWSSD were African compared with ~30% on the MSc programmes. Reasons for this may include lower literacy rates/lower access to higher education of women in southern Africa (50% of CWSSD) when compared with Nigerian (15% of MSc) and Ethiopia (~10% of MScs). Women on the CWSSD are often funded by NGOs whereas those on the MSc are usually funded by bilateral government-government aid. The national background patterns of participants on programmes partly reflects this difference in funding.

**Table 4 - Geographical origin of female participants on WEDC MSc 1980-93**

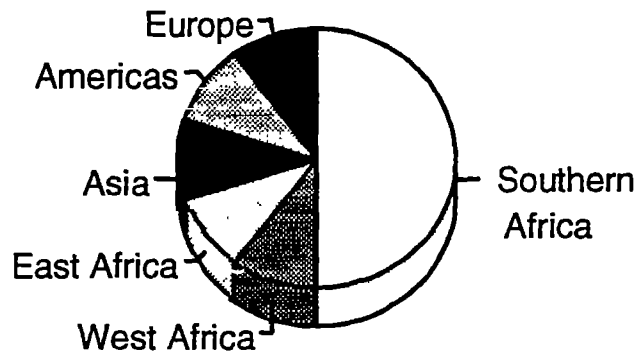
REGION	AFRICA	ASIA	EUROPE	AMERICAS	MIDDLE EAST
RT/OT	10/32	5/32	6/32	7/32	4/32

**KEY**

- RT - regional total (female participants)
- OT - overall total (female participants)



**Figure 2 - Female participation in CWSSD (1984-1993)**



Surprisingly there has been a decrease in the number of women on the CWSSD in the last five years; there were no female participants in the last two years. The causes of this change include the competition from other established courses based in Europe, especially those not held in engineering departments, and the trend towards in-country training for sub-professionals in the water supply and sanitation sector. These factors may also explain the poor response to the specially designed course for women, 'Women managers of technology for development'.

#### **Other factors affecting female representation on MSc programmes**

In addition to inequalities in access to higher education and to funding for overseas MSc programmes, family pressures can affect the participation by women. Supportive parents and partners can positively affect the education opportunities and successes of women. Similarly, positive attitudes to women in the work place can facilitate their advancement within the agency, including selection for further education and training. Women's careers can, however, be interrupted by birth and care of children. Whilst not the only social factor affecting professionals in water and sanitation development it is an important one in the WEDC context. We have not carried out detailed research to enable definitive comment on the effect of women's responsibilities to care for children on the application, sponsorship and attendance statistics. Anecdotal evidence indicates that it does have important bearings on all three aspects as well as actual performance levels when attending programmes.

The majority of postgraduate students on these UK-based courses are 26-36 years old, hence a high percentage of them have families with young children. A significant number of male students have their family size increased during their year in the UK. We have only had one student give birth during the programme, but a number either leave under-one-year olds in their home country or, more rarely, bring their infant(s) with them. Concern over their ability to make suitable arrangements for the care of their young children, either at home or in the UK, affects the application rate of women considering further education overseas. Although men with families also have to

consider their domestic arrangements, in most countries it is customary for women to have greater responsibility (if only in time) for the upbringing of children. Family problems at home affect attendance and performance of all students. Men are equally concerned for a sick child or parent at 'home' as a women and obtain the same assistance and counselling.

Other MSc students have had their older school-age children with them during all or part of the course. Child-minding facilities in the UK can be difficult to arrange and to fund and can lead to time, financial and emotional pressures (especially around exam and thesis time). Although these aspects are not unique to women, most men (though not all in our experience) who have their children with them in the UK also have their partner with them, whereas most women do not. This is one reason why the studies of most men having their family with then in the UK seem to be less affected than those of women. Some students cope better with this situation and manage to excel in their studies, but others under achieve as a direct result of the problems of child care. In their home environment these professional women (and men) are usually able to accommodate employment and childminding as costs are less prohibitive and/or there is assistance from the extended family. Many of them come from backgrounds where care of their young children by hired help is the norm. It is noticeable that other course participants often take on the role of the extended family in assisting fellow students with children.

### **WEDC Conferences 1973-1993**

The Conference titles and locations are given in Annex 2; gender-related data is given in tables 5 and 6. These data, which are more detailed and accurate than those presented in the earlier paper (Bell and Ince 1991), show that representation by women has tended to increase consistently since 1989; the highest percentage female attendance was 12.2 in Hyderabad (1990) and 16.9 Accra (1993).

#### **Conference titles**

The titles are selected by WEDC in collaboration with the Local Organising Committee (LOC) ~18 months before the conference is due to take place. They reflect therefore development thinking at that time as well as topics particular to the location of the conference. An important point to note about the titles, therefore, is that, although the word '**women**' does not occur at all, '**people**' occurs twice; first in 1981, the second year of the IDWSSD, and again in 1991, the first year following the end of the decade. At the time of title selection '**people**' would have been an important buzz word. '**Environment**', very much a priority of funding in the early 1990s, occurs in titles for the last three conferences. Although absent from the Conference titles, specialist sessions on women in development were introduced into conferences; gender tends to be an important components of all discussions, especially in sessions related to 'community management', health (or disease) and education. Until the 1993 conference in Ghana, where an NGO (World Vision) were the main local collaborators, women had not been members of the LOC. Time has not permitted a greater analysis on conference session titles.

## Authors

Papers presented or co-authored by women did not appear consistently until 1980, the beginning of the IDWSSD. The numbers have been higher in the last three years. This may reflect the inclusion of 'environment' in the conference title, a subject area in which more professional women are employed. It may also reflect the slow growth in the confidence of women working in the field to participate fully in an international communication sphere. There is also the lag between voicing the need for increased representation of professional women and the provision of education and employment opportunities for them.

## Papers

Surprisingly papers specifically about women are very few and only start to appear consistently in 1988. Again this could indicate the lag of practice behind the early 1980's rhetoric; or the time needed by women (and men) in the field to initiate research to investigate the *status quo* and evaluate impacts of projects; or the delay in the promotion of funded research and sponsoring of female researchers by donors or their employers.

**Table 5 - WEDC conferences 1973-1993.  
Analysis of gender input and balance**

Year	Participants	Women	Female authors	Papers on women	Location
1973	63	0	0		WEDC
1975	83	0	0		WEDC
1976	76	2	1st chair		WEDC
1977	64	0	0		WEDC
1979	91	0	0		WEDC
1980	87	1	1		Zaria
1981	78	6	4	1	WEDC
1982	134	0	0		Madras
1983	117	4	2		Harare
1984	145	12	8	2	Singapore
1985	124	2	2		Dar es Salaam
1986	344	5	1		Calcutta
1987	143	13	4		Lilongwe
1988	115	2	1	1	Kuala Lumpur
1989	136	10	7	4	Kano
1990	131	16	11	5	Hyderabad
1991	224	24	8	3	Nairobi
1992	473	32	14	4	Kathmandu
1993	255	43	20	5	Accra

The titles of the relevant papers are given below in table 6. Approximately 50-60% of these papers had at least one female author. Most dealt with women in 'traditional' roles, mainly in rural/poor communities. Training and mobilisation of these women for

community participation were recurrent themes, reflecting on and in the rhetoric of the IDWSSD. Women's issues were components of a large number of other papers, again mainly those dealing with community management and/or health education in rural areas. Very few dealt with women as professionals and managers at any level other than the household or community.

**Table 6 - Conference papers mainly about women**

YEAR	TITLE OF PAPER
1981	General discussion on water, women and waste.
1984	Water, sanitation and rural women
	The softer side of software in decade planning
1988	Technologies for women's low-income housing needs
1989	Mobilising women for rural health
	Villages water study: women aspects
	The role of women in the control of water-related disease
	A case study (Upper Region) Ghana
1990	Women in infrastructure: Bangladesh experience
	Women's participation strengthens NGO projects
	Rural women in sanitation projects
	Skill development for poor urban women
	Women and solid waste in poor communities
1991	NGOs. women and community water
	Gender sensitivity in development
	Policies that constrain women irrigators
1992	Women as managers - experience in Nepal
	Women and rural water supply projects
	Community, women and domestic water
	Women and water: equity and gender
1993	Comprehensive training of women for water and sanitation
	Traditional role of women in RWSS (Ghana)
	Women, children, water/sanitation development
	Chlorinating household water in the Gambia
	Training of women for water and sanitation

### Summary and recommendations

Promoting active citizenship requires physically and morally healthy individuals and communities. Essential to this is the provision and maintenance of appropriate physical infrastructure, including water and sanitation. Effective implementation of programmes and projects requires a range of professional knowledge and management skills beyond those of engineering and technocentrism. Women increasingly have the appropriate professional skills and experience to meet these varied needs.

Analysis of the data from WEDC shows that:

- there was a time lag in the IDWSSD between the rhetoric of female involvement in water development and the actual representation of women on courses and as authors and presenters at conferences;

- female representation on MSc programmes over the period 1980-1993 has averaged ~8%, a comparable percentage to their representation on undergraduate programmes in both developing countries and the UK;
- women have been less well represented on urban engineering programmes;
- the geographical representation of women has been wider on the MSc programmes than on the CWSSD;
- although variable, female representation in conferences and MSc courses appears to have increased during the early 1990s;
- female representation on the CWSSD appears to have fallen in the early 1990s although representation has been relatively good on other short programmes;
- there is a trend for women, even with engineering qualifications, to enter environmental programmes;
- conference data show little written evidence of women as managers other than at the home or village committee level; and
- women tend to contribute more in the areas of health education, social organisation and technology promotion than technology design and implementation.

Anecdotal evidence from WEDC female students cited family support (parents and partners), access to secondary education, attitudes of male colleagues in the work place and positive selection policies of sponsors as factors having the greatest influence on their capacity to develop their professional careers. These, therefore, are the areas in which greater emphasis (policy and funding) could promote and produce higher female representation in the professional cadres.

The continuing economic crisis in many developing countries has a particularly harsh effect on women who bear an increasingly heavy share of the burden, as producers, home managers, mothers and community organisers (Afshar and Dennis 1992). In the provision, operation and maintenance of infrastructure, the efforts of women are often crucial. By increasing women's contribution to the management of infrastructure, evidence suggests that more attention will be given to the special needs of women at grass roots both within the sector and beyond. This paper supports the positive impact by donors on the representation of professional women in the sector through policies which promote training and education of women and the development of local and international networks. However, until such changes in attitude and practice occur at all levels within developing countries, representation of women at managerial level will continue to be patchy.

### **Endnotes**

1. In view of the small numbers with appropriate qualifications in the developing countries, they also tend to be 'western' women. Given the complexity of gender divisions and the cultural differences which can arise with their 'non-western' counterparts, further attempts to rectify this imbalance need to be made (Millennium 1988).
2. They argue, for example, that while it is not inappropriate that women should play an influential role in hygiene education (UNDP 1990), a failure to observe the politics of the household may obscure the importance of men and children as valid additional targets for health promotion programmes. While 'outsiders' seek to

reassert the dignity of women as active decision-makers and informed consumers of social infrastructure, professional women also stress that this participation should not be reduced to cheap labour. The contribution of women to decision-making and control at local level should be acknowledged as should the expectations they may have of the state as a provider of basic human rights (Charlton et al. 1989).

3. Opportunities for communication among women at grass roots level are often greater than for men because of the variety of networks created and used by them (Braide et al., 1989). The reverse frequently occurs at professional level within the sector (Vance 1993).
4. It has also assumed a new urgency since 1990 in particular, as part of the current international commitment to democracy.
5. It is worth noting that the representation of women on the WEDC group management committee has been 18-25% since the mid-1980's but that none of them have been or are engineers. Their disciplines have been/are natural or social science.

### **References**

Afshar, H. and Dennis, C. (eds) (1992) Women and adjustment policies in the Third World. Macmillan, London.

Bakhteari, Q.A. (1987) A strategy for the integrated development of squatter settlements: a Karachi case study. Unpublished PhD Thesis, Loughborough University.

Bell, M. and Ince, M. (1991) Gender sensitivity in development. Proceedings of the 17th WEDC Conference, Nairobi, 19-23 August, pp.53-56.

Braide, E.I., Ariko, B.U. and Akpabio, S.P. (1989) Mobilising women for rural health. Proceedings of the 15th WEDC conference, Kano, Nigeria, pp. 55-58.

Blackett, I., Ince, M. and Bell, M. (1992) Programme management for urban sanitation. A Lesotho case study. (WEDC).

Charlton, S.E.M., Everett, J. and Staudt, K. (eds) 1989 Women, the state and development. (State University of New York Press, Albany).

Elmendorf, M. (1990) The IDWSSD and women's involvement. WHO. Geneva. Kardam, M (1991) Bringing women in. Women's issues in international development programs. (Lynne Rienner, Boulder, Colorado).

Kudat, A. and Weidemann, C.J. (1991) Gender in water and sanitation sector in South Asia. Draft document.

Lovel, H. and Feuerstein, M. T. (1985) Editorial, Women, poverty and community development in the Third World. *Community Development Journal* Vol. 20, pp. 156-162.

McCommon, C., Warner, D. and Yohalem, D. (1990) Community management of rural water supply and sanitation. (UNDP/World Bank, Washington).

Millennium (1988) Vol. 17. Special issue: Women and international relations.

Mwangiru, W. (1993) Global overview. *WedNews* No.5, pp.3-9.

Overseas Development Administration (1992) Women in development . ODA.

Pietila, H. and Vickers, J. (1990) Making women matter. The role of the United Nations. (Zed).

SIDA (undated) Striking a balance. Gender awareness in Swedish Development Cooperation. SIDA.

UNDP (1990) Global consultation on safe water and sanitation for the 1990s. 'The New Delhi Statement'. (UNDP, New York).

Vance, I. (1993) Women in human settlements development. *Habitat News* Vol.15, pp.32-33. *World Development* (1989) Vol. 17. Special issue: Beyond survival: expanding income-earning opportunities for women in developing countries.

### **ANNEX 1: Background to WEDC training programmes and conferences.**

**Training programmes** were initially developed because of the inappropriate content and methodology of many in-country programmes during the early 1970s and the resultant frustration of many in-country and ex-patriate personnel. [The majority of universities established during the colonial era offered teaching on western-type technology. Graduates were often ill-qualified to work on project designs more suitable for their own climatic and economic environment.]

The specifically deigned training programmes offered at Loughborough were initially all short courses of ~3 months. Now, as then, their aim is to equip overseas professionals to participate fully in infrastructure development in their own countries. Information is exchanged using a variety of techniques including lectures, practicals, case studies and seminars. Building on the positive feedback from the early short courses, the first MSc programme was introduced in 1980. Subsequently, a wide range of programmes has been developed to meet demand. Surprisingly the specialist course developed in 1990 for women (Women managers of technology for development) has not produced the anticipated level of interest; it has yet to run. Possible reasons for this are discussed during data analysis. The majority of participants are from Africa, followed by Asia; there are relatively few from Central and South America or the Caribbean. A minority of study fellows are Europeans or North Americans who have worked (or plan to work) overseas, often with aid agencies or on donor government sponsored programmes.

**The conferences**, begun in 1973, provide a means for wider dissemination of relevant knowledge, current practice and research, to professionals working in all areas of development. Participants are, therefore, drawn from multifarious agencies and disciplines but particularly from national and international governmental and non-governmental agencies, industry/consultancy firms and from donor and recipient countries involved in physical infrastructure and associated development. The disciplines of participants include economics, engineering, planning and administration, medicine, health education, and social sciences. [Note: A similar range of disciplines is observed with participants on the Community water supply and sanitation diploma (CWSSD), a twelve-week programme developed for professionals and sub-professionals working with communities where low technology solutions are normally most appropriate.]

**WEDC postgraduate programmes** developed in the 1970s were well established by 1980, when the MSc was introduced, placing WEDC in an ideal position to meet demands for education and training of male and female professionals in the water sector during the IDWSSD. The management and financing structure of WEDC has enabled it to respond rapidly to changing demands in the 1980s and now in the 1990s. Increasing flexibility in the entrance requirements for programmes in the near future will enable applicants without degrees but with significant relevant field experience to be accepted. This should help to increase representation of women currently very active in the sector but who did not have earlier access to appropriate education.

#### **ANNEX 2: WEDC Conference titles and locations**

Year		Location
1973	Environmental health engineering in hot climates	WEDC
1975	Water, waste and health in hot countries	WEDC
1976	Planning for water and waste in hot countries	WEDC
1977	Engineering for health in hot countries	WEDC
1979	Collaboration in water and waste engineering for developing countries	WEDC
1980	Water and waste engineering in Africa	Zaria
1981	Water, people and waste in developing countries	WEDC
1982	Water and waste engineering in Asia	Madras
1983	Sanitation and water for development in Africa	Harare
1984	Water and sanitation in Asia and the Pacific	Singapore
1985	Water and sanitation in Africa	Dar es Salaam
1986	Water and sanitation at mid-decade	Calcutta
1987	Rural water and engineering development in Africa	Lilongwe
1988	Water and urban services in Asia and the Pacific	Kuala Lumpur
1989	Water, engineering and development in Africa	Kano
1990	Infrastructure for low-income communities	Hyderabad
1991	Infrastructure, environment, water and people	Nairobi
1992	Water, environment and management	Kathmandu
1993	Water, sanitation, environment and development	Accra



**Towards Gender-Responsive Planning in the  
HESAWA Programme: A Critical Review**

**by**

**Deo Binamungu**



**WORKSHOP ON GENDER AND WATER RESOURCES MANAGEMENT  
STOCKHOLM, 1 - 3 DECEMBER, 1993**

**TOWARDS GENDER-RESPONSIVE PLANNING IN THE HESAWA  
PROGRAMME:  
A CRITICAL REVIEW**

by  
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# TOWARDS GENDER-RESPONSIVE PLANNING IN THE HESAWA PROGRAMME: A CRITICAL REVIEW

by  
Deo Binamungu

## INTRODUCTION

The Health through Sanitation and Water Programme, popularly acronymed HESAWA, is an integrated rural social development initiative being implemented in the Lake Victoria regions of Kagera, Mara and Mwanza, in northwest Tanzania. The initiative began in 1985 under the development cooperation programme of the governments of Tanzania and Sweden.

The programme's overall objective is to assist rural people in their efforts to improve their health through better environmental sanitation and by providing clear and safe drinking water. As a consequence, the quality of life would improve and people would be able to improve their socio-economic status.

It is important to note that the HESAWA Programme did not start from isolation. Tanzania and Sweden had development cooperation within the water sector as early as 1965. However, the expected results in terms of widespread access to water supply, especially in rural areas, could not be easily achieved. Likewise, the long-term acceptability and sustainability of many water schemes left much to be desired.

The reasons for this state of affairs ranged from inappropriate technology to lack of an integrated approach to rural development. But the most crucial factor that impeded progress was identified as lack of community involvement in the whole process. HESAWA was basically initiated to rectify these problems

The aim of this paper is not to do a conceptual analysis of the term 'community participation', but rather to review critically its practicability within HESAWA. The special focus will be how men and women are actually involved throughout the Programme cycle at the village level, which is HESAWA's primary focal point. Basic questions will include:

- . What does HESAWA mean by 'community participation'?
- . Who is supposed to participate, in what, and at what level?
- . What is the practice regarding 'community participation' in HESAWA's activities? Are there any inadequacies?
- . Why participate? For whose benefit and how?
- . Can any recommendations be made for a more viable participatory process in HESAWA?

In attempting to answer these questions, the discussion will be divided into three parts. The first part involves a description of the HESAWA concept. The purpose is to contribute to an understanding of the underlying principles of HESAWA, which aim at avoiding the past mistakes of many Rural Water Supply and Sanitation (RWSS) initiatives.

The second part examines the HESAWA Gender Policy, focusing on its meaning, objectives and methodology. I will share some experiences the HESAWA Programme has had in its efforts to integrate gender in its plans.

The third and final part considers a number of issues of concern to which RWSS programmes similar to HESAWA can give serious consideration when formulating more realistic gender-responsive plans.

## THE HESAWA CONCEPT

HESAWA's quest for a participatory process for development is clearly manifested in its guiding philosophy: the HESAWA concept. The concept stipulates, among other things, the need to recognize beneficiaries as owners and controllers of their water and sanitary facilities.

Nearly all policy documents on HESAWA put strong emphasis on active participation by the beneficiaries in planning, decision-making, construction, operation and maintenance, and assessment. It is argued that, short of this, the improved water and sanitary facilities and services would not be properly cared for, leaving the way open to destruction or unreliable functioning.

The role of development support, as Gunnar Schultzberg (1988) logically points out, is to build up the capacity of the beneficiaries so they can solve their problems with their own resources and become less dependent on outside support.

Specifically, the HESAWA concept views self-reliance as the ultimate goal of community participation. It would be very frustrating, for example, if HESAWA initiated some improvements in the water supply or sanitary systems only to find out later that the villagers reverted to old habits either by choice or because of malfunctioning facilities.

### *Who Participates, In What, and At What Level?*

One of the most unsettling trends in many community-based development interventions is that community participation is more easily promoted than it is practised. It is becoming more and more fashionable today for planners to underscore the importance of the 'bottom-up' approach or 'community participation'. It is an easy concept to define. Why then is it so difficult to practise -- at least in its totality? This is a complex issue, though there are reasons for it. Let us discuss this phenomenon at different stages within the HESAWA Programme cycle in order to identify who participates, in what, and at what level.

### *Participation in Planning and Decision-Making*

According to a study by the Institute of Resource Management (1990:25) on community participation approaches in RWSS in Tanzania, HESAWA's 'bottom-up' approach requires as a precondition for intervention that villagers themselves apply for the HESAWA package, after which mobilisation and training would take place. The study observed on village participation in planning HESAWA activities as follows:

'In applying the 'bottom-up' approach villagers participated in the preparation of village activity plan and the budget. However, as mentioned before, what was planned centred on what [the] donor could offer. Participation took place in the area of: selection of sites for shallow wells; selection of village volunteers for special tasks; fixing work time-table; selection of traditional wells for improvement; and in village studies for collection of data on health, water supply and economic information.'

Notwithstanding the generalisations of this observation, it reflects the theory more than the practice in many HESAWA villages. The HESAWA concept prescribes that activities have to be done within the Tanzanian government structure and procedures. It is anticipated, therefore, that the village assembly, through its elected Village Development Council (VDC), performs the planning and decision-making.

Legally, the village council has supreme authority on all matters of general policy-making in the village (Drangert 1993:138). It can, on behalf of the village assembly, enact by-laws, impose fines and/or sanctions, and also guide the overall development strategy in the village. But again, as Drangert notes, the village councils' effectiveness will depend partly on the qualities of individual leaders in a particular village.

This paper does not intend to analyse the leadership qualities of the existing village council members. We will concentrate rather on the composition of these councils: who, among the villagers, form the village councils? The average number of members in an ordinary village council is 25. A recent random survey in some HESAWA villages, as shown below, gives a representative picture of who, among men and women, comprise the majority of the village councils.

## VILLAGE COUNCIL SEX COMPOSITION

### A. KAGERA REGION

DISTRICT	VILLAGE	TOTAL	MEN	WOMEN
Karagwe	Nyarumbura	25	22	3
	Chanyangabwa	25	24	1
Bukoba Rural	Mbale	15	12	3
	Kakunyu	25	24	1
Biharamulo	Nyisanzi	31	31	0
	Chabulongo	25	20	5
Muleba	Kamishango	23	22	1
	Kihwera	25	21	4
Ngara	Ntobeye	25	19	6
	Murugina	25	17	8

Source: HESAWA Phase III Plan of Action August, 1993.

### B. MARA REGION

DISTRICT	VILLAGE	TOTAL	MEN	WOMEN
Musoma Rural	Musurura	25	21	4
	Bumangi	18	17	1
Serengeti	Morotonga	19	16	3
	Bwitengi	25	19	6
Tarime	Kemakorere	30	26	4
	Mogabiri	25	24	1

Source: HESAWA Phase III Plan of Action: August, 1993.



C. MWANZA REGION

DISTRICT	VILLAGE	TOTAL	MEN	WOMEN
Sengerema	Nyanchenche	17	17	0
	Busurwangiri	24	14	10
Geita	Shabaka	23	19	4
	Nyang'hwale	27	27	0
Kwimba	Nguge	25	25	0
	Isabilo	17	17	0
Magu	Ngw'ange'enge	25	25	0
	Kitongo - sima	25	21	4
Ukerewe	Hamuyebi	25	23	2
	Murutunga	17	17	0

Source: HESAWA Phase III Plan of Action: August 1993.

The conclusion from these figures is inescapable: With rare exceptions in some villages, women are very poorly represented in this basic government structure. And yet it is at this grassroots level where HESAWA focuses its activities, which, in principle, have to be carried out on a participatory basis.

Many social studies on RWSS programmes have shown that women are the major users of water facilities. Also, they are the ones directly affected by the household welfare and health. Val Curtis (1986:8) observes: 'Water collection is an activity particularly reserved for women and children; in many countries for a man to be seen collecting water brings shame.'

A WHO Report of the Second Informal Consultation on Institutional Development (1987:22) confirms this when it states: 'Women are generally the main users and domestic managers of drinking water and are faced with the greatest problem in sanitation (privacy, safety, health etc...).'

Munuo (1992:20), who categorises seven key riders in the HESAWA Programme vehicle, singles out women as drivers. She argues that women have a special role as they are the traditional household managers and providers of water, sanitation and health services. Their input of knowledge and experience is critical towards the development of water, health and environmental sanitation in Tanzania.

It is argued therefore that, given the time and effort women take in collecting and storing water, they are in a better position to influence family sanitary habits. This could lead to positive changes in basic hygienic behaviour. Drangert (1993:142) notes that women often accompany one another when walking to the water source and therefore have ample time to discuss water problems.

Despite these and many similar observations, women have either intentionally or unintentionally been excluded in the planning and decision-making process when it comes to water and sanitation work.

The Tanzanian laws do not discriminate against anyone in standing for election on an equal basis. In fact, there is positive encouragement by the government to involve women in leadership opportunities. The 1993 subsidiary legislation of the Local Government Act No.7 of 1982 is a case in point. It states in part that elected women shall not be less than one-quarter of the entire village council.

Similarly, the HESAWA approach to forming a village HESAWA committee, with a 50-50 ratio of men and women is a laudable step towards democratisation of the village administrative structure.

Nevertheless, participation of women in village politics is generally limited. Even if a number of women were to be elected into the village council, it does not automatically ensure their full participation in decision-making. Such fears of low female activity in village politics are expressed by Drangert (1993:142), when he says that the institutionalised view among the Sukuma in one of the HESAWA regions, for instance, is that women are not supposed to speak for themselves. He quotes Mtui (1986), who attributes this tendency to women's apathy and resentment based on denial of access.

Hence, cultural norms or traditional attitudes may still prohibit women from exercising their rights of either contesting for leadership or raising their voices in public assemblies. In some areas, it is said, husbands actively prevent their wives becoming political leaders. Attitudes of this kind can be clearly demonstrated in the words of a village chairman in one of the districts when he was asked by the Gender Programme Officer of the Swedish International Development Authority (SIDA) in Dar es Salaam office and the HESAWA Training Officer why women were not equally represented at a village planning workshop, he said spontaneously, "We love our women so much that we cannot allow them to spend so many hours in meetings."

This might look very strange to some people, but it is exactly the prevailing trend in some of the rural communities.

In his anthropological study of washing slabs in HESAWA, Helander (1992:18) acknowledges that women are to a large extent left out of the planning process -- even regarding activities that are of the utmost concern to them. He establishes this contention after having interviewed men who failed in any way to mention that washing slabs were introduced to relieve women's burden of carrying water. This issue is also noted by the HESAWA Evaluation Report (Smet et. al. 1992:50), which states:

'The issue of washing slabs in HESAWA has been controversial, many problems were identified, many of which were linked to inadequate consultations with village women over siting and design issues.'

Non-involvement of women in village assemblies has also been attributed to the unbalanced distribution of work load in a family. Women do many of the household occupations and are thus left with little time for other activities, such as attending meetings or adult education classes.

A situation of this kind leaves the village council nearly all male-dominated. It obviously perpetuates overt discrimination against women. As a result, women lose access to decision-making in the sectors where their role is quite significant.

### *Participation in Implementation*

Beneficiaries are supposed to participate in a number of activities during the implementation stage. These include:

- . Surveying of water sites.
- . Crushing of stones to make the aggregate needed for casting concrete rings.
- . Collection of stones for well slabs and for rocking wells.
- . Excavation of pits for wells and institutional latrines.
- . Collecting sand and other materials for wells.
- . Ferrying of construction materials and equipment to work sites.
- . Site clearance, trench digging, pipe laying and back filling.

Trained manpower in the villages such as village artisans and village health workers also assist the district technicians in construction work on water and sanitary facilities.

In 1992, an analysis of the approved HESAWA plans in the 15 districts was carried out to identify the degree of their gender-responsiveness. The results were not very surprising. The analysis showed that women were predominantly involved in their traditional roles, which mostly required labouring. They were, for instance, assigned to cook for men who were involved in surveying or drilling.

They were involved as well in digging trenches, collecting sand and aggregate, often carrying it on their heads. Most of the activities which required technical skills, like surveying of well sites or mechanical maintenance, were identified as men's duties.

However, there was some satisfactory gender representation in those activities where the HESAWA policy requires an equal number of men and women.

These were mostly the training programmes for village health workers, water sources caretakers, and participation in Study Group Activities (SGA). In some cases the latter activity involved more women than men especially in Programmes II and IV.

It would be interesting to know why Programmes II and IV under SGA were more popular for women than for men. Programme II concerns family health and Programme IV is about the production of fuel-saving mud stoves. As principal agents in health and hygiene knowledge, women would inevitably like to be associated with activities concerning family health. Similarly, since women do the cooking for the family, they are naturally interested in having energy-saving stoves, which could reduce their burden of walking long distances to fetch firewood.

Unlike other activities which are male-dominated, the Traditional Birth Attendant (TBA)'s role is a woman's monopoly. There are no complaints from men about this monopoly, as this does not adversely affect their status quo. TBAs, as noted in the HESAWA Evaluation Report (1992:52), are enthusiastic about their role because:

- (a) they usually receive gifts from the women they help with health problems and childbirth;
- (b) they enjoy a significant amount of respect and prestige in the villages; and
- (c) they feel the status of being taken seriously since their training is given by 'official doctors and nurses'.

A workshop on gender planning which followed this gender-responsive assessment recommended among other things, further exploration of practical ways of operationalising the gender concept in HESAWA. These ways are discussed later in this paper.

When it comes to improving the water sources, Drangert (1993:203) expresses the actuality of gender roles among the Sukuma. He says:

'Women are expected to dig a pit in the river bed, but not to dig a well proper. Women may take part in donor-driven water projects by carrying spoils from the excavation. Digging a deeper well is not deemed possible, however, since a woman cannot climb a ladder with dignity.'

The situation in Sukumaland (Mwanza region) does not differ from other HESAWA regions. Even in families where women are heads of the households, men are usually hired to participate in well-digging.

### *Participation in Operation and Maintenance*

The experience in the HESAWA area of Tanzania is that villagers are gradually acknowledging the concept of village-level operation and maintenance of the acquired water and sanitary facilities. Proper and continuous mobilisation and training are of utmost importance if a sense of ownership and responsibility is to be instilled in them.

To stimulate and facilitate community participation in operation and maintenance, a number of actors are involved. These are:

- (a) Members of a village HESAWA committee, which is a focal point for village organization. Though women's participation in village politics is very limited, there are some areas where they show direct concern. For example, on village financial management, Wang (1987), in his feasibility study of Shinyanga Region Water Development, expresses a general concern of women over this crucial aspect in operation and maintenance:

'Women generally are not involved in the collection, management and use of village funds; they usually feel [they] are outside the system and are concerned that collected monies are not being used as efficiently as they could or should be; some women express the need for better accountability of village funds.'

Demands by women for better accountability of village funds for operation and maintenance can be quite understandable. They are primary users of water and, if anything goes wrong with the water installations, they are the ones to take up the burden of fetching water at a far-away place or being forced to revert to old and unsanitary water sources, which could be disastrous to the health of their families.

Women in the HESAWA area see their involvement in the management of water and sanitation work as crucial though they are very conscious about how they state their demands or else they may be branded as social misfits. According to Sukuma norms and very much so in other tribes within the HESAWA programme area, women are careful not to give the impression that they are pushing men.

But the fact remains that, in order to increase the chances of sustaining the water facilities, women have to be deliberately brought into the mainstream of village management through training in management and leadership skills. Various studies have indicated that women express the desire to be more organized in order to participate in village management more actively.

- (b) Water Points Caretakers. The practice in HESAWA is to train at least two villagers -- a man and a woman -- for every water point. The purpose is to stimulate the villagers to take responsibility for the upkeep and general hygienic conditions around individual water points. The choice of who should be a caretaker rests with the village government. There are reports that male counterparts regularly neglect their assigned duties of routine care of the water sources. On the other hand, women caretakers, who at the same time happen to be collectors of water for their families, are in a better position to know the sanitation problems at their wells.

In this way they feel more responsible for keeping the well surroundings clean. The HESAWA Evaluation Report (1993:59) found that water points looked after by women were generally in a cleaner and tidier condition than those taken care of by men.

- (c) Village 'Fundis' and Pump Mechanics. Each village is supposed to have at least a local artisan (fundu) to assist in construction of or repair work on the installed facilities.

Also, at a ward level (i.e., a collection of three or four villages), a person is selected for training in simple pump repairs and maintenance.

While it is deemed crucial to involve women in technical aspects of the Programme, the available statistics show that there are still some obstacles to this development. The data below on the HESAWA-trained ward pump mechanics in the last two years express this trend.

A. KAGERA REGION

DISTRICT	TOT.	MEN	WM
Bukoba Rural	2	2	0
Karagwe	-	-	-
Muleba	1	1	0
Ngara	1	1	0
Biharamulo	4	4	0

B. MARA REGION

DISTRICT	TOT	MEN	WM
Musoma Rural	2	2	0
Bunda	4	4	0
Tarime	2	2	0
Serengeti	4	2	2

C. MWANZA REGION

DISTRICT	TOT	MEN	WM
Mwanza	5	5	0
Kwimba	10	10	0
Magu	9	8	1
Ukerewe	3	3	0
Geita	4	3	1
Sengerema	3	2	1

Source: ZSWI Report on Hand Pump Mechanics: Location and distribution of tools as per June, 1993.

The above statistics show that, out of 54 ward pump mechanics trained by HESAWA in the last two years (1991/92 and 1992/93), only five were women.

Whatever reasons can be given for this trend of non-involvement of women in technical jobs in water supply projects, it is clear that, if the pump breaks down, the task of obtaining water will still remain with the women. Despite these difficulties, women continue to do a commendable job of cleaning the pump sites. Because of this commitment, there is considerable pressure within HESAWA to motivate them through training to participate in higher levels of pump maintenance.

### *Participation in Monitoring and Evaluation*

Monitoring and evaluation are key tools for keeping track of any development project. Monitoring gives a periodic insight on the activities, while evaluation involves a critical analysis of how different aspects of the project's objectives are fulfilled within a specific time frame.

In water supply and sanitation programmes like HESAWA these tools are meant to:

- (a) Identify to what extent the improved water and sanitary facilities are functioning or being used by the beneficiaries.
- (b) Establish what actions and resources are required to rectify the shortcomings.

We have seen that women play, though mostly in the background, an active and meaningful role within the water and sanitation programmes. They have access to reliable information regarding 'good' and 'bad' sites, suitable and unsuitable designs, cleanliness of water sources and the general health of the community.

The fact that women have first-hand experience of water situations is well elaborated by Drangert (1993:215), based in his interviews with male and female informants on their knowledge of water problems in their village. Some male informants admitted that they found out about the water problems by accident, as one of them was quoted saying:

'My wife does not mention anything about fetching water, and I do not expect her to do so. I remember once when she was delayed at the well, it took her two hours instead of the expected one. I enquired why it took so long and was told that she had to dig deep into the river bed to get some water. In that way I was informed about the conditions at the water source.'

Though it is yet to be established to what extent women and men collaborate in monitoring and evaluation of the HESAWA activities in the villages, the inclusion of both genders, especially the former who are water users, can enhance the information system getting feedback, say, of a broken pump just at a right time.

## THE HESAWA GENDER POLICY

The essence of HESAWA's gender policy arises from the fact that the Programme's principal beneficiaries -- women and children -- seem to have been 'pushed' into the periphery, especially when it comes to planning and management of water and sanitation issues.

The HESAWA gender policy has two basic purposes:

- (a) To create gender awareness among all people involved in the Programme -- staff, leaders and beneficiaries.
- (b) To encourage active participation of men and women in all aspects and stages of the Programme. Special efforts are to be directed to more participation by women especially in planning and management. (Binamungu, 1993:10)

### *Policy Implementation*

To ensure proper implementation of this policy some guidelines have been set:

- (a) There shall be continuous gender sensitisation among all agents and beneficiaries based on HESAWA course manual entitled: "HESAWA and Gender Awareness" (*Mwamko wa Kijinsia katika Mpango wa HESAWA*). All training and promotion activities organized by the Programme shall include a topic on gender awareness.
- (b) Gender analysis of HESAWA activities/plans shall be undertaken to establish strengths and weaknesses and recommend relevant gender action. The purpose is to determine ways and means of incorporating a gender-conscious approach in all action plans and budgets in all HESAWA districts.
- (c) All HESAWA activities shall be monitored regularly to check whether the recommended or relevant gender actions have been effected in accordance with the HESAWA gender policy guidelines.
- (d) In all HESAWA activities the monitored results shall be analyzed to determine whether there is a need to prepare further appropriate measures of redressing implementation of the gender policy guidelines.
- (e) Action on implementation of gender policy guidelines shall be supervised by selected persons in the districts.
- (f) Overall coordination responsibility for the implementation of the gender policy shall be vested with a designated gender officer at the HESAWA zonal headquarters.

On the basis of these guidelines HESAWA has, in the last two years, taken practical initiatives by engaging in a broad programme of gender sensitization at all levels. The aim is to enable everyone involved -- men and women -- to better understand and



appreciate the root causes of gender discrimination and suggest the factors which should bring about change.

As part of strengthening its planning capacity, each district has at least one person trained in gender planning, who is supposed to monitor specific gender problems and potentials during planning and implementation of the Programme activities. This person is expected to give advice to village governments on steps necessary to overcome the identified constraints.

Other specific gender actions have been recommended in the areas of participation in technical courses. Since at present most of these courses have poor female participation, it has been recommended that course conveners should henceforth make an effort to have a minimum of one female participant out of five whenever a course is held.

In general, course organisers, in consultation with village government leaders, are required to adjust any gender imbalances prior to commencement of any course.

Emphasis is also placed on assuring that all men and women who have been trained by HESAWA or who have skills related to construction, maintenance and rehabilitation of wells or latrines are actively utilized with their relevant skills.

It is recommended that for all other villagers who do not possess specific technical skills, their physical participation in implementation shall be decided by the village itself in a method they deem fit.

But the core area is in planning and management, where women are, in practice, poorly represented. HESAWA continues to demand equal representation of men and women in the HESAWA village committees. It is anticipated that the new Local Government Elections legislation, which requires a minimum of 25 percent women to be elected in a village council will provide supplementary support to this approach.

Courses on management and leadership skills which women have demanded (HESAWA Evaluation Report 1993:58) are expected to act as catalysts in motivating them to build self-confidence, and consequently to participate actively in planning and decision-making in the village affairs.

## **SOME ISSUES OF MAJOR CONCERN**

In effecting the HESAWA gender policy, there are several issues of utmost concern which are not uncommon universally. Participants in gender sensitisation meetings or seminars usually express their concern on a number of points related to the gender approach.

First is the issue of traditions and culture. Some people perceive gender sensitization programmes as a calculated strategy by foreign donors to destabilize their otherwise 'harmonious' communities. This fear can be justified in the sense that, more often than not, a discussion on gender is an automatic challenge to the existing status quo in any

community. People become sensitive when matters concerning their culture are challenged.

But we cannot escape the fact that in today's world cultural synchronization is inevitable. Regular interactions among the various peoples of the world have brought about the transfer of traditions, customs and political ideas from country to country. Among these is the question of gender.

However, these processes interact with social and economic situations, which also differ from country to country, and within the countries, from area to area. While it is true that the gender approach has been very much influenced by the Western way of life, there is no justification for us in the developing world to reject it totally in order to perpetuate an unjust system of gender inequality.

Nevertheless, a caution by Brandström, when addressing participants to one of the HESAWA workshops on Gender Planning, is to be taken seriously. He says,

'... when explaining the gender approach in the HESAWA area, we must be careful not to be dragged into a situation where people feel that the whole idea is a foreign one. Africans have their own good cultures; Europeans alike. Because a gender message which can only be properly understood in, say English or Swedish is not a meaningful message for women and men in the Lake Zone.'  
(HESAWA 1992:18)

He goes on to advise that messages, to be understood properly, have to be translated into local languages and be adapted to actual cultural conditions.

Because the HESAWA concept discourages any attempt at imposition, Brandström appeals to gender planners to think of the generally acceptable ways and means of interventions in various cultures. By so doing, there is a greater chance of avoiding the impression that the gender idea is an imposition by foreign donors.

The second concern is the view that gender is synonymous with women's issues and concerns. Often times, this view reflects a feminism that leads to either apathy or irritation on the part of men. They feel they are being accused of being responsible for the gender inequalities in a community. Our experience is that once this feeling of accusation arises, men tend to defend themselves in denying discrimination. Moreover, it is natural that people would not be motivated to change if they feel they are being accused.

In an article on "Gender in Development and Feminism: Related but Separated Issues" (Wallace and March: 1991:296) Barry Underwood argues correctly that encouraging women to see men as enemies leads to conflict of most unproductive kind.

HESAWA's gender approach must emphasize the need for people to look at gender as a development issue concerning everybody in a community -- men, women and children.

It has to focus on the contribution, issues and concerns of each person in the development process and, in this case, the water and sanitation initiatives.

### ***Tackling Gender Inequalities from Several Fronts***

Gender strategists will agree that elimination of gender imbalances is not an easy task. Its remedy cannot, for instance, be prescribed once and for all in national or international forums like this one. In order to create a meaningful strategy, action has to be pursued on several fronts. And each development initiative has to design appropriate intervention strategies which are relevant to the prevailing socio-economic situations in a particular community.

For RWSS programmes, there are two ideal fronts and each one requires commitment and political will on the part of donors and recipients.

#### ***(i) Easing Women's Burden***

The first front is to design policies in such a way that they aim at easing the burden on women in their given gender roles. Almost every article on gender highlights the need to improve the conditions for rural women.

But mere promotion of women's participation in untraditional gender roles cannot in itself improve their condition. For example, laws against sex discrimination can be enacted, but their practical interpretation remain unchanged.

In the same way, involving women in new roles without consulting them on their practical needs would only give them additional tasks.

One potential strategy for unburdening women of their various tasks is to design appropriate technological and organizational innovations (UNICEF 1985: 199:15). In rural water supply and sanitation programmes such as HESAWA, women would be unburdened if access to water is improved. This could be in terms of reducing the walking distance which women and children have to travel to fetch water. The Tanzania national water policy states that every person should have access to potable water at a distance of not more than 400 metres by the year 2001.

The work of water collection could also be reduced by using simple hand-held carts or wheel barrows. HESAWA could seriously rethink providing such devices to rural women on agreeable terms, either at a subsidized price or by soft loaning.

There are two obvious advantages in introducing more efficient water transport methods. One is that men would be readily available to use the improved technology in water transportation. Though Val Curtis (1986:44) refers to this initiative as creating a 'common problem', she quickly justifies it by stating: '...if they [the men] decide at the same time to use the aid for fetching the family's water then it might lead to a transfer of work from women to men.'

The second advantage is that it can allow more time for women to participate in other social and economic activities, such as attending village meetings or adult classes, or carrying out other profit-making activities.

It is also appropriate for RWSS programmes to direct their attention to other fundamental aspects, e.g., collection of firewood, which invariably are the responsibility of women. Women in rural areas walk long distances to collect firewood. Improved technology, such as fuel-saving stoves accompanied by afforestation campaigns, could undoubtedly complement water and sanitation initiatives.

### *(ii) Challenging the Status Quo*

The second front is, as April Brett suggests in an article "Why Gender is a Development Issue" (Wallace and March '1991:6) '... to challenge the status quo or address the perceived inequalities between men and women.'

The whole process could aim at empowering women, which basically involves:

- (a) Influencing law makers to do away with discriminatory laws against women.
- (b) Motivating women to participate in decision-making within the programmes.

The success of this approach relies heavily on how tactful the project planners devise their policies. For instance, gender-responsive planning could be a precondition to starting water and sanitation projects in a given area. The ministry responsible for the project could, in collaboration with other related ministries, institutions and voluntary agencies, influence the enactment of laws which are against sex discrimination. But again, caution should be taken lest the gender idea is viewed as foreign-imposed.

In order to be effective, development efforts require full support by those in power, whether at the national or village level. Hence, these persons need to be gender-sensitized so that they can appreciate and support the project policies.

It was mentioned earlier that the election of women to village councils and/or their appointment as water points caretakers cannot be viewed as the end of women's participation (Andersson 1985:51). Nor is mere education or training of women in management and leadership skills enough to motivate them to participate in the decision-making process.

Of course, self-confidence and competence are major prerequisites to enable one to manage and make decisions. These are usually acquired through education and training. But other socio-economic factors could be contributing more to women's limitation in full participation in decision-making, and these have to be clearly established prior to advocating or designing a project.

### *(iii) Use of Women's Groups*

Women groups, which are found in nearly every village can be viable vehicles for women's empowerment in the development process. Most of these groups are voluntary and they are involved in self-help activities such as brick laying, brewing local beer for sale, and other small-scale enterprises.

These groups attract women of all walks of life in a village and could therefore be targeted for promotion in various aspects of development. Such women are in a better position for learning new skills, e.g., slab casting, and could easily spread new ideas on health and sanitation to other villagers.

Likewise, project issues could be presented to them in order to seek their opinions and suggestions. In this way, their opinions could later be presented to the general assemblies or village councils, if it is impossible to get women to speak at village assemblies. (Andersson 1985:51).

The DANIDA-funded water and sanitation project (RUWASA) in eastern Uganda has some good experience of integrating women's economic activities. The Masese and Tororo Women Groups do get loans from RUWASA to manufacture sanplats and well rings. In turn RUWASA purchases these products for resale to households at a subsidized price. The accrued income from sales partly pays for the loan, and the rest is used for the socio-well being of the members. Through this arrangement, the Masese women have acquired modern houses which has helped solve housing problems for their families.

It is no wonder that this integrated support would economically advance the members and at the same time increase their empowerment in managing community affairs.

### *(iv) What about the Youth?*

Gender issues have generally been directed to the situation of women and men, but with little concern over aspects of age. The situation of the youth in many communities today is one of hopelessness. They feel deserted and possibly betrayed by their own society.

Tanzania, like most other developing countries, has more juveniles than adults. The compulsory Universal Primary Education system has increased the number of unemployed school leavers. Even those boys and girls who happen to achieve secondary education find themselves without 'respectable' jobs.

The drift from rural areas to cities is increasing, accompanied by its adverse effects. Those who remain in villages, too, resort to social misconduct.

Gender proponents have, however, shown little attention over how the youth -- both boys and girls -- can be best involved in the mainstream of development.

The gender approach should focus on everybody in the community - adults as well as youths.

They all have to be involved in the development process of their communities. For example, the youth could be organised into brigades to participate in community development work, in particular, in alleviating the heavy workload of women (UNICEF 1987:17). In RWSS programmes, the youths could be trained in various skills to support village operation and maintenance. Youth groups in villages could be appropriate targets for such initiatives.

## CONCLUSION

The focus of this discussion has been the practice of -- community participation in the HESAWA Programme. Our review leaves us no alternative but to conclude that there are some inadequacies in the practice of the concept, particularly the partial involvement of the main beneficiaries, the women, in planning and management of the water and sanitation projects.

Initiatives by HESAWA to redress this trend have been discussed, with recognition of a number of imminent problems and issues.

Planners, especially in the traditionally male-dominated professions are still gender-biased. Similarly, grassroots communities -- the villages -- too, are to a large extent gender-segregative as regards water and sanitation issues.

Admittedly, there are still conceptual gaps among HESAWA staff and beneficiaries about how gender-responsive planning can be integrated in the activities. Regardless of this temporary handicap, gender biases must be redressed. The issue should not be the legitimacy or illegitimacy of redressing measures, but instead, how best to accommodate or discard some of the more disruptive measures and traditions. The ultimate aim for HESAWA should be to achieve a level of beneficiary or community participation which is adequately gender-represented.

## Works Cited

- (July, 1992). "Questions of Gender and Development of a Society, A Commentary", Daily Nation, Kenya.
- Local Government Elections Regulations, Tanzania (1993), Subsidiary Legislations G.N 195 of 16/7/1993.
- Andersson, Carolyn H. (1985). "Domestic Water Supply Improvements in Tanzania: Impact on Rural Women", Dar es Salaam.
- Binamungu, D. (1993). "A Report of BCS Consultants Involved in Human Resources Development in the HESAWA Programme for the Period from 1st August 1991 to 30th June 1993."
- Curtis, V. (1986). "Women and Transport of Water", Intermediate Technology Publications", London.
- Drangert, Jan-Olof (1993). "Who Cares About Water? A Study of Household Water Development in Sukumaland, Tanzania," Linkoping University, Sweden.
- Fagerlind, I. and L. Saha (1989). "Education & National Development: A Comparative Perspective", 2nd edition, Pergamon Press, Oxford.
- Helander, B. (1992). "An Anthropological Study of Washing Slabs, Washing Habits and Washing Sites in the Lake Zone Regions, Tanzania", Stockholm University.
- HESAWA (1992). "Report on Gender Workshop: 6 - 16 October 1992", SIDA-DCSP, Dar es Salaam.
- International Development Research Centre (1981). "Rural Water Supply in Developing Countries: Proceedings of a Workshop on Training in Zomba, Malawi, 5-12 August 1980", IDRC Pub. No. 167e Ottawa.
- Institute of Resource Assessment (1990). "Study on Community Participation Approaches in Rural Water Supply and Sanitation Sector in Tanzania", University of Dar es salaam.
- Ministry of Community Development, Women Affairs and Children (1992). "Policy on Women Development in Tanzania" MCDWC Publication, Dar es Salaam.
- Munuo, E.M (1992). "Initiating and Managing a Practical Participatory Development Programme: The Experience from HESAWA in Tanzania", Kitabu Publishing House Ltd., Dar es Salaam.
- Narayan-Parker, D.(1989). "Indonesia: Evaluating Community Management", PROWESS/UNDP Technical Series, New York.
- Schultzberg, G. (1989). "Monitoring and Evaluation of Integrated Water Supply and Sanitation Projects", WHO Publication, Geneva.
- Smet, J, et al. (1993). "SIDA Evaluation Report on HESAWA: A Study from a Village Perspective", SIDA, Stockholm.
- UNICEF, (1985). "Plan of Operations and Plans of Actions 1987-1991 for Tanzania".
- Wallace T. and C. March.(Eds.) 1991. "Changing Perceptions: Writings on Gender and Development", OXFAM, Oxford.
- Wang, C. (1987). "Shinyanga Region Water Development Feasibility Study". Dar es Salaam
- WHO (undated). "Women, Water and Sanitation", WHO Publication, Geneva.
- WHO (1987). "Community Water Supply and Sanitation: Cost Recovery in Community Water Supply and Sanitation", Report of the Second Informal Consultation on Institutional Development.





# **Irrigation Water Management: A Gendered Analysis**

**by**

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**IRRIGATION WATER MANAGEMENT:**

**A GENDERED ANALYSIS**

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on Gender and Water Resources Management

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Over the past thirty years there have been massive investments in building irrigation systems all over the developing world, and in many regions, irrigated fields now account for more than two-thirds of all food production. Yet it has become increasingly clear that irrigated systems in many countries perform at levels well below their potential. New irrigation schemes almost invariably fail to achieve either acreage or productivity targets (Svensen et al, 1983), benefits often fail to reach targeted groups, waterlogging and salinity problems often develop. All these problems undercut the economic justification for such projects. Because the pressure of increasing demand for food production is so great, efforts to understand the nature and causes of such irrigation system problems are on the increase. Such efforts involve not only engineers and economists, but agriculturalists and social scientists as well, utilizing a systems approach under the general rubric of irrigated water management.

#### Irrigation Water Management

The study of irrigation water management acknowledges that more than water must be managed. People, funds, equipment, information and political relationships must also be managed if irrigated systems are to be efficient. Systems differ in both their size and the source of their water, and such differences affect the problems encountered in their administration. Small systems depend on pumps and wells, or diversion of nearby river water, and they are most often locally developed and managed, although governmental or non-governmental credit and technical assistance may be available.

In larger systems, two sets of managers are involved in decision making. Professional engineers, and technical specialists manage the reservoirs and the large and medium size channels, while groups of farmers take over water management at the tertiary level. Links between these two systems are often weak and ineffective, with the large system managers and the farmers blaming each other for poor water delivery. (Svensen) Improving the communication and

rationalizing the linkages between the two systems has become a major focus of effort over the past decade.

Most recently, many governments in an effort to improve system performance and cost effectiveness are actively organizing local management groups, and turning collection of water user fees and maintenance of these tertiary systems over to them. Although these management groups hold the promise of greater responsiveness to local needs, as well as greater efficiency, they are strongly influenced by a number of factors over which they have limited control. (Vermillion, 1992) All of these factors have gender implications.

A recent publication on assessment of systems performance by the International Irrigation Management Institute (Murray-Rust 1993) noted the factors influencing system performance included organizational and institutional environments with specific capabilities, staffing patterns, financial resources and legal arrangements. Although the IMMI report did not note it, such institutional environments have been, and continue to be overwhelmingly male in their staffing. Perhaps not co-incidentally, they have also tended to develop and administer systems which overlook the roles and resource needs of women in the command area farm households.

Management of both main and local systems must deal with two other relatively stable elements, which also may be difficult to modify:

1. The design of the physical infrastructure of the system. The layout of the systems determines where the water goes, and how it can be controlled. Channel layout may deliver water only to fields used for cereal crops, or include smaller fields for high value secondary crops such as spices, fruits and vegetables as well as holding tanks for domestic water supplies. Design feature of the channels also influence the

ease with which they can be used for watering animals, laundry, bathing and other household uses.

2. The principles of water allocation among user groups and individuals, and the strategies to be used when there are changes in water availability at the head of the system. These principals are often codified in administrative arrangement which are not easily changed. Not only do such agreements affect users at the head and tail of the system differently, there are also gendered effects. Water allocations may not include attention to household water needs, which are overwhelmingly the responsibility of women. Or they may not extend through the growing season for secondary crops, such as fodder for dairy cattle, or vegetables and spices, which are often grown by women.

The basic hypothesis of the IMMI report is that the total design-management environment, comprising physical design, the water allocation principals, and the supporting institutional and organizational arrangement need to be carefully matched in order to attain high levels of performance. Performance is evaluated in terms of adequacy, reliability and equity of water supply. Certainly all three criteria affect the general productivity and well being of both men and women in farm households, but there are additional, gendered effects from the differing adequacy, reliability and equity of water resources available to women and men, for their agricultural production as well as household and human capital production.

Research in this area is still somewhat limited, but with very few exception it appears that neither institutional arrangements, the design of the physical infrastructure, or the principals of water allocation address women's need for water as a productive resource. This consistency can, and all too often, has led to judgements on performance efficiency, which overlook vital elements in the

distribution and use of water. Not only gender equity, but system efficiency are at issue.

Why do we need to think specifically about women's access to water? Why is it not sufficient to think about delivery and distribution to a command area, or to the fields of individual farmers? Basically, because women and men have both shared and separate interests, shared and separate responsibilities in farm households and communities. Everywhere, women are responsible for household production, for food preservation and preparation, for cleaning and laundry, as well as human capital production; the birthing, nursing and early education of children. They are also responsible for much of family health care. Often they provide labor for cereal crops, and more often, they have their own plots for secondary crops, and animals such as chickens, and goats.

Men are most often responsible for management of cereal crop production, for large animals, and for public representation of the household in community meetings.

Irrigation water is such a valuable resource, whatever the official principals of water allocation, people will use it for a variety of purposes. Farmers will use it not only for rice production, but for secondary crops, and watering animals. Households may divert it for fish ponds, homestead gardens and orchards and small scale production of crafts and food products, as well as for laundry, cleaning, bathing and even drinking. Channels may also serve as a sewer system, or provide water power for grain milling.

Historically, traditional irrigation systems have been used to provide water for domestic purposes(including drinking) in such places as Sri Lanka, South India, Syria and Assyria, Greece, Rome, the Nile river valley, Meso-America and the highland Andes. Today, irrigation systems are used to provide drinking water in Nepal, Pakistan, Jordan, Mexico, Guatemala and California, among other areas. Other non-agricultural



uses of irrigation water systems, variously practiced, are for bathing of people or livestock, swimming, washing clothes, washing and cooking foods, watering household gardens, production of energy for milling and electricity...Yet the traditional engineering view of systems is limited to provision of water for crops. (Alt 1981)

### Gendered Analysis

When systems are designed and implemented in ways that ignore multiple uses, that privilege men's resource needs, and ignore women's, both inequity and inefficiency may result. This section will address current knowledge of such gendered effects. In my discussion I will address three questions:

- 1) What are the differential effects of irrigated water management systems on men and women?
- 2) What do we know about the roles women play in on-farm and off-farm water management?
- 3) What changes in system design or system management would improve:
  - a) women's contribution to the efficiency of the system, and
  - b) the benefits to women from the functioning system?

#### 1) DIFFERENTIAL EFFECTS OF IRRIGATED WATER MANAGEMENT SYSTEMS ON WOMEN AND MEN

There is substantial literature on the effects of irrigation at the village household level, less on the intra-household effects. As a general principle we know that the introduction of irrigation will result in changes within the household. Frequently cited effects include the expansion of agricultural output, with concomitant increase in demand for labor time, and increase in household income, changes in land tenure arrangements, changes in availability of household water, and both positive and negative

changes in family health. Each of these changes in turn produces shifts in household and community resource allocation patterns.

It is clear from the literature that the distribution of costs and benefits of irrigation in any particular system are conditioned by the socioeconomic status of the household, their access to land, and the spatial features of the particular water system. What has not been so explicit in the literature is that the distribution of costs and benefits is also conditioned by gender. Women participate in water systems and are affected differentially by the systems in two ways -- first as members of particular households, secondly as women within these households. For historical, cultural, and economic reasons, there are gender-related patterns in the distribution of work loads, consumption patterns and income distribution within households. These patterns may differ dramatically between systems, but in every system, questions of who does what, and who decides what are conditioned by the gender roles within that system. The particular gendered patterns of division of labor and control over resources within a given system will channel the interplay between women and water management within that system.

Depending on the availability of water, increases in agricultural output may result from increased homestead production of vegetables, dairy products, tree crops and poultry, as well as from increased cereal production. Depending on the system, women will be involved as laborers and decision makers in many of these productive activities. Almost universally they will be involved in processing the increased production. Both the increase of labor at traditional tasks, and the additional labor demands of a second cropping cycle, will serve to increase demand for labor time differentially. This may benefit women directly as day laborers, or indirectly if other family members increase their income from paid labor. In the "too much of a good thing" department, studies in Greece (Bergman, 1976) and Africa, (Cloud, 1982; Jones, 1985;

Dey 1981) document the development of labor bottlenecks when increased demand for labor place a disproportionate workload on women. If the allocation of labor and other resources doesn't shift significantly with the introduction of irrigation, women simply can't keep up with the new work in addition to the old. The resulting labor bottlenecks reduce potential increases in agricultural productivity as well as affecting the time women have available for important household production tasks such as food preparation and processing and child care. In resettlement programs, the burden of women's work, combined with the loosening of traditional norms and values, tends to reduce community activities and results in the isolation of women in the nuclear household, with fewer social resources in times of illness and trouble.

An irrigation-induced increase in household income will affect women differently depending on intra-household patterns of resource allocation and their bargaining power within the system. In Africa, there is often no single household purse. Rather, different members of the family have responsibility for provision of different goods, and income from irrigated cereal crops (i.e. rice) may not flow into general family consumption. In Asia, common household budgets are more common, but the degree of women's control over its disposition varies. Agrawal (1985) cites a number of studies documenting that where women do have some discretion on cash expenditure, they tend to spend it on food and other family needs rather than personal needs. They also use it for household technology, food processing and storage equipment; anything which reduces labor and increases productivity.

In Punjab there is some indication that increased farm income has been accompanied by movement of landed women out of the paid labor force into unpaid household production, thus lessening their direct control over income. Since this has been accompanied by rising dowry prices and proportionately higher female mortality, there is

concern that increases in family income may have increased total family welfare at the cost of greater dependency for women.

Changes in land tenure arrangements are common with the increase in value of irrigated land. In African systems, where women still have independent access to land through traditional use rights, there is evidence that they lose access when irrigation is introduced unless specific measures are undertaken to preserve it. This is important for efficiency as well as equity reasons because women in many African systems are independently responsible for provision of parts of the family food supply. In Sri Lanka's Mahaweli resettlement project, a survey by the People's Bank notes that:

The traditional pattern of land inheritance and ownership has been broken up by principles applied by the Mahaweli Development Board (MBD). The MBD adheres to the following principle when distributing land..."Land can be distributed to both men and women. But if the woman is married only the husband is entitled to receive land, as the lot is registered in his name. Each family is considered a separate unit, the head of the household being automatically the husband/father." This principle deviates from traditional Sinhala laws of land ownership where the married woman too possesses the inalienable right to own land. Thus under the new scheme of land distribution, if the woman wants to divorce her husband, she is deprived of means of subsistence as she has no right to the family land. (Lund, p. 7)

The same situation is described in the Nemow Case (Plamer, 1979). In India, by contrast, the Sixth Five Year Plan recommends joint

title with co-registration in the names of husband and wife when the land and housesites are being transferred.

Changes in the availability of household water have a direct effect on women's time use in two ways. If water is not easily available, time will have to be taken from other potentially productive activities to obtain it. If household water is available in quantity, released time can be combined with water for production and processing as well as for increased household cleanliness.

These sanitation activities in turn may produce improvements in family health. Jones (1981) cites studies indicating that " in many, but not all, situations of limited financial resources...increases in the quantity of water available is likely to have a more positive effect on water related disease effects than would (more limited,sic) quality improvements. " Because women are usually responsible for the care of the sick, such improvements would benefit them both directly and indirectly.

However, Alt, (1981) in the same publication, notes an increasing concern with the health effects of agricultural run off, and in particular, with pesticide contamination of both well and channels. In a detailed discussion of policy implications of these problems, he recommends that household refrain from use of irrigation water in cotton production areas, due to their intensive use of pesticides, and the lack of simple treatment methods for their removal. He also recommends the use of integrated pest management strategies in areas of low water quality, as well as reforestation and shifts to multiple crop agricultural systems as a way of reducing pest and disease problems, and thus, less dependence on pesticides. Each of these recommendations has gendered implications for women's agricultural roles as well as family health.

Women's own health may also be differentially affected by increases in water-borne diseases, if their tasks expose them more frequently to vectors for disease such as cholera, malaria, and schistosomiasis. Canals are often involved in accidents to young children, and keeping toddlers out of poorly planned channels can be a significant drain on the time of women and girls.

Changes in food availability accompanying irrigation usually produce an increase in calories available to the household, although in some cases availability of protein may actually be reduced (Hager and Morris, 1973). Intra-household distribution patterns of food may differentiate between men and women, boys and girls. To the degree that more food is made available in situations of marginal female nutrition, the benefit to women and girls is potentially great. In general the reduction in human illness and mortality, particularly child mortality, that can result from improved health and nutrition has a differential benefit to women, since it is they who bear, nurse and rear the children who die with heartbreaking frequency.

## 2) WOMEN AS AGENTS - THEIR PRESENT CONTRIBUTIONS TO WATER MANAGEMENT

On-Farm: There is substantial data documenting women's roles in obtaining and managing domestic water supply used for drinking, cleaning of clothes and bathing. In addition, women in many systems are also responsible, either by themselves or with other household members, for agricultural, horticultural and animal production using irrigation water. Kitchen gardens, poultry, tree crops, and care of young animals may be done by women either alone or with other household members. In cereal production, Asian women are most likely to specialize in particular task within the production sequence as well as serving as a reserve labor force to be drawn on in other parts

of the cycle. Transplanting of rice is a prime example of irrigated cereal production where women play a major role. According to an AID agricultural officer in Jakarta, "Men may make decisions on water, but the women won't transplant rice until the water level is right, and men know it."

A substantial number of case studies have been done in Africa and Asia that illuminate such connections between women's roles in on-farm and off-farm water management. It would be worthwhile to collect and synthesize the information in them.

Off-farm: Evidence on women's off-farm water management role is fragmentary at best. There is a widespread impression that women do not have major roles in most formal water users' Associations. A very useful and detailed Philippine case study documented gender issues in the development of a new 231 hectare irrigation project on the Aslong River. With technical assistance from the National Irrigation Administration, farmers built the system, and now own and manage it. Although the community organizers who helped develop the irrigator's association were women, the association was overwhelmingly male, since membership was based on head of household status. Yet women in this community are deeply involved in irrigated production, and it is they who manage the household budget. Over time, the community argued more and more strongly for letting women (and older children) attend association meeting as a proxy for the husband, when he was away, or otherwise occupied. Finally, it was recommended that Association membership should be in the name of the household, rather than an individual "head".

Shifting the basis of membership from a single member to the household as a unit enables the household to spread the costs by assigning whoever among their member is available to engage in project activities. ..The proxy system developed in Aslong to enable

households to achieve two interrelated objectives: to distribute the costs of participation among the members, and to ensure that the household shared in project benefits by being represented in relevant meetings and activities. Household membership criteria also explicitly recognizes and builds upon women's primary role as arbiters of resources within their households. Financial obligations of household to projects and association are better settled when women are involved in the decision making process. (Illo, 1988 p.42-43)

The similar example, taken from an Indonesian AID document, highlights the different kinds of roles allotted to men and women:

In Village S, problems often arise between farmers on the upper and lower slopes, whose irrigation water comes from the same source. The farmers of the lower slope ( who live near the main road) tend to be better educated, wealthier, and generally more powerful in the community. When the farmers of the upper slopes have to approach them, women are usually delegated as the intermediaries, since heated quarrels tend to arise when two men face each other to discuss water-conflicts (and the more backward upper-slope farmers would probably lose these arguments). Only if agreement cannot be reached through these informal visits, do they go to ask community irrigation officials (centeng) to ask for help. The centeng themselves are elected at the beginning of each rainy season by the (male) farmers, who gather to repair the irrigation ditches together and then share a selamatan meal in the sawak, after which the election is performed. The centeng then have the job of caring for the channels and overseeing the distribution of water. Their services are paid with a tax of a fixed amount of paddy per hectare of sawah, which they must collect themselves from the farmers after the harvest. Their



wives are often expected to share in this job of collection, which is not always easy since farmers may try to find excuses not to pay. It is therefore only in the single formal activity of the organization (the annual election of centeng)... that women have no place. (p. 47)

Systematic study of both formal and informal roles of women in off-farm water management should produce useful insights. In Sri Lanka, the Philippines and India, the use of women as community organizers for water users' associations has proved quite successful. In efforts to replicate these water users' organizing schemes, systematic attention should be paid to gender roles among both organizers and the user community.

3) POSSIBLE CHANGES IN WATER SYSTEM DESIGN AND MANAGEMENT TO IMPROVE:

- A) WOMEN'S CONTRIBUTIONS TO SYSTEM EFFICIENCY, AND
- B) BENEFITS TO WOMEN FROM THE FUNCTIONING OF THE SYSTEM.

Three areas of possible changes in irrigated production systems are engineering changes in system design, administrative changes in management practices, and agronomic changes in production practices. The ability to make such changes is strongly influenced by the constraints of design-management environment discussed in the first section. Much depends on the size and complexity of the system. In larger systems, changes in the existing principals of water allocation and channel design may involve difficult renegotiations, while in newly constructed systems, attention to gender issues can be introduced in early stages and incorporated more easily. For smaller systems, and at the tertiary level of many large systems, many adjustments to the current systems can be made relatively simply.

As much as possible, proposed changes should practice both efficiency and equity effects, although their relative emphasis

will shift from case to case. Simply remembering to ask "What do women do?" and "How will women benefit?" in every analysis of a water management system would go a long way towards improved design and implementation.

There has been a tendency in the water management literature to cast women exclusively as "recipients" who are affected by the systems, and ignore their role as actors who have effects on the system. Drawing on recent scholarship, I would emphasize the economic productivity of women's roles in irrigated systems, and note that attention to increasing that productivity generates increased efficiency.

With regard to equity, costs and benefits are channeled through the system's social and political arrangements, which are seldom static. The process of development, by its very nature, produces continuing adjustment and change in those systems. Explicit concern for equity can influence distribution of benefits just as redesign of channels influences the distribution of water.

#### Engineering Changes in System Design

Among the women-sensitive design elements to be considered, the most obvious is sources of water for the homestead. Issues of the costs and benefits of integrating domestic water supply and irrigation systems obviously need more investigation.

Ease of homestead access to water must be evaluated for cost effectiveness, and different degrees of access will of course be appropriate in different circumstances. Yet it is difficult to escape the impression that the economic returns to household water supplies have been consistently underestimated, where they have been considered at all. In any study of costs and benefits, care needs to be taken to use methodologies that adequately reflect the increase in human capital. Adequate household water supplies, as

noted earlier, can improve family health directly through increased water for drinking, bathing, household cleanliness and laundry. It can also be used for homestead food production, which will improve family nutrition.

There may also be direct economic benefits from household water supplies. A number of women's informal sector income generating activities depend upon adequate water supplies. Sale of surplus homestead food crops is often of direct benefit to women, giving them control over a share of the family income. Women's time released from water carrying and care of sick is available for work of higher productivity, such as dairying, improved food processing and storage, animal care, horticulture, handicrafts, trading and other income-generating activities, as well as for increased attention to children for leisure.

In some systems where it is not feasible to bring water to individual homesteads, it may still be possible to capture the benefits of women's increased horticultural and tree crop production by setting aside an area of women's fields that have access to irrigation water. Such fields were successfully instituted in Operation MIL Mopti in Mali. The difficulties inherent in setting aside land for women's production in resettlement schemes without providing for their access to irrigation water has been documented in both Africa and Asia.

Aside from homestead and agricultural water supply, other design elements that could improve the functioning of particular systems include provision of facilities for laundry and for bathing of both humans and animals. Health features include attention to disease vectors as well as the design of channels to reduce danger to young children.

#### Administrative Changes in Management Practices

Administrative changes to improve water management practices should include explicit consultation with women users during the design or improvement of water systems. It should extend to the inclusion of women's ideas and women's concerns into the water user's associations in some culturally acceptable form. In some societies this can be accomplished by integrating women representatives into the water users' councils, or as in the Philippine example, make the household the participating unit. In other situations it may be more functional to have women from users' families meet by themselves, and have their representatives communicate regularly with the male users' associations. Such strategies have been used successfully in the Gambia.

In Maharashtra State, the Gram Gouran Pratesthan Trust has used women as well as men within the community to organize users' associations for lift irrigation schemes. The successful use of women as governmental community water user organizers in the Philippines and Sri Lanka would support their use in other situations with appropriate adaptations. Research to understand women's formal and informal roles in off-farm water management would be very helpful. Particular attention should be paid to women's informal roles in conflict resolution.

One important management issue is the scheduling of water deliveries. Often they are timed to the needs of the major cereal crop and do not extend through the full growing season for important cash earning secondary crops grown by women. Such crops include spices, fruits and vegetables and legumes with high cash value.

#### Agronomic Changes in Production Practices

Changes in agronomic practices following from irrigation are not the direct concern of this report, though they are touched

upon in several places. The introduction of irrigation changes the pattern of resources available to agricultural households. In response, labor, capital, and other household resources are shifted to gain the most benefit from the water.

One point is worth reemphasizing. Although women are often thought of primarily as consumers, in reality they are deeply involved in agricultural production and processing all over the world. To the degree that land, water and paid labor opportunities are available to both women and men, that extension information, agricultural inputs, credit and markets are available for the crops of both women and men will have a degree of control over the means of agricultural production and the resultant income. If, on the contrary, the means of production, access to government inputs, and to labor markets are concentrated exclusively in males, then women are forced into the position of dependent, unpaid family labor. Both theory and practical experience indicate that control over even small amounts of income increases women's bargaining power when household resources are being allocated.

Beyond equity considerations, it is also true that given the resources, women's homestead agricultural production can add significantly to the total productivity of the system. Because many women's products (fruit, vegetables, dairy) are highly perishable, it is particularly important that appropriate methods of preservation and marketing be made available if the economic potential in expanding women's traditional production is to be realized.

In summary: Both equity and efficiency are served by gendered analysis of irrigated systems and their management. It's time to get on with it.

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## Bibliography

### Women and Water Management

- Agarwal, Bina. "Rural women and high yielding rice technology in India," in IRRI, Women in Rice Farming. Hants, England. 1985.
- Ault, Steven K. Expanding Non-Agricultural Uses of Irrigation for the Disadvantaged: Health Aspects, Report to AID in support of a Project on expanding Nonagricultural Uses of Irrigation Water, USAID Cooperative Agreement No. OTR-0082-A-00-10-88-00, Agricultural Development Council, New York, July, 1981.
- Bergmann, E. and Bergmann, H. "The woman's role and her workload in the development of Greek irrigation projects," Zeitschrift für Ausländische Landwirtschaft, Vol. 15 No.1, 1976, pp. 22-41. In German; Summary in English.
- Bloom, Abby L. Expanding the Non-Agricultural Use of Irrigation Water: Summary of ADC Presentation at AID and Subsequent Workshop at Ford Foundation, Memo - USAID- Washington D.C., July 8, 1981.
- Cloud, Kathleen. Women and Irrigation in the Senegal River Basin: A Problem in the Intensification of African Agriculture. Mimeo. 1982.
- Dey, Jennie. "Gambian Women: Unequal Partners in Rice Development Projects?" The Journal of Development Studies, Vol. 17, No. 3, April, 1981, pp. 109-122.
- FAO Land and Water Development Division, Guidelines, Women in Land and Water Development, Rome, 1982, W/P7586.
- Gopinath, C. and A. H. Kolaro. Gujarat Medium Irrigation Project: a Teaching Case. in Overholt, C. et al "Gender Roles in Development Projects". Kumarian Press. East Hartford, Conn. 1985.
- Gram Gourav Pratisthan Trust. To Protect Rehabilitate a Drought-Prone Community in Rural Maharashtra, Pune, India Mimeo, N.D.
- Hanger, Jane and Morris, Jon. "Women and the Household Economy," MWEA: An Irrigated Rice Settlement in Kenya, Robert Chambers and Jon Morris (eds.), Weltforum Verlag: Munich, 1973., pp. 209-273.
- Illo, Jeanne. Irrigation in the Phillipines: Impact on Women

- and their Households. The Population Council and Kumarian Press, West Hartford, Conn. 1988.
- International Women's Tribune Center, Inc. "Women and Water," The Tribune: A Women and Development Quarterly, Newsletter No. 20, 3rd quarter, 1982, pp.39.
- Jayewardene, j. and M.K. Kilkelly. System H of the Mahaweli Development Project, Sri Lanka: 1983 Diagnostic Analysis Water Management Synthesis Project, Colorado State University. Ft Collins. Colorado. 1983.
- Jones, Barbara J. Non-Agricultural Uses of Irrigation Systems: Household Water Supplies, Report to AID in support of a Project on Expanding Non-Agricultural Uses of Irrigation Water, USAID Cooperative Agreement No. OTR-0082-A-00-10-88-00, Agricultural Development Council, New York, July 1981.
- Jones, Christine. Women's Labor Allocation and Irrigated Rice Production in North Cameroon, in IRRI, Women in Rice Farming Hants, England.1985.
- Lund, Ragnhild. A Survey on Women's Working and Living Conditions in a Mahaweli settlement Area with special Emphasis on household budgets and household surplus, Study Paper #15, Research Department, People's Bank, Colombo, Sri Lanka, November, 1978.
- Murray-Rust, Hammond and Bart Snellen. Irrigation System Performance Assessment and Diagnosis. International Irrigation Management Institute. Colombo, Sri Lanka. 1993.
- Palmer, Ingrid. The Nemow Case, Case Studies of the Impact of Large Scale Development Projects on Women: A Series for Planners, Working Paper No. 7, The Population Council, New York, 1979.
- Saradmoni, K. and Joan P. Mencher. Women and Rice Cultivation, Draft, Delhi Centre, Indian Statistical Institute, New Delhi mimeo - November 17, 1981.
- Scudder, Thayer. The Accelerated Mahaweli Programme (AMP) and Dry Zone Development: Some Aspects of Settlement, Report Number Three, Institute for Development Anthropology and California Institute of Technology, mimeo - September, 1981.
- \_\_\_\_\_. The Accelerated Mahaweli Programme (AMP) and Dry Zone Development: Some Aspects of Settlement, California Institute of Technology and Institute for Development Anthropology, Mimeo - September 1980, pp. 1-10 and 28-32.

. Evaluatory Report on Mission to Sri Lankan Settlement Projects: A Discussion of Some Basic Issues, California Institute of Technology, Mimeo - May 1979.

Stanbury, Pamela C. Irrigation's Impact on the Socioeconomic Role of Women in a Haryana Village, University of Arizona Department of Anthropology, USAID/India Purchase Order No.N-P-1-074, December, 1981.

Svensen, Mark, Douglas Merrey and Worth Fitzgerald. Meeting the Challenge for Better Irrigation Management. Horizons. Vol 2:3. US Agency for International Development. Washington, DC. 1983.

Swaminathan, M. S. Women and Rural Development With Special Reference to Rice Production, J.P. Naik Memorial Lecture, New Delhi, India, Center for Women's Development Studies, September 11, 1982.

Uphoff, N. A Case Study of "Learning Process" Applied to Farmer Organization and Participation in Water Management The Institutional- Organizer Program in Gal Oya, Sri Lanka, Cornell Rural Development Committee, Mimeo - February, 1982.

USAID/New Delhi . Rajasthan Medium Irrigation Project, Project Paper, May, 1980, (386-0467).

Vermillion, Douglas. Irrigation Management Turnover: Structural Adjustment or Strategic Evolution? IMMI Review Vol.6:2. Colombo, Sri Lanka, 1992.

Yoder, Robert. Non-Agricultural Uses of Irrigation Systems: Past Experience and Implications for Planning and Design, Report to AID in support of a Project on Expanding Non-Agricultural Uses of Irrigation Water, USAID Cooperative Agreement No. OTR-0028-A-00-10-88-00, Agricultural Development Council, New York, July, 1981.



**Gender and the Modalities of Water Resources  
Management: Integrating or Marginalising Women?**

**by**

**Frances Cleaver and Diane Elson**



# GENDER AND THE MODALITIES OF WATER RESOURCES MANAGEMENT: INTEGRATING OR MARGINALISING WOMEN?

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## Introduction

The context in which policies in relation to water resources are formulated has profoundly changed over the past decade. Whereas once the emphasis of policy makers was on the need for planning the physical provision of water resources through the identification, design, appraisal and implementation of projects, now the emphasis has shifted to the task of managing water resource systems. The key idea is that of the state ceasing to be a provider of water resources, and instead being a promoter and facilitator, creating an enabling environment for others to provide and use water resources. The policy focus has shifted from projects to programmes; from the micro level to the macro level. The emphasis is on integrating water-related activities as a "sector" which is given coherence by the establishment of a framework by governments and external donor agencies in which communities can themselves construct, operate and manage improved facilities (cf Briscoe and deFerranti, 1988, p.9)

International policy statements, promulgating this new approach do make reference to the importance of women's role in relation to water and sanitation, but there is cause for concern that these references are simply added on to policies which do very little to enhance women's powers of water resource management, and in several respects may actually be undermining it, with adverse consequences not only for the equity, but also for the efficiency of water resource use. This paper considers the extent to which the sectoral programming approach to water is gender aware and steps that might be taken to increase the level of gender awareness. It draws on the work of Diane Elson on structural adjustment and gender (Elson, 1991) and that of Frances Cleaver on informal water resource management in Nkayi District, Zimbabwe.

### 1. Three Approaches to Water Issues

In most countries water supplies are dealt with by a variety of government ministries ranging from Agriculture through Urban Development to Community Affairs. Three main approaches to water issues have been used: the infrastructure, health and natural resource perspectives.

The infrastructure approach has focused on water largely in terms of the construction of physical systems for providing and managing facilities for supply. Technology led and dominated by professionals trained in quantitative analysis (engineers and economists) the infrastructure approach is instrumental, the main aim being to get facilities installed and functioning properly. User involvement is therefore primarily seen in terms of the payment

for and maintenance of the water supply facilities. User groups are defined in terms of their relation to a particular waterpoint. This approach lends itself to the quantification of costs and benefits and to a focus on formal institutions. Users are assumed to be taking decisions based on a given structure of preferences and on identifiable economic benefits (eg. Najlis and Edwards, 1991) There is little concern with what happens to the water within the household. Whilst satisfaction of essentially qualitative basic needs is acknowledged as a goal, much of the infrastructure approach has been concerned with water for productive purposes, such as dams and irrigation canals.

The health approach has focused much more on basic needs and the processes necessary to meet them. Based on primary health care principles, there has been an emphasis on the concepts of access for all and universal coverage. This is because the benefit that an individual can derive from access to clean water is not dependent on their own access only but also on that of everyone else in their community. Externalities are all-pervasive in the field of health. This approach to water has emphasised the complexities of how users relate to water resources. The promotion of personal behavioural change has been an important policy objective especially in hygiene behaviour, particularly in the home. The emphasis has been on processes of learning and communication. The importance of gender differentiation, particularly within the household has been recognised. The health approach incorporates strong formal and informal roles for women as educators and 'care' professionals. There has been a much - documented difficulty in quantifying the health benefits of improved water and sanitation but this has been accepted as a result of the strong interlinkages between the multitude of factors affecting health status. Practitioners therefore concentrate on getting the processes right in the faith that benefits will then ensue (eg. WHO, 1983).

The natural resource approach encompassing, both environmentalists and agriculturalists, has adopted a wider focus than that of the infrastructure approach. It has emphasised the need to look at all the water resources of an area, including those provided by nature as well as those facilities provided by the engineers. Local institutions have been emphasised as the appropriate managers of water resources of all types, and their capacity to draw on indigenous knowledge and management systems has been emphasised.

## **2. The Changing Context of Water Policies**

At the beginning of the International Drinking Water Supply and Sanitation Decade in the 1980's, the central role of the state in the provision of water resources was recognised and generally accepted. Water and sanitation were perceived as basic needs which could be provided for through effective central government planning (Lee, 1992). The Mar del Plata Action Plan adopted at the United Nations Water Conference in 1977 emphasised this role, adding community participation as a necessary part of government planning and decision making (United Nations, 1977). The Water Decade of the 1980's however, coincided with a period of economic stagnation or decline in many countries and with a general reconsideration of the role of the state in the economy. This led to the widespread adoption of economic policy reform, aimed at reducing the role of the public sector and giving a greater role to the market and the private sector in the economy, in the belief that this kind of structural adjustment would restore economic growth through more efficient allocation of resources.

The influence of such policy reforms is strongly reflected in recent discussions about the future organisation of water resources. Discussions reviewing the Decade and planning for future directions held at the Global Consultation in New Delhi in 1990 strongly reflect such policies. These influences are also present, if less explicit, in the statement of the 1992 Dublin Conference on Water and the Environment and Agenda 21 of the "Earth Summit" (United Nations Conference on Environment and Development, 1992).

Economic policy reforms, (often implemented through structural adjustment programmes) can be briefly summarised as follows:

- a restructuring of incentives through changes in prices, tariffs and other taxes, subsidies and interest rates;
- a restructuring of public finance through increases in tax revenue and revenue from charges for publicly provided services, reduction of subsidies, freezing of public sector wages and limiting public sector employment;
- a restructuring of institutions through privatisation of public sector enterprises and encouragement of the activities of non-governmental organisations in service provision.

The emphasis is on improving welfare via growth in GNP and improvements in productivity rather than by redistribution of resources

The principles of the New Delhi statement (UNDP, 1990a) echo these main themes. Two of the four principles are directly concerned with such reforms.

Thus Principle Two states: "Strong institutions are essential for sustainable development.....A changing role of government is envisaged, from that of provider to that of promoter and facilitator. This will enable local public, private and community institutions to deliver better services. Decentralisation demands a strong policy and support role from central governments, while local private enterprise can assist in improving the efficiency and expansion of service delivery."

Principle Four is directed at increased financial efficiency in relation to water provision and use, and a major aspect of this is cost recovery from the users: "there must be widespread promotion of the fact that water is not a free good." The Dublin statement is very similar in its emphasis that water "should be recognised as an economic good".

Principle Three is of great importance in that successful implementation of the other two depend on it. It is concerned with community involvement and is couched in the language of empowerment and equity. "Community management goes beyond simple participation. It aims to empower and equip communities to own and control their own systems. Community management is the key to sustaining services for the rural poor and is a viable option for poor urban settlements." The Dublin statement and Agenda 21 place less emphasis on 'ownership' but both adopt the approach that decisions should be undertaken at the 'lowest appropriate level'.

The role of women in relation to water resources is referred to under Principle Three. "Women should be encouraged to play influential roles in both water management and hygiene education. Capacity building is necessary to make community management effective and enable women to play leading roles." The Dublin Statement also recognises the importance of women and suggests that positive policies are required to address women's needs and to 'equip and empower' them to participate. This is expected to have important efficiency implications, as emphasised in one of the background papers for the New Delhi Conference: "A focus on the role of women, among the poor and unserved, can enhance the sustainability of basic improvements in water supply and sanitation services" (UNDP, 1990b).

### **3. Sectoral Programming for Water: Markets and meetings**

It is debatable whether a water 'sector' exists in the same way as a health sector or an education sector, given the multiplicity of ministries dealing with water. Nevertheless there are strong commonalities in the 'enabling environments' which are supposed to be established for all water related activities. These enabling environments are constituted through 'programmes' of linked expenditures and policy instruments. The characteristics of the sectoral programming which is thus emerging are influenced to some extent by all three of the approaches discussed in the previous section. But the infrastructure approach is predominant, albeit with an important shift of emphasis from the engineering of water resources to the economising of water resources. However, the focus is still on quantitative analysis and formal structures.

The key quantity has become the price of water; and the key formal structures are markets and meetings. Through markets (of various types) users pay for water; through meetings (of various types) users and providers take decisions. The system of water resource management promoted through current sectoral programming could thus be summarised as resting on cash and committees.

Both cash and committees might be thought to be gender-neutral instruments. But closer examination reveals that both tend to be marked by gender bias of various forms. For instance, women tend to have less access to cash than men; and cash accruing to women tends to be earmarked for different forms of expenditure than cash accruing to men. Through households, men and women do to some extent pool and share money - but this is generally incomplete, in ways that are biased against women (cf. Dwyer and Bruce (ed) 1988) so that women's lack of access to cash remains a barrier.

Moreover in committees and other formal meetings, women tend to find it harder to get their voices heard than men. In many contexts it is regarded as inappropriate for women to speak out or take the lead in public and women find it difficult to break through the barriers of their own diffidence and the indifference or hostility of men in the meeting. In a significant number of contexts there is a strong presumption to exclude women from meetings. But insistence on the presence of women on water committees is not enough - the culture of the committees, their way of doing business remains a barrier.

Thus although the importance of strengthening the role of women in the management of water resources is mentioned in both the New Delhi Statement and the Dublin Statement,

there is cause for concern that the instruments through which water resources are being managed, and the issues which are being emphasised, are not gender-neutral but in fact tend to weaken the position of women in water resource management. The next section discusses this concern in more detail.

#### **4. The displacement of women in the management of water resources**

There are a number of specific forces which currently are likely to displace women from positions of influence and control over resources which they may already have in the sector. Where women do already legitimately have some influence this is likely to be eroded by current policies. Three forms of this displacement are discussed here.

##### **a/ Marginalisation of health issues**

The influence of economic reforms in the sector, and the move towards viewing water primarily as an economic resource, shifts the emphasis away from the area of health in which women have recognised interests and a strong professional presence.

The contention here is that current policies underplay the value of approaching water from a health point of view. For example Edwards (1993) writes:

"The emerging issue, common to all domestic consumers, is that water is an economic good, and in spite of the high social and health benefits accruing from a plentiful supply, the price of water must be more closely aligned to the economic cost of supply." (p.60)

Much current thought is devoted to devising ways of valuing the economic rather than the health and social benefits of water, as it is thought that the former can be more easily quantified. It is believed that investment in the sector is more likely to be forthcoming if it can be justified in terms of economic returns (UNDP, 1990; Briscoe and deFerranti, 1989; Churchill, 1987). Churchill offers an extreme example of this approach, suggesting that there is a very tenuous link between improvements in health and investments in water and sanitation services, and therefore effort should be concentrated on proving and calculating the non-health benefits of water. The benefits of sanitation programmes are ignored (Churchill 1987).

This tendency is questionable for two reasons. Firstly, by underplaying potential health benefits of improved water and sanitation, the recognised role of women as informal hygiene educators at the household level (Wijk-Sibesma, 1985) receives less emphasis. Funds are less likely to be obtained for health education, so establishing a vicious circle; as without education and promotion activities, health benefits are unlikely to be forthcoming and therefore the policy of downplaying them appears justified. Moreover, women may be still considered to be 'responsible' for hygiene improvements without having any command over the resources necessary to implement them. They can then be 'blamed' for the absence of substantial health benefits.

Secondly, the shift away from health as a focus and the simultaneous weakening of government-provided health services (as a result of cuts in public expenditure) hit a sector in which women have a recognised professional role. There are probably more women

professionals in health than in most other sectors (with the possible exception of education) and therefore more women in positions which enable them to implement gender-aware policies.

#### **b/ Commoditisation of water**

The concept of water as a basic human need is being overshadowed by the idea of water as a commodity. "The concept of water as a free good is finally on its way out, and there is a growing consensus on the need to charge for services..." (Najlis and Edwards, 1991). The New Delhi Background Papers describe one of the problems of the water sector as follows: "often, service delivery is organised around the assumption that people have basic needs for water that need to be met, rather than around the actual demand and willingness to pay for these services." (UNDP, 1990B, p.25)

The Dublin Statement claims that "Managing water as an economic good is an important way of achieving efficient and equitable use..". Approaching the sector from an infrastructure point of view facilitates the definition of water as a commodity rather than a resource. The commoditisation of water (enabling it to be privatised, sold and attributed a market value) shifts the focus towards so-called 'productive' water with quantifiable monetary benefits and raises the issue of ownership and property rights.

The common division between 'domestic' and 'productive' water has in the past reflected the sectoral division between water for health and basic needs (domestic); and water for agriculture and industry (productive). The division is a false one, particularly at the household level where 'domestic' water may be used for a variety of income-generating purposes (both in cash and in kind) commonly undertaken by women: the keeping of small livestock, brewing beer for sale, brick moulding, vegetable growing and so on. However, the productive possibilities of 'domestic' water are less easily quantified. There is a danger that the focus will shift dramatically to supplying water where the economic benefits are obvious, substantial and easily quantifiable to the neglect of those cases where the economic benefits are less clear. There are already major gender differences in the use of water resources for 'productive' and 'domestic' purposes. Men predominate in the use of 'productive' water (for irrigation and for watering cattle) whereas women are only dominant in the 'domestic' sector. Research by Frances Cleaver in Nkayi, for example, showed that only men were on dam committees (for cattle watering); whereas hand-dug wells, used primarily for domestic purposes were almost the exclusive domain of women. At boreholes, used for both purposes, the user profile was mixed and conflicts arose over the priorities of different users, with cattle watering generally taking precedence over domestic usage.

Another aspect of commoditisation is the issue of property rights and ownership. The desirability of 'ownership' is a much repeated and rarely challenged theme in recent statements about water; with ownership of water supply facilities being associated with responsible water use and improved operation and maintenance.

"Community management goes beyond participation to encompass ownership of and responsibility for water supply and sanitation services..... The community based organisation





should have legal authority to own land, employ people, maintain a bank account or its equivalent and collect user fees" (UNDP, 1990b, p.25-7)

The creation of property rights over any resource inevitably involves the power to exercise these rights to exclude non-owners. We know that women are in a disadvantageous position in relation to property rights, particularly over productive resources, such as land, livestock, even their own labour. It is optimistic to assume that vesting 'ownership' of a water source in the community will give women equal rights over that resource; and far more likely that the creation of ownership rights will confer opportunities for the rich and powerful to appropriate preferential access to the resource.

In addition, the creation of private property rights and the commoditisation of water may lead to the undermining of relationships of reciprocity, and of indigenous hardship survival mechanisms. An example from Nkayi illustrates this. Communal hand-dug wells, implemented by the LWF or UNICEF in the 1980's, had been installed with the participation of the users who were mobilised and trained to accept the principle that by contributing to implementation they had somehow 'paid' for the well which they now 'owned'. The regular user community could be defined as the ten or fifteen families living in the immediate vicinity of the well, who had participated in implementation. However, there could be at least that number again of occasional users; those from further away whose nearest source was broken or dry. Their usage of the well was in accordance with the strong traditional principle that no one should be excluded from using a water source. However, when these wells started to dry up during the drought, the regular water user community started to impose restrictions on the use of the well, limiting pumping to certain times of the day and closing the wells at other times so making it very difficult for occasional users to draw water. They had to plead, wait for until everyone else had taken to draw any residual water in the well and, if still unsuccessful, go elsewhere. The very definition of an 'owner' community meant the exclusion of others in times of scarcity, and the contraction of traditional reciprocal rights of access, critical to survival in dry lands. Those excluded from easy access to water tended to be the more marginal households who had less adequate facilities and little influence. It is ironic that success in Nkayi in achieving one of the declared policy goals of a sense of ownership and responsibility is likely to be detrimental to the avowed aim of equitable access to water for all.

### **c/ Formalisation and bureaucratisation of management procedures**

One of the emphases in the New Delhi document is on strengthening local institutions. Much of the effort in implementing community management is put into formalising such involvement through committees, contracts, the delineation of responsibilities; making the community in many respects the lowest tier of government structures. For example, waterpoint committees or water users associations are established linking into village development structures, with their own Chairman, Treasurer and Secretary. The New Delhi Background Papers talk of various levels of community management, on a spectrum ranging from the extended family caring for a spring at one end; to a public works agency, parastatal or private sector company providing water to large numbers at the other end. It is asserted that " These differences are only ones of scale, cost and complexity, the basic model remains the same." This makes it far less likely that women will be able to exercise real power; local government and politics being effectively dominated by men in the majority of situations.

waterpoint committee being made up only of representatives of the users of that point.) The gender profile of each community is likely to be very different. In practice, the water-using community is likely to comprise predominantly of women, whereas the decision-making community is far more likely to be male dominated. The two communities may not be coterminous, as eclectic patterns of water usage rarely fall conveniently into simple administrative boundaries, traditional or modern. The establishment of waterpoint committees or water user associations (even with a majority of women members) may be unsuccessful precisely because they comprise the water-using rather than the decision-making community, and because their remit is so limited. At local level, other communal resources, such as grazing lands, are subject to an area level decision making process, usually dominated by older men. (In Nkayi nearly all decisions regarding the allocation and regulation of resources were taken at the Village or Ward Development Committee meetings despite the existence of specific committees for a variety of other activities.)

#### **b/ The competent and resourceful community**

According to many policy documents, the community is to prove competent to undertake most of the tasks in which governments have failed: identifying needs, choosing technologies, providing adequate funding, implementing to a high standard and maintaining facilities indefinitely. Perhaps the most ambitious idea about community competence is that they will be able to solve complex issues about who pays what charges which existing implementing agencies shy away from.

The New Delhi Background Documents would have us believe that " An acceptable level of cost recovery will require decisions on what prices to charge to whom and for what services. .... the ultimate decision rests with the local or community decision makers..."

In some irrigation systems, the organisational complexity of devising equitable and collectable tariffs for water has led some implementing agencies to levy a bulk tariff on a farmers' group, leaving the group itself to decide on the contributions of individual members. Mick Moore comments critically on this: "It is an interesting paradox that, in extremis, the practical viability of market principles should be perceived to depend on local, non-market patterns of social interdependence and hierarchy" (Moore, 1989) In so far as the community does prove competent to decide and impose a structure of changes, it may do so with little regard for issues of equity.

#### **c/ The equitable community**

Nevertheless there is an assumption in much of the literature that the community is a philanthropic social entity concerned with ensuring distributional equity amongst its members. In fact it is clear that many communities are based on strong principles of hierarchy; access to and distribution of resources within them being dependent on the place occupied in the hierarchy. Indeed it has been claimed by Torry (1986) that certain people have been pre-selected within social structures not to receive equal access to such resources. Ensuring that all survive is not the same as striving for equality, which may not be strong principle in many societies. An example from Nkayi illustrates this in a simple way. At Mtswirini well, a restricted hours rule was introduced as the dry season progressed to preserve the limited supply of water until the next rains. However, although this could have meant that everyone

received at least minimum supplies of water, no attempt was made to ensure that this limited supply was distributed equitably. Water was taken on a first-come, first-served basis. People would place their buckets at the pump to queue before the well was opened. There was no restriction on the number of buckets one person could place in line. My host household was relatively wealthy (both of the adults were schoolteachers) and had a number of teenage children and a full-time domestic worker able to queue and collect water. On one occasion, buckets from this household occupied the first five places in the queue. The water generally ran out after twenty buckets had been drawn and those at the back of the queue had to try their luck elsewhere. Unsurprisingly this family had much higher water use than other members of the community (12 litres per person per day as opposed to a more common 8 litres).

In such circumstances, households with more command over able-bodied women and children (and more buckets - an expensive item) are able to gain preferential access to water supplies. Poorer households, particularly female-headed ones with only very young children are likely to occupy a poor position in terms of access to and control over water resources. They are also less likely to be able to acquire ownership rights through contributions to implementation of the waterpoint.

## **6. Towards Gender Awareness in Sectoral Programming of Water Resource Management**

The marginalisation of women from the modalities of water resource management is not simply a cause for concern on grounds of equity. It is a cause for concern on grounds of efficiency. It means a loss of women's knowledge of water resources; it means a loss of women's knowledge of how to make effective use of resources; it means a weakening of the process whereby benefits are transmitted from adults to children, since women are known to be more effective in this respect than men. A gender-aware system of management would minimise such losses.

To develop a gender-aware system of management means rethinking the instruments and processes being developed for water resource management. These instruments and processes involve combination of markets and meetings, of private and public sector activities. They may appear to be abstract and gender neutral. But as soon as we ask the question 'who decides what for whom' we can begin to disaggregate the management system and investigate its gender dimensions.

The language in which the new approach is couched appears to be gender neutral:

"Users must decide on the type and improvements to be made.

Users must pay most of the costs of the chosen services.

Users must take responsibility for maintaining the facility they have chosen and built.

Governments and external agencies must establish environments in which communities can construct, operate, and manage improved facilities." (Briscoe and deFerranti, 1989, p.9)

The first step is to ask - who are these users? who are the personnel in governments and external agencies who promote the enabling environments? Just exactly who is enabled? In

what ways are men and women differently placed in any given system of water resource management?

Probing the gender dimensions of the emerging systems of water resource management may well reveal some important inconsistencies and mismatches which need to be tackled. The centrepiece of sectoral programming is the idea of paying for water. From the point of view of those responsible for public expenditure on water resources this described as 'cost-recovery', where 'cost' refers to those costs that show up in the public accounts i.e. those resources for which the public sector has had to pay. The extent of cost-recovery depends on ability and willingness to pay. There is already in the literature some recognition of gender differentiation in willingness to pay. Thus Briscoe and deFerranti (1989, p.14) claim that women in Zimbabwe are willing to pay 40 per cent more than men for an improved domestic water supply. This is probably not unrelated to the fact that much of the burden of fetching water falls on women. Improved water supply would save women's time and effort.

However, women's willingness to pay may not be matched by ability to pay, because of women's lack of access to cash. They may be unable to raise the cash from their husbands because water is regarded as women's responsibility; and because husbands place a lower value on saving women's time and effort than do the women themselves. They may be unable to raise the cash from undertaking income generating activities on their own account because they are caught in a vicious circle - without improved water supplies they have no spare time for income generating activities, but without the income they cannot pay for new facilities. Even if this circle could be broken through provision of credit to pay for the improved water supply, women might still face difficulties in turning liberated time into cash because of lack of other complementary resources. The extent of cost-recovery may depend on translating willingness to pay into ability to pay and this in turn on the organisation of resource transfers from men to women. In the absence of this, women's low cash incomes may constrain the scope of cost recovery, or lead to gender inequity in paying the costs.

Gender differences may also result in under-investment in water resources even if such investment is guided by formal cost-benefit analysis that does not assume women's time to be a free good. Assessing the benefits depends on determining the amount of time users would save and the value of this time. Unequal gender relations play an important role in determining the value of the time saved, and tend to result in an under-valuation of women's time in relation to what would prevail with more equal gender relations. For the value of the time saved in fetching water is typically estimated either by estimating what income women could generate in the time saved through waged or self-employment; or by what it would cost to hire someone else to fetch the water. Both methods are reliant on market valuations of women's time, and both therefore reflect the unequal terms on which women typically enter markets as compared to men. Women's time typically commands a low return, either through outright discrimination against women, or because women are constrained in their market activities through their social obligations to care for family and friends (Lewenhak, 1992).

Markets are structured by social norms, and the prices they generate reflect these norms. It is easy to assume that the way to overcome the barriers caused by under-valuation of women's time and women's relative lack of access to cash is to give women more

responsibility within the management system:

‘In rural water supply, probably more than in any other sector, sustainability is dramatically enhanced when women have key responsibilities.’ (Briscoe and deFerranti, 1989, p.15).

The problem is that women may be given more responsibility without more rights. They may thus share disproportionately in the costs of the management system; while men may be happy to see water responsibilities as ‘women’s work’ and may shoulder even fewer of the burdens of the system. Enhanced responsibilities for women must be matched by enhanced rights. This is much more likely to happen if women are organised in some kind of movement for social action which will give them a presence in the public arena.

### Conclusions

The key points for achieving gender awareness in the programming of the water sector can be summarised thus:

- (i) disaggregate all data by gender;
- (ii) look into the markets and meetings that structure the system and understand the different situations of women and men;
- (iii) recognise that matching ability to pay and willingness to pay more require redistribution of money income to women;
- (iv) recognise that not only water but also women’s time is an economic good - and that markets are likely to undervalue women’s time;
- (v) realise that gender-barriers to effective and equitable management of water resources are more likely to be overcome if women are organised into movements for change.

## References

- Briscoe J. & de Ferranti D. (1989) Water for Rural Communities, World Bank, Washington DC.
- Churchill H.(1989) Rural Water Supply and Sanitation: Time for A Change, World Bank, Washington DC.
- Dwyer, D. and Bruce, J. (eds) (1988) A Home Divided: Women and Income in the Third World, Stanford University Press, Stanford.
- Edwards K. A. (1993) "Water Environment and Development; a Global Agenda?" Natural Resources Forum, Vol.17, No.1, pp.59-64.
- Holmberg J., Thomson K. and Timberlake L. (1993) Facing the Future, IIED, London.
- Lee T. (1992) "Water Management since the adoption of the Mar del Plata Action Plan: Lessons for the 1990's" Natural Resources Forum, Vol.16, No.3, pp.202-211.
- Lewenhak, S. (1992) The revaluation of women's work, Second edition, Earthscan Publications, London.
- McPhail H. (1993) "The 'Five Percent Rule' for Improved Water Service: Can Household Afford More?" World Development Vol 21, No 6, pp 963-973.
- Moore M. (1989) "Fruits and Fallacies of Neoliberalism: Case of irrigation policy" World Development, Vol 17, No.11, pp.1733-1750.
- Najlis P. & Edwards A. (1991) "The International Drinking Water Supply and Sanitation Decade in retrospect and implications for the future" Natural Resources Forum, Vol.15, No.2, pp.110-117.
- Ostrom E. (1992) Crafting Institutions for Self Governing Irrigation Systems, ICS Press, San Francisco.
- Torry W. (1986) 'Morality and Harm: Hindu Peasant Adjustments to Famines', Social Science Information, Vol.25, No.1, pp.125-160.
- UNCED (1992) The Dublin Statement on Water and Sustainable Development.
- UNDP (1990a) New Delhi Statement.
- UNDP (1990b) Background Papers for Global Consultation on Safe Water and Sanitation for the 1990's.
- United Nations (1977) Report of the United Nations Water Conference, Mar del Plata.

WHO (1983) Minimum Evaluation Procedure, Geneva.

Wijk-Sibesma C. (1985) Participation of Women in Water Supply and Sanitation, IRC, The Hague, Netherlands.



**El Enfoque de Genero en el Manejo de los Sistemas  
de Agua en Zonas Urbanas de Bajos Ingresos**

**by**

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## **EL ENFOQUE DE GENERO EN EL MANEJO DE LOS SISTEMAS DE AGUA EN ZONAS URBANAS DE BAJOS INGRESOS**

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### **INTRODUCCION**

La discusión sobre las zonas periurbanas o de bajos ingresos requiere el reconocimiento de que estamos ante un espacio cualitativamente diferente de lo rural y con características propias que requieren de estudio. La transformación de las ciudades en megacities, la aparición y coexistencia de procesos de urbanización diferentes dentro de una ciudad y su convivencia con procesos graduales de transformación, de una ciudad rural a una urbana, hacen que "lo urbano" sea un término bastante complejo.

Este documento ha utilizado el término "bajos ingresos" con un énfasis en los asentamientos periféricos de la ciudad cuya característica es la de iniciarse con invasiones de terrenos. Los datos presentados se basan en información reciente que muestran casos de zonas periurbanas, Cochabamba en Bolivia, Lima en Perú, Quito en Ecuador, Cali y Barranquilla en Colombia, Barquisimeto en Venezuela, Tegucigalpa en Honduras, ciudad de Guatemala en Guatemala. De esta diversidad se han obtenido denominadores comunes entre los actores que intervienen, tecnologías y problemática de los sistemas de abastecimiento que ha servido de base para hacer sugerencias desde un punto de vista de género.

La implementación de los servicios públicos en asentamientos periféricos generalmente es el resultado de movilizaciones populares y móviles políticos, lo que ha priorizado el agua como "reivindicación social". Adicionalmente, la diversidad de intereses y la desigual interacción entre los diversos agentes urbanos, autoridades y pobladores periurbanos, ha revelado la falta de sistemas legales y financieros que agilicen los procedimientos para el abastecimiento de agua.

Dadas estas difíciles condiciones enfrentadas por autoridades y pobladores la dotación de agua "per se" sea cual sea el sistema de abastecimiento ofrecido, es percibido como un objetivo, que lamentablemente parece no ser suficiente para mejorar las condiciones de salud ni para aliviarle el trabajo doméstico a la mujer. Frente a la problemática urbana del agua, ahora con mayores posibilidades de incorporar el género en los proyectos, la pregunta sigue siendo ¿En qué medida el enfoque de género contribuirá a mejorar la situación?

La relación género-recursos de agua en las zonas urbanas deben ser analizadas más allá del proyecto; hay que considerar las características socio-económicas de los procesos de consolidación urbana donde tienen lugar el abastecimiento de servicios, la interrelación de los agentes urbanos, los aspectos más tecnológicos desde la fuente hasta el servicio mismo, y las posibilidades que ofrece el proyecto mismo. De su análisis se obtendrán pautas para poder desarrollar una política de género que lleve a mejorar las condiciones y la posición de los hombres y mujeres pobladores periurbanos.

El presente documento comienza con una corta descripción de los diversos procesos urbanos que se van conformando en la ciudad. Lo urbano no es algo estático ni definido, por el contrario co-existen diversas formas de urbanización. En el segundo acápite, se presenta el conjunto de actores urbanos que intervienen en el proceso de abastecimiento de agua en zonas periurbanas. En el tercer acápite, las formas más comunes de organización comunitaria para acceder a los servicios de abastecimiento de agua potable y sus implicaciones en la participación de las mujeres. En el cuarto acápite, los sistemas de abastecimiento de agua carrotanques, tanques comunitarios y redes así como sus consecuencias en el abastecimiento y servicio ofrecido. En el quinto acápite, los roles que hombres y mujeres juegan en los proyectos de abastecimiento de agua y saneamiento y finalmente el sexto acápite, plantea algunas consideraciones de género para la discusión.

## **1. PROCESOS URBANOS EN LAS CIUDADES LATINOAMERICANAS**

Las ciudades latinoamericanas en los últimos 30 años han pasado por flujos migratorios significativos que las han hecho crecer en dimensiones no planificadas (Tabla 1). Sin duda alguna, la migración es uno de los fenómenos determinantes en la conformación de lo urbano. Pronósticos recientes indican que al final de este siglo la migración del campo a la ciudad resultará en que el 45% de los pobladores de países en desarrollo vivirán en ciudades (WSSCC 1993) y que las mujeres lejos de ser "migrantes pasivas" que siguen a la familia, migran desde temprana edad, antes de su primer matrimonio y en busca de empleo. En Latinoamérica, desde 1960 hasta la fecha, las mujeres constituyen la mayoría de los migrantes (UNFPA 1993).

Tabla 1. Tasa de Crecimiento Urbano en Latinoamérica

Indice Desarrollo Humano	Población Urbana (desde total %)		Población Urbana crecimiento anual %	
	1960	1990	1969-90	1990-2000
Colombia	48	70	3.7	2.5
Surinam	47	47	1.3	3.0
Ecuador	34	56	4.6	3.7
Perú	46	70	4.1	2.7
El Salvador	38	44	2.9	3.6
Nicaragua	40	60	4.7	4.1
Guatemala	32	39	3.5	4.0
Honduras	23	44	5.6	4.7
Bolivia	39	51	3.5	4.2
Todos los países desarrollados	22	37	4.0	4.0

Fuente: United Nations Development Programme 1992

Sin embargo, no sólo es la migración y el crecimiento cuantitativo lo que cuenta para entender lo urbano, es también las relaciones entre los agentes urbanos, la incorporación al mercado urbano, el curso de las reivindicaciones populares que crean procesos urbanos cualitativamente distintos dentro de la misma ciudad (CIDAP 1989). Por ejemplo, un análisis de los procesos poblacionales en dos distritos de Lima Metropolitana en Perú, identifica los siguientes procesos urbanos (CIDAP 1989):

- a) **Barrios antiguos y en deterioro progresivo** ubicado en las zonas más antiguas de la ciudad con: infraestructura obsoleta, sobrepoblación, existencia de industrias en la zona que crean problemas extras de contaminación y cantidad de agua (las industrias toman la mayor parte del agua disponible para la zona). Cuentan con abastecimiento de agua, desagüe, luz, pero sus niveles de servicio dejan mucho que desear.
- b) **Barrios "nuevos" planificados con servicios**, que se formaron con las habilitaciones de terreno por parte del estado y con algunas primeras invasiones en áreas muy cercanas de la ciudad. Con terrenos legalizados y con servicios mínimos básicos de infraestructura eléctrica y sanitaria.

- c. **Barrios planificados y urbanizados con servicios**, iniciados y organizados por cooperativas que han implementado al mismo tiempo construcción de viviendas y la infraestructura urbana. Cuentan con servicios básicos de luz, agua, desagüe (generalmente buenos) y los comunales. Su desarrollo dependerá de su incorporación al mercado y su conexión vial con la ciudad.
- d. **Barrios de urbanización precaria**, donde media una lotización primaria entre la compra-venta del terreno y la ocupación de los mismos. Iniciados y organizados por cooperativas y asociaciones de vivienda y sin habilitación de infraestructura vial, eléctrica, sanitaria.
- e. **Ocupación y crecimiento espontáneo**, que forman los llamados pueblos jóvenes, barriadas, favelas, ranchos, colonias. Originados por invasión y con apropiación ilegal del terreno no conforman una sola zona propiamente dicha, más bien están dispersos alrededor de la ciudad. La infraestructura de agua, desagüe y luz es inexistente o precaria.

La complejidad de lo urbano no debe verse desde una perspectiva evolucionista; los procesos mencionados no son necesariamente etapas transicionales entre lo rural y lo urbano. Es más bien la existencia de procesos cualitativamente diferentes dentro de la ciudad o la co-existencia de formas de urbanización peculiares que no se desarrollarán con los mismos modelos de la ciudad tradicional (WSSCC 1993). Tal es el caso especial, de los asentamientos periurbanos originados por invasión y caracterizados por la activa participación de los pobladores en el abastecimiento de los servicios públicos y donde la mujer, en su gran mayoría cabeza de familia, ha jugado un rol determinante en el desarrollo y consolidación del asentamiento.

En ciudades pequeñas, existen procesos graduales de lo rural a lo urbano y donde se puede encontrar que toda la ciudad es prácticamente semiurbana. En estas ciudades el modo de vida todavía fuertemente basado en la producción de subsistencia, tiene fuertes implicancias en el uso del agua: para las necesidades domésticas (higiene y alimentación) y para la producción de subsistencia igualitaria.

Por su lado los gobiernos locales no definen claramente sus límites administrativos y sus políticas y reglamentos no responden a las necesidades y urgencias que las poblaciones van teniendo en los procesos de urbanización. Urbano-rural, periurbano, semiurbano, etc. son todavía categorías confusas y "tierras de nadie", en cuanto a abastecimiento de agua se refiere.

Dado que el agua es parte del proceso de urbanización, aparece ya desde los inicios como un asunto político de reivindicación y desafortunadamente ligado a los vaivenes del partido de turno y el juego clientelista. En las zonas periurbanas, luego de la legalización del terreno, el agua está entre las primeras prioridades que el gobierno y la comunidad deben negociar.

## 2. ACTORES INTERVINIENTES EN UN PROYECTO DE AGUA POPULAR URBANO

Como ya se ha mencionado, la "lucha" por el agua constituye y sigue constituyendo parte de la historia y de la identidad del asentamiento y de los mismos pobladores (Blondet, 1986). La movilización popular de hombres y mujeres para negociar con las autoridades respectivas "cualquier" sistema de abastecimiento de agua, ha mostrado que existe una variedad de actores cuya interrelación, usualmente desigual, decidirá el curso de los acontecimientos y sus resultados.

Sin embargo, no es solamente la interrelación entre los actores lo que cuenta, es también la limitada capacidad que existe en el sector para enfrentar el abastecimiento de servicios de agua y saneamiento en zona periurbana.

### a. *El gobierno y las empresas públicas*

Para el abastecimiento de servicios de agua y saneamiento de los asentamientos periurbanos existe una distribución de responsabilidades entre el estado y las empresas públicas por un lado, y el sector privado y las organizaciones de pobladores por el otro. Los primeros cuidan las condiciones para el suministro, fuentes, represas, plantas de tratamiento, redes principales y operación y mantenimiento; y los segundos cuidan redes secundarias y respectivas conexiones domiciliarias (CIDAP 1989).

En la mayoría de los casos las empresas públicas no cuentan con planes de desarrollo para la construcción de redes secundarias ni estrategias de trabajo en barrios urbano-marginales. Trabajan dentro de un Plan Maestro que generalmente no considera los asentamientos periurbanos dentro de su jurisdicción. Todo esto lleva a tomar soluciones inmediatas y políticas más que técnicas; y en muchos casos la falta de capacidad gerencial de las empresas diluyen esfuerzos y recursos comunitarios (Tabla 2). Desafortunadamente estas instancias tampoco cuentan con perspectivas o estrategias para un trabajo de género.

En algunos casos de excepción, el estado toma la iniciativa para enfrentar la situación en barrios marginales, como es el caso en Honduras, donde el gobierno con el apoyo financiero de UNICEF crea dentro del Servicio Nacional de Acueductos y Alcantarillados (SANAA), una Unidad Ejecutora de Barrios Marginales (UEBM). Esta Unidad se creó con un carácter experimental lo cual dió autonomía para tomar decisiones innovadoras frente a la problemática de las áreas marginales.

Tabla 2. Limitaciones en la Capacidad Institucional y del Sector para la Implementación de Proyectos de Agua y Saneamiento en Area Periurbana

<p>a. Gobierno local y políticas nacionales para los asentamientos periurbanos</p> <ul style="list-style-type: none"><li>• políticas inadecuadas de vivienda y tenencia de la tierra</li><li>• políticas y cifras basadas en valores de la clase media</li><li>• falta de políticas adecuadas a nivel nacional</li><li>• conflictos o ausencia de coordinación entre los diferentes niveles del gobierno local</li><li>• poca información en aspectos de agua y saneamiento</li><li>• pobre capacidad de planificación de las autoridades locales</li><li>• limitación o falta de herramientas para obtener y manejar la información sobre asentamientos periurbanos</li><li>• falta de límites claros en el concepto de "urbano"</li><li>• prevalencia de los intereses político-partidaristas en el trabajo de la administración local</li><li>• burocratización y resistencia a enfoques innovativos por parte de la plana administrativa</li></ul>
<p>b. Gestión y administración de las empresas</p> <ul style="list-style-type: none"><li>• enfoque solamente técnico</li><li>• tienen el monopolio del sector</li><li>• salarios poco competitivos</li><li>• falta de motivación del personal; móviles políticos para asignación de personal</li></ul>
<p>c. Apoyo de las agencias externas (ESA)</p> <ul style="list-style-type: none"><li>• necesitan organización y desarrollo institucional para actuar de facilitadores de las capacidades locales</li><li>• tienen planes muy ambiciosos</li><li>• conflicto entre ESAs y las poblaciones</li><li>• falta perspectiva de tiempo</li><li>• limitado personal especializado en aspectos urbano-marginal</li><li>• falta de información y coordinación entre las diferentes agencias</li></ul>

Fuente: Water and Sanitation Center Collaborative Council Working Group/Urban 1993.



b. *La Municipalidad/ gobiernos locales*

El rol de la municipalidad es la de planificar, controlar, gestionar, construir y dotar de agua a los barrios; esta responsabilidad la puede asumir directamente o puede delegar a terceros por contrato: a un organismo del estado, a empresas municipales o al sector privado.

Tanto la municipalidad como las empresas enfrentan serios problemas en su capacidad institucional para enfrentar el abastecimiento de agua en áreas periurbanas. En la actualidad con los procesos de democratización de los gobiernos locales, se espera que las municipalidades cumplan un rol de apoyo y promoción. Un ejemplo del rol decisivo que puede jugar la Municipalidad para el abastecimiento de agua y saneamiento es la zona de Villa El Salvador en Lima, Perú (CIDAP DESCO 1989). Los pobladores y la municipalidad crearon una relación de colaboración intensa donde la municipalidad juega los siguientes roles:

- acompaña a los pobladores en movilizaciones de protesta y negociaciones
- busca financiamiento
- completa pagos cuando las familias no pueden pagar
- hace de garante ante instituciones privadas,
- intermedia en negociaciones ante las instituciones bancarias y empresas de agua

c. *Juntas de vecinos/comités pro-mejoras/comités barriales*

En Latinoamérica las organizaciones vecinales son consideradas las unidades básicas de organización y planificación para los servicios básicos de vivienda. Algunas veces son las cooperativas las que una vez cumplida la legalización de terrenos continúan con el liderazgo para conseguir los servicios básicos. Otras veces, las cooperativas declinan, aparecen organizaciones sectoriales cuyas formas trascienden lo cultural y se transforman en organizaciones de barrio (Olaya 1990).

Las organizaciones de barrio son espacios de participación, donde las mujeres tienen una participación representativa. La experiencia indica que los pobladores de zonas urbano-marginales no se comportan como "beneficiarios" pasivos. Por el contrario, juegan un rol determinante en iniciar los proyectos, promover los encuentros y buscar acuerdos entre las instituciones comprometidas.

Las organizaciones de barrio no son siempre representativas de todos los sectores de la población. Representan generalmente a los más acomodados, a los propietarios y en ese sentido la mujer pobre, inquilina a cambio de otro servicio, no está representada (Olaya 1990).

f. *Grupos de mujeres y usuarias*

Las mujeres, sea como grupos organizados o como usuarios potenciales, han cumplido un rol importante en los procesos de asentamiento poblacionales, ubicación de los lotes, manutención, resguardo de lotes, lucha por los servicios de agua, desagüe, luz, equipamiento y transporte.

Como grupos organizados, generalmente alrededor de aspectos de salud o alimentación, las mujeres han mostrado capacidad de coordinar y de decidir con otros grupos de pobladores, de movilizar grupos de mujeres. Como usuarias han mostrado siempre mucho interés y son las que dentro o fuera de la casa presionan con más fuerza para que se encuentren maneras de resolver la necesidad del agua.

g. *Los "aguateros" o "tanqueros"*

Los aguateros o tanqueros son empresarios particulares que llevan el agua a cualquier hora, cobran lo que quieren y llevan un agua de calidad dudosa. Generalmente, abastecen a lugares donde no llega otro sistema de abastecimiento lo cual implica que tienen el monopolio del agua, determinando ellos las condiciones y el nivel del servicio que llevan.

Los carrotanques se surten de los centros de acopio oficial y también de las conexiones ilegales (en la madrugada) tomadas de la tubería matriz. En Barranquilla, existen 62 sitios ilegales donde los carrotanques pueden aprovisionarse de agua. Cuando el gerente de la empresa pública intervino para desmontar la industria de las ventas de agua, los políticos lo impidieron (Santana 1990).

h. *Constructores privados de obras públicas*

Cuando la comunidad tiene la responsabilidad de elaboración de diseños debe negociar con empresas constructoras de obras públicas. Estas generalmente tienen una lógica urbana y comercial, más que periurbana y de desarrollo, con quienes la comunidad además de obtener diseños inapropiados corre el riesgo de que se lucre con ellos.

La variedad de los actores lleva a una diversidad de percepciones y de intereses con respecto a la necesidad de agua de las poblaciones periurbanas. Para el gobierno constituye una cuestión política; para las empresas públicas, el abastecimiento es una cuestión de cobertura y de recursos; para los pobladores líderes de un asentamiento urbano una cuestión de tener infraestructura en la comunidad y muchas veces una cuestión de estado tener agua en la casa; y para las pobladoras usuarias del agua una cuestión de tener agua en y cerca de la casa.

En la actualidad existe muy poca coordinación entre los diversos actores, del gobierno, de la población y del sector privado; una mejor coordinación permitirá aprovechar mejor sus recursos para el "bien de todos". Muchas veces la comunidad se encuentra en posiciones muy vulnerables cuando tienen que "negociar" con los aguateros o con los constructores privados; esta situación afecta especialmente a las mujeres cuyos intereses y necesidades no se encuentran representadas en los espacios públicos de la "negociación".

La "politización" del agua afecta de manera especial a la mujer, quien al tener menos acceso a las esferas de poder formal reduce su capacidad de controlar e influir para la adquisición de los sistemas de abastecimiento y servicios de agua. Ello lleva a pensar en la importancia de que no sólo la mujer esté representada en las organizaciones populares sino también que tenga la capacidad para poner en la mesa de negociaciones sus intereses.

Los aspectos políticos y populares en la problemática periurbana del agua muchas veces han dejado de lado otros aspectos tales como la apropiación de la tecnología y el nivel de servicio, la gestión comunitaria, el uso del agua. El análisis de género de estas áreas daría pautas para encontrar elementos que solucionen los problemas del agua de manera más sostenible y que estas soluciones sean sensibles a los intereses, necesidades, e intereses diferenciados de hombres y mujeres.

### **3. FORMAS DE ORGANIZACION COMUNITARIA PARA OBTENER CUALQUIER SERVICIO DE ABASTECIMIENTO DE AGUA**

Tanto en las comunidades urbanas como rurales, la implementación de proyectos de abastecimiento de agua potable requieren que los pobladores se organicen. Sea que la iniciativa es tomada por la comunidad o por el gobierno, traerá consecuencias importantes para la gestión comunitaria. Comunidades donde el gobierno inicia e implementa sistemas con la "ayuda" de las comunidades, éstas tienden a mantenerse pasivas durante las etapas de construcción y de operación y mantenimiento del proyecto. En cambio, cuando las mismas comunidades inician sus proyectos usando sus propios recursos los sistemas tienden a ser mejor mantenidos (Espejo 1989).

Los pobladores de los asentamientos periurbanos desarrollan diferentes formas y grados de organización comunitaria; desde la no-organización que los lleva a soluciones individuales de compra de agua hasta el autoaprovisionamiento donde colectivamente inician, construyen, operan y mantienen el sistema

#### **a. *Compra del agua***

Cuando el barrio o toda la comunidad no es capaz de organizarse para solucionar el problema del abastecimiento del agua, recurren a la compra individual del agua de los camiones cisterna.

Como se ha mencionado, esta opción no es la más cómoda o ventajosa para las mujeres debido a los altos costos que se paga y al deficiente nivel de servicio recibido. Las tarifas de agua de los camiones cisternas en Lima son 20 veces más que la tarifa de conexión domiciliaria (DEL AGUA 1991), en Honduras 3 ó 4 veces más que el agua potable de sistemas de abastecimiento (Espejo 1993) y en Venezuela los tanqueros compran el m<sup>3</sup> á US\$ 30, y la venden á US\$ 830 m<sup>3</sup> (Marcano 1990).

b. *Gobierno implementa soluciones inmediatas*

Ante la presión de los pobladores y probablemente frente a períodos electorales el gobierno aprovecha coyunturas e implementa alguna solución temporal generalmente para ganar el voto femenino. Un tanque comunitario o un tendido simple de redes con algunas pilas públicas solucionan transitoriamente el problema.

c. *El gobierno y los donantes implementan proyectos*

Instituciones gubernamentales y locales, y las agencias donantes inician los proyectos y negocian con las contrapartes comunitarias que puede ser la asociación de vecinos o su equivalente encargado del desarrollo comunal, especialmente en lo que a infraestructura se refiere.

Por ejemplo en Honduras, el Programa UEBM-SANAA-UNICEF, hace convenio con las comunidades para implementar sistemas no convencionales de abastecimiento de agua. No sólo el diseño y la construcción sino también la financiación, operación y el mantenimiento de los proyectos está organizado por el Programa. Se ha incluido un mecanismo de Fondo Rotatorio para recuperar total o parcialmente la inversión efectuada. La recuperación lograda hasta el momento es muy alta y más rápida del plazo de cinco años que se había establecido, lo cual indica que el poblador periurbano, de los cuales 37% son mujeres, es un buen sujeto de crédito (Espejo et al. 1993).

d. *La "auto-ayuda"*

Los vecinos y las agencias no gubernamentales inician sistemas de abastecimiento de agua con la ayuda de donaciones externas. En este caso la empresa pública tiene alguna inherencia en la construcción del sistema, el cual una vez listo realiza los cobros respectivos del agua.

En Cochabamba, la iglesia cumple un rol decisivo en la búsqueda de donaciones externas para proyectos en zonas urbano-marginales. Una vez listo el sistema SEMAPA, lo absorbe para poner el agua (CERES 1990). En Lima, Perú con los problemas de crisis, devaluación de los recursos monetarios y con estrategias

financieras insuficientes las empresas públicas no han asumido su rol y responsabilidades en la implementación de sistemas de agua a poblaciones populares de bajos ingresos. Ello ha obligado a la comunidad a buscar financiamiento total o parcial para sus sistemas, exponiéndose a los altos precios y tasas de interés de los contratistas privados.

e. *El "autoaprovisionamiento"*

Este es un esquema bastante común en los asentamientos periurbanos. La comunidad se organiza autónomamente a través de cooperativas por ejemplo, para iniciar, construir, operar y mantener el sistema. Una vez terminado el sistema, pasa a depender de la empresa. En las favelas en Rio de Janeiro (Whenphol 1986) donde habita aproximadamente el 60% de la población, la "Asociación de Moradores" ha "sembrado" cerca de 75% de tuberías en los barrios sin el apoyo de la municipalidad. Este sistema de autoaprovisionamiento existe y surge cuando las autoridades responsables no pueden asumir responsabilidades de abastecer el agua y donde la comunidad opta por sistemas muy sencillos con poco cuidado en la calidad operación y mantenimiento posterior.

Como se ha mencionado, de todas estas formas de organización comunitaria, la más desventajosa para las mujeres es la compra del agua; es costosa y da un mal servicio. Las soluciones inmediatas no solucionan el problema para las mujeres. Los proyectos implementados por el gobierno tienen generalmente el componente de participación comunitario que permiten espacios de participación de las mujeres en la ejecución de las obras, en las contribuciones financieras; y menos en las decisiones importantes de los proyectos.

Las formas de autoayuda y autoaprovisionamiento en realidad son las que dan más oportunidad a la iniciativa de los hombres y mujeres pobladores periurbanos. La mujer tiene una participación significativa aportando tiempo, dinero y energía. Sin embargo, el enfoque que prevalece es el de dotar de agua a las poblaciones y con poca atención a buscar esquemas tecnológicos apropiados y niveles de servicio que realmente solucionen el problema de las mujeres.

#### **4. FUENTES, SISTEMAS DE ABASTECIMIENTO Y SERVICIOS**

La elección tecnológica sobre el tipo de sistemas de abastecimiento de agua es muchas veces vista como una relación de causa-efecto. Se dice que son "decisiones técnicas" donde no hay mucho espacio para la negociación. Sin embargo, pensamos que cada opción tecnológica o cada sistema de abastecimiento ofrece diferentes posibilidades de control comunitario y especialmente el control de las mujeres sobre la cantidad y calidad del agua que recibe.

A continuación se presentan las diferentes opciones tecnológicas que usualmente se ven en las zonas periurbanas; su presentación sigue un orden de menos a más control comunitario sobre la fuente de agua y su abastecimiento.

a. *Carrotanques privados*

Los carrotanques atienden a las zonas más empobrecidas, que son generalmente las más elevadas o alejadas de los asentamientos periurbanos, y donde por razones técnicas u otras el sistema de redes o pozos no puede llegar.

Sin embargo, los carrotanques también son complementarios a otros sistemas de abastecimiento. En Lima 850,000 personas se abastecen mediante camiones cisternas, de los cuales 620,000 personas utilizan los camiones como complemento de otras fuentes de abastecimiento (DEL AGUA 1991). En Barquisimeto, los tanqueros abastecen a los más pobres de la ciudad que viven en las zonas más altas donde no llegan las redes y también a los usuarios de la red municipal que quieren tener más agua.

Los carrotanques se surten de los centros de acopio oficial y también de las conexiones ilegales. Por lo tanto, ellos tienen el control de la cantidad y calidad del agua abastecida. Si bien este sistema satisface la necesidad de tener agua, el nivel del servicio se puede resumir así: "se recibe el agua del especulador privado, sin ninguna preservación higiénica, reciben el agua en latas y la almacenan en tanques oxidados; pagan al contado y directamente al distribuidor a un precio que él establece" (Santana 1990). Muchas veces los "aguateros" no tienen horarios ni rutas fijas, lo cual coloca a las mujeres en una posición dependiente, pierden más tiempo y deben pagar mayores precios.

Este sistema prospera cuando la comunidad no está organizada, por lo tanto las relaciones con el proveedor de agua son de carácter individual. El mal servicio que ofrecen los tanqueros y la falta de control del mismo por alguna instancia municipal, gubernamental o comunal hace que este esquema del carrotanque repita y reviva la dependencia de las usuarias al tanquero varón y brinde oportunidades para relaciones de abuso y explotación.

b. *Reservorios comunitarios*

Una manera sencilla de satisfacer el problema de falta de agua en comunidades periurbanas y relativamente pequeñas es la construcción de tanques portátiles en lugares estratégicos. Por ejemplo, en Barquisimeto, Venezuela, la municipalidad ha construido tanques portátiles que se llenan cada tres días y que reciben raramente mantenimiento (limpieza). De esta manera las mujeres toman el agua del tanque y la acarrear a sus viviendas.

El tanque comunitario soluciona el problema de tener agua, más no necesariamente este sistema llena las exigencias de acceso o cercanía, cantidad y calidad, requisitos importantes para las mujeres. Hay que tener en cuenta que con el crecimiento rápido de los asentamientos periurbanos los tanques comunitarios, son soluciones a corto plazo pues en poco tiempo son incapaces de satisfacer la demanda de agua.

Con los tanques comunitarios así como con los carrotanques la comunidad y la mujer no tienen control sobre la fuente.

c. *Sistemas de redes conectados a un tanque comunitario*

El agua proviene de las redes principales de la ciudad; en cantidades prefijadas es acarreada por camiones o transportada por tuberías a un tanque comunal. Desde allí el agua es elevada a tanques de distribución y por gravedad distribuida a llaves públicas o conexiones domiciliarias.

Los sistemas de redes pueden ofrecer distintos niveles de servicio: pilas públicas, pilas para un grupo de familias conexiones domiciliarias y conexiones ilegales. Muchas veces la pila pública se le ve como una solución temporal mientras llega la conexión domiciliaria. Con los sistemas de redes con tanques comunitarios, los problemas más frecuentes están relacionados con la ineficacia de la operación y el mantenimiento del sistema (a cargo del operador y bajo la responsabilidad de la junta) y problemas relativos a los horarios de distribución. Estos problemas afectan más a las usuarias quienes generalmente están muy poco informadas sobre el trabajo del comité de agua y del operador quien controla las horas y las zonas de abastecimiento diario del agua. Por ejemplo, en Colinas de Palo Grande en Caracas, Venezuela, el suministro de agua es cada 15 días; muchas mujeres pierden ese día de trabajo para poder lavar.

En los sistemas con redes de distribución, existe un buen espacio para que la comunidad y las mujeres asuman la gestión de sus sistemas: participando en las decisiones del comité, informando más a otras mujeres, trabajando como operadoras o fontaneras. Todos ellos, roles que permitirán mayor control en la cantidad, calidad y regularidad del servicio.

d) *Sistemas de redes con fuente propia*

A veces los sistemas de redes provienen de fuentes de agua propias de la comunidad: pozos o manantiales. Pueden ser bombas manuales o pueden bombearse a un tanque comunitario que luego por gravedad llega a pilas públicas o a conexiones domiciliarias.

La gran ventaja de este sistema es su autonomía, lo cual da más espacio a la comunidad y a las mujeres para organizarse y tener más control sobre todo el sistema: desde la fuente hasta el punto de recolección del agua. Muchas veces el nivel de servicio que el pozo ofrece puede traer más beneficios a las mujeres: hay acceso al

agua en cualquier momento y no tienen que estar esperando o haciendo cola. El mayor problema con los pozos es su capacidad, la cual puede disminuir en el verano.

Los comentarios referentes a la Gestión Comunitaria son también válidos para los sistemas autónomos.

Como comentario general a los sistemas anteriormente mencionados se puede indicar que el control de la fuente es un factor prioritario en el abastecimiento y servicio del agua, es decir en la gestión comunitaria donde las mujeres podrían tener un rol más decisivo y de decisión. Áreas no tradicionales como la operación y el mantenimiento son cruciales para la participación de la mujer para así tener más acceso al control de la calidad del servicio que se recibe.

## **5. PARTICIPACION DE LAS MUJERES EN LOS PROYECTOS DE AGUA POTABLE**

Decir que las mujeres no participan en los proyectos de agua en zonas periurbanas no sería ni justo ni cierto. Las mujeres desde las etapas iniciales del proyecto manifiestan mucho interés en cooperar con las actividades del proyecto. Esto se puede ver claramente durante las obras de construcción. A la par que el hombre, la mujer se dedica a abrir zanjas y cargar material sin respetar así división genérica del trabajo, para cumplir con su cuota necesaria para ser usuaria del sistema de abastecimiento.

Más la participación de la mujer no es solamente en la construcción. Una vez terminadas las obras, las mujeres forman parte cada vez más de los comités de agua cumpliendo mayormente los roles de secretaria y tesorera.

En Honduras en el programa de UEBM, las mujeres constituían el 30% de los miembros en las juntas de agua; de ellas en el 57% de los casos cumplían el rol de secretaria y en el 9.5 % de los casos eran presidentes de la junta. Si bien es cierto que su participación todavía se da en áreas tradicionales, se observa que la inclusión de mujeres en tareas como operación y el mantenimiento tienen cada vez más aliados. Sin embargo, esto no necesariamente está explícito en la estrategia del proyecto.

En Cali, Colombia, "las mujeres de la Sirena," con plano en mano, controlaron la instalación de la red de distribución y discutieron con la población los criterios para el establecimiento de tarifas. Han logrado la disminución significativa del desperdicio de agua y la constitución del 70% de las juntas administradoras" (CINARA 1993).



En la gestión de servicios urbanos de agua y saneamiento, las mujeres participan activamente (Tabla 3). En la mayoría de proyectos los que operan y mantienen son operadores varones en cuyas manos queda la operación y el abastecimiento diario del agua; por lo tanto, si bien las mujeres recogen el agua (en los puntos finales del sistema físico) son los varones los que ubicándose a lo largo del sistema, controlando válvulas, reparando desperfectos, etc., tendrán el control del agua que corre por las tuberías.

La participación de las mujeres está aparentemente llena de contradicciones y afectada por la cultura y la educación. En los proyectos se da también la invisibilidad del trabajo de las mujeres. Participan y trabajan muchas veces sin figuración; por ejemplo, tesoreros oficialmente nombrados que ponen a sus hijas o esposas para atender a los usuarios, trabajan en la construcción como jefes de familia para que la familia pueda acceder al agua, preparan la comida para el personal calificado durante la construcción, lo cual no está debidamente registrada como trabajo, y otras veces toman el liderazgo de un proyecto de agua, pero cuando está listo eligen a varones para que lo gestionen (Agua del Pueblo 1993, CINARA 1993).

Cumpliendo estos roles directivos y de influencia, la mujer se ha expuesto públicamente a contradicciones "éticas" tales como "el cargo les quita tiempo a sus labores domésticas" y "descuidar la familia"; el éxito en sus cargos directivos las ha llevado a un cambio en sus relaciones de pareja (Whitaker 1992) aunque muchas veces la oposición masculina las hace renunciar a tales cargos (Agua del Pueblo 1993, IDEAS 1991).

La participación de la mujeres en los proyectos de agua ha mostrado ser una participación activa y directa en lo que a ejecutar actividades se refiere, e indirecta y menos visible en la toma de decisiones (Whitaker 1992).

Finalmente, la participación de la mujer en los proyectos no necesariamente ha revertido en beneficios significativos para las condiciones y la posición de la mujer. Es más, ello no ha significado la adopción de un enfoque de género. Parece ser que la participación ha sido más el resultado de las necesidades prácticas e inmediatas y de la espontánea iniciativa de las mismas pobladoras que estrategias definidas de los proyectos. Es tiempo de convertir la participación de las mujeres o el enfoque de género en una estrategia explícita y visible en los proyectos.

La participación de la mujer en organizaciones alimentarias y de salud han mostrado su capacidad de dar respuesta a los problemas relacionados con las condiciones y calidad de vida; también, su capacidad de movilización social desde proyectos de mujeres. Son espacios de revalorización de su trabajo, de concientización, de capacitación, formación de líderes y emponderamiento desde donde la mujer coordina, negocia, apoya o no dinámicas populares en el barrio para reivindicaciones, logros de desarrollo comunal (IDEAS 1991).

Tabla 3. Formas de Participación de las Mujeres en Zonas Periurbanas

- a) **as members of local committees that manage communal taps or sanitation facilities**  
 In the peri-urban communal water points projects in Malawi, women play a big role. In Salinas, for example, 53% of tap committee members are women and 58% of the committees are chaired by women. They look after the taps, collect user payments, control proper use of water, and often plant flowers around the waterpoints to make them more attractive. Women's participation in tap management closely reflects the approach taken by the original project teams in establishing them. When mostly men are contacted, committees are dominated by men. When the teams consulted more women, the committees reflect this with more women still active, since they have a feeling that it is *their* project (42). In Semarang, Indonesia, women take part in the local committee that manages the 15 communal toilets for women and 13 for men. The committee employs and supervises the two employees (cleaner and fee collector), checks payments, and manages funds. By collective decision, the project's revenue balance is used for repairs, garbage collection and street paving (43).
- b) **as organizers and managers of water vending ('kiosk system')**. United by their need for reliable and affordable water, and their dislike of high water prices from private vendors and licence holders, women in low-income urban neighbourhoods in Honduras, Burkina Faso and Kenya have taken on and managed their own licensed water vending points. Characteristics reported are a lower and fixed water price, provision of part-time employment to poor single women with children, and use of the group's surplus for neighbourhood projects (44).
- c) **as organizers and managers of neighbourhood water supplies and sanitation systems**. Poor urban women in, among others, Kenya, Brazil and Mexico, united by their needs for both water and income, helped organize either their own local water supply, or financed a connection to the municipal network. Water is used for income generation from beer brewing, teashops and a launderette.
- d) **as promoters and managers of household latrines**. Once women in the low-income urban neighbourhoods of Baldia and Orangi, in Karachi, Pakistan, were involved in the projects, they made very effective voluntary promoters of on-site (Baldia) and off-site (Orangi) sanitation systems (45). In a rural programme in the same country, paid male and female sanitation promoters receive 3 months' training in the construction of latrines, cisterns, soakpits, biogas plants, protected wells and small water supplies, food hygiene and soapmaking. The female promoters then form Ladies Motivation Teams in their home areas and visit and work with the local women in constructing and maintaining latrines, building water cisterns, etc. (46).
- e) **as participants and managers of urban waste collection and recycling**. In China, women take care of the voluntary collection of human waste in their neighbourhoods. The municipality subsequently collects the waste from the local depots for central recycling outside the city (47). In Mexico, women are the main participants in the cooperatives which manage the earlier mentioned community waste recycling plants. An elected committee operates, maintains and finances the operation and maintenance of the plants. Women of the first community also gave promotion and training on waste recycling to the second one adopting a plant. Compost and treated waste water are used to grow vegetables and the surplus compost is marketed. Surplus proceeds have been used to make a children's playground, and women in the group have united to buy food collectively from the wholesale market.

The potential for active contributions from women to waste recycling in densely settled areas is still very large. In The Netherlands, for example, one of the most densely settled countries in the world (384 people per sq. km in 1970), 60% of all paper, 55 % of glass used for household purposes and 25% of domestic chemical waste is already collected by local voluntary associations (paper) or brought to central collection points mostly by women (glass and chemicals), to be processed for reuse on a commercial basis (48).

Fuente: International Research and Training Institute for the Advancement of Women 1991

Concluyendo sobre la participación de la mujer decimos:

- La participación de las mujeres es mayor en los trabajos de ejecución que en las decisiones importantes.
- La participación representativa de las mujeres no tiene en la mayoría de los casos mucho impacto; ellas necesitan un apoyo más específico para el buen cumplimiento de su rol.
- La participación de las mujeres ha obtenido logros relativos en cuanto a las necesidades prácticas.
- La participación de las mujeres es más un resultado de sus necesidades, entusiasmo e iniciativa en las actividades del proyecto que resultado de una estrategia del proyecto.
- La mayoría de los proyectos están orientados a satisfacer las necesidades prácticas de dotación y acceso; se ha involucrado a las mujeres para colaborar con el éxito en obtener dotación adecuada sin apoyar la participación en lo que a confiabilidad del servicio se refiere.
- La participación de la mujer en organizaciones relacionadas a la satisfacción de necesidades básicas, ha demostrado su capacidad de dar respuesta a los problemas relacionados con las condiciones y calidad de vida.

## **6. INTEGRANDO EL ENFOQUE DE GENERO EN LOS PROYECTOS DE WSS: PUNTOS PARA LA DISCUSION**

Los siguientes puntos a nuestro entender plantearán preguntas claves a considerar en la formulación de estrategias de género en los proyectos de agua y saneamiento.

### **a. *El agua es un elemento vital y también un recurso de poder***

Una de las premisas en las que se basan los proyectos de agua es que es un elemento vital, es necesaria para todo ser humano y en este sentido la dotación de agua se convierte en un objetivo natural de los proyectos. Sin embargo, la realidad muestra que no sólo es un elemento vital, el agua es también un recurso de poder.

Experiencias en el área rural en el uso y manejo de las cuencas, la diferencia en las cuotas de agua establecidas para el uso doméstico y para irrigación ilustran bastante bien las relaciones de poder que existen con respecto al recurso agua. En la zona periurbana las reivindicaciones políticas usando el agua como bandera, los políticos usándola para ganar votos, son otras muestras del poder y la politización del agua.

El reconocimiento del agua como recurso de poder llevará a tomar prevenciones para que los proyectos no sean espacios donde se refuercen sus implicaciones de poder.

b. *El agua para la salud y para la producción de subsistencia*

Una premisa bastante manejada en los proyectos de agua potable y saneamiento es que el agua y su uso doméstico crearán mejores condiciones de salud. Si bien no se niega la relación agua y salud, el agua llevada a las viviendas de zonas periurbanas sirve además en la producción de subsistencia dentro de la casa.

En la zona periurbana gran parte de las actividades que generan ingreso para las mujeres se hacen dentro de la casa. Preparación de productos caseros (caramelos, helados, alimentos), servicios de lavado y planchado, huerta casera con productos para el consumo de la casa, son todas formas de la economía doméstica familiar. La dotación de agua para el llamado "uso doméstico" o consumo humano (limpieza personal, alimentos, lavado) no toma en cuenta estos aspectos productivos necesarios para mantener a la familia. Si coincidimos que en la zona periurbana, gran parte de las mujeres son jefes de familia, el concepto del uso doméstico necesitará reconceptualización en términos de agua, salud y producción de subsistencia.

El agua sirve para mantenernos como seres vivos y como seres económicos también.

c. *Abastecimiento doméstico: en la casa y en los servicios comunales*

En las zonas urbano-marginales las responsabilidades del trabajo doméstico tienen lugar dentro de la casa y fuera de ella. Se observa una tendencia a la colectivización de los servicios comunales, muchos de ellos son organizados y dirigidos por mujeres; por ejemplo, las madres comunitarias (guarderías de barrio), comedores populares (cocinas comunitarias), lavaderos de ropa públicos y baños públicos.

El abastecimiento de agua debe tomar en cuenta tal realidad. El uso doméstico no sólo se da dentro de la casa sino también y muy importante, en la colectivización del trabajo doméstico. La dotación de agua a través de pilas o conexiones domiciliarias están todavía centradas en la idea de que las responsabilidades domésticas tienen lugar en la casa solamente. No es así, la dotación de agua para servicios comunales puede apoyar a la socialización del trabajo doméstico y así ayudar a aliviar a las mujeres de algunas de sus responsabilidades domésticas.

Por ejemplo, el caso de comedores populares en Perú ha mostrado que los servicios comunales siendo organizaciones creadas para facilitar la responsabilidad de alimentar a la familia, se convierten en importantes centros de capacitación y emponderamiento de las mujeres.

Los proyectos de agua pueden considerar la integración de los abastecimientos a la casa, así como el abastecimiento a los servicios comunitarios con una buena estrategia de tarifas y tecnologías especiales para estos servicios.

d. *El abastecimiento de agua y el control sobre el servicio*

La sola dotación de agua es un objetivo necesario que todo proyecto de agua debe tener. En el área urbano-marginal hay situaciones donde la única manera de obtener agua es a través de un sistema de abastecimiento del cual los pobladores dependen totalmente. En estos casos, la dotación cumple un objetivo importante de sobrevivencia. Sin embargo, ello no es suficiente para aliviar el **problema a la mujer** en el sentido de facilitarle las responsabilidades domésticas y de satisfacer las necesidades prácticas. Es necesario que la dotación de agua esté complementada con un buen nivel de servicio.

La mujer, los jóvenes y los niños, son los que recogen el agua y los más afectados por los niveles de servicio de abastecimiento de agua. La mujer no sólo necesita el agua sino una dotación regular de cantidad y calidad de agua suficiente, de fácil acceso y horarios organizados que le permita disponer de su tiempo. **La mujer entonces necesita el abastecimiento de agua y el servicio**, mientras que la mayoría de los proyectos están orientados solamente hacia abastecimiento.

El nivel de servicio es una responsabilidad de la gestión comunitaria, componente todavía débil en los proyectos y cuyo desarrollo traerá importantes consecuencias para la capacitación de las juntas y de las mujeres en la operación y mantenimiento de los sistemas a fin de aumentar su capacidad de control del funcionamiento diario del sistema y del servicio.

e. *Gestión comunitaria un área para el desarrollo de las necesidades estratégicas*

En su mayoría los proyectos cuentan con pocas estrategias de gestión comunitaria y cuando las tienen no consideran la participación de la mujer. La gestión comunitaria mayormente a cargo de los varones líderes o personas alfabetas, es un área potencial para una mayor participación y desarrollo de las mujeres. La llegada de mujeres a los puestos de liderazgo y decisión ya es un logro que debería ser explícitamente apoyado en los proyectos.

f. *Co-gestión entre el comité de agua, grupos de mujeres y municipalidad*

Los comités de agua a cargo de la gestión comunitaria, tienen muy poca coordinación con otros grupos comunitarios y con la municipalidad. El comité de agua, los grupos organizados de mujeres dedicados a actividades reproductivas o pequeños proyectos de ingreso, deberían desarrollar una suerte de co-gestión. Ampliando el concepto de uso doméstico del agua a los servicios comunales, las mujeres que se encargan de éstos deberían también participar en las decisiones concernientes al sistema de abastecimiento. Como se dijo en el acápite tres, muchos servicios comunales que desarrollan actividades relacionadas a la reproducción están a cargo de mujeres. Si el uso del agua en estas organizaciones es doméstico, se justifica una co-gestión.

El otro socio en la co-gestión debe ser la municipalidad. Los comités son todavía entidades que trabajan autónomamente con poco aprovechamiento de los recursos locales. A pesar de las limitaciones que la municipalidad todavía enfrenta, es un socio con quien necesariamente comités y grupos de mujeres deben negociar.

## ***Bibliografía***

Allou, S. (1989). [Lima en cifras]. Lima, Perú. CIDAP Centro de Investigación Documentación y Asesoría Poblacional e IFEA Instituto Francés de Estudios Andinos

Blondet, C. (1986). [Muchas vidas construyendo una identidad, las mujeres pobladoras de un barrio limeño]. Lima, Perú, Instituto de Estudios Peruanos IEP.

Cáceres, L.E. y Vargas, S. (1993). [Mujer agua y saneamiento en Colombia : CINARA y su experiencia en el trabajo con mujeres : documento presentado en el Taller de Metodología Aplicada para Involucrar a las Mujeres en Proyectos de Agua y Saneamiento y Protección de Cuencas]. Cali, Colombia, CINARA.

CERES (1990). [Participación de los pobladores en la solución de las problemáticas de agua y saneamiento en las ciudades andinas. documento presentado en CIDAGUA ANDINA]. Cochabamba, Bolivia. REDES.

CIDAP y DESCO (1989). [Empresas de servicios y usuarios urbano populares : cómo desarrollar proyectos comunes?: documento presentado en CIDAGUA ANDINA]. Lima, Perú, CIDAP.

DelAgua Perú (1991). [Proyecto "implementación de estrategias de concertación para el mejoramiento de servicios de agua abastecidos por camiones cisterna en asentamientos humanos"]. 1ra. parte. Lima, Perú, DelAgua Perú.

Espejo, N. (1989). [Water committees in Latin America task and training]. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

Espejo, N. et al. (1993). [Informe final de la documentación participativa del programa UEBM/SANAA de barrios marginales en Tegucigalpa, Honduras]. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

IDEAS (1991). [Programas municipales de subsistencia y organizaciones de mujeres en el distrito de Ate-Vitarte 1984-1990 : documento presentado en el Seminario Mujer y Municipio en Quito]. Lima, Perú, IDEAS.

INSTRAW (1991). [The international drinking water supply and sanitation decade (IDWSSD) and beyond]. Module IV involvement of women in management of water resources, water supply and waste disposal. Santo Domingo, Dominican Republic.

Marcano, E. Foley, J y Benaiges, A. (1990). [Es posible en Venezuela desarrollar proyectos comunes entre el Instituto Nacional de Obras Sanitarias y los Sectores Populares: el caso Barquisimeto]. Caracas, Venezuela, Instituto de Urbanismo, Universidad Central.

Olaya N. y Villavicencio, G. (1990). [El desabastecimiento de agua potable en las áreas populares de Guayaquil : historia de una imposible cooperación participativa : documento presentado en CIDAGUA ANDINA]. Guayaquil, Ecuador, Redes.

Ruiz de Somocurcio, J. et al. (1987). [Procesos urbanos homogéneos en los distritos de San Martín de Porras y El Agustino]. Lima, Perú, Centro de Investigación Social y Educación Popular Alternativa.

Santana, P. et al. (1990). [Prestación del servicio de acueducto y alcantarillado en Barranquilla-Colombia : La participación de los pobladores : estudios de caso - Los Laureles y Siete de Abril : documento presentado en CIDAGUA ANDINA]. Bogotá, Colombia, Fundación Foro Nacional.

Marshall, A. (ed.) (1993). [The state of world population]. New York, N.Y., USA, UNFPA.

United Nations Development Programme (1992). Human Development Report 1992. New York, N. Y. USA. UNDP.

Water and Sanitation Collaborative Council Working Group/Urban (1993). [Report for consideration at the Rabat meeting of the council 7-10 1993. Volume 2: Main report]. Rome, Italy, WSSCC.

Wegelin-Schuringa, M. (1992). [Participatory approaches to urban water supply and sanitation: paper prepared for OECD/DAC meeting on participatory approaches to urban development]. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

Wehenphol, G. (1986). [Inhabitant participation in the process of squatter upgrading with special regard to the technical infrastructure : paper presented at the Symposium Strategies for Slum and Squatter Upgrading in the Developing World held in Berlin 27-29 November 1986. Darmstadt, West Germany, Technical University.

Whitaker, H. (1992). [Participación, mujer y proyectos de abastecimiento de agua: marco para una metodología]. Programa UEBM-SANAA/UNICEF. Tegucigalpa, Honduras. Ediciones Zas.

Wijk, v. C. (1985). Participation of women in water supply and sanitation: roles and realities. (Technical Paper No. 22). The Hague, The Netherlands, IRC and PROWESS.



**Gender and the Management of Drinking Water  
Supply in Low Income Urban Communities in  
Latin America (English summary)**

**by**

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## GENDER AND THE MANAGEMENT OF DRINKING WATER SUPPLY IN LOW INCOME URBAN COMMUNITIES IN LATIN AMERICA

(English Summary)

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Paper presented at the OECD/DAC workshop "Gender and Water Resources Management. Lessons Learned and Strategies for the Future. Stockholm, Sweden December 1-3 1993

At the end of this century, 45% of the population in developing countries will live in cities. Table 1 gives an overview of the urban growth in Latin American countries. Since the 1960s young, single women form the majority of urban migrants in this continent. Most migrants live in low-income urban neighbourhoods and communities.

Table 1. Population Growth Rate in Latin America

	Población Urbana (desde total %)		Urban Population annual growth rate %	
	1960	1990	1969-90	1990-2000
Colombia	48	70	3.7	2.5
Surinam	47	47	1.3	3.0
Ecuador	34	56	4.6	3.7
Perú	46	70	4.1	2.7
El Salvador	38	44	2.9	3.6
Nicaragua	40	60	4.7	4.1
Guatemala	32	39	3.5	4.0
Honduras	23	44	5.6	4.7
Bolivia	39	51	3.5	4.2
All developing countries	22	37	4.0	4.0

Source: United Nations Development Programme 1992

These communities do not have an evolutionary development. Different types of communities exist side by side: old neighbourhoods with a high population density and progressive deterioration of housing and services, such as water supply, drainage and solid waste disposal;

and various types of new settlements, from the ones planned with services to the unplanned, legal communities and communities which either have a mix of sold plots and occupied land or are formed by spontaneous settlement and land occupation with no services.

In poor urban neighbourhoods many actors deal with water supply services. States, governments and water departments deal with general policies and water resource management. Frequently, they or the municipal authorities and municipal water companies, do not have strategies for serving unplanned peri-urban settlements. If services do exist, they are often based on short-term strategies driven by political interests (Table 2). The gap is filled by people's organizations in the settlements; cooperatives which occupied the land sometimes develop into an organization that initiates and manages basic services, or in other cases, the inhabitants form water service organizations per sector.

Women are in the forefront of activity during the initial phase settlement. They locate and safeguard plots and struggle for water supply, drainage, light, food provisioning and transport. Thereafter, organized women's groups usually focus on health and food. As individuals, women are the most directly affected by the lack of water and exert pressure for a better water supply service. To establish water supply service, people's organizations in the **barrios**<sup>1/</sup> sometimes get help from the government, otherwise, they have to rely on private contractors. In communities where no people's or women's organizations develop into more permanent solutions, the water supply gap is filled by commercial water-vendors and transporters. They take water from legal intake points or from illegal connections (in Barranquilla, Colombia, 62 of such illegal intakes were found) and sell the water with a great profit.

Since strategies for supplying urban water are lacking, the many and often opposite interests of these actors have a high chance to clash and become politicized. The process of having access to water supply systems becomes a political struggle. This reduces the chance women have to play a role and to have influence in the process, even if they are members of local water associations and groups. More important than membership and drive is the capacity to negotiate with opposing interest groups and protect one's own interests. The high politization and popular demand for any type of water supply have left out issues such as, appropriate technology and service level, and, community management of the installed system. These issues are in the long run, more important than the short-time solutions, still a common practice.

The least satisfactory and most common practice is purchasing water from private vendors or city-managed water trucks. High costs, a low service level with irregular routes and supply schedules, very poor water quality, high intake from illegal connections with grounds for user exploitation in periods of water scarcity, make this the least appropriate way of water supply management for both cities and women. A temporary solution aimed at getting women's votes is to install a water reservoir or locate few public taps in the community. Although cheaper for women and men, the service level is seldom adequate and they are still dependent on external service which is a financial liability.

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<sup>1/</sup> barrios = low-income urban neighbourhoods

Table 2. Constraints for Capacity Building and the Sector for the Implementation of WSS Projects in Peri-urban Settlements

- a. Urban governance and public policies on peri-urban settlements
- inadequacy of urban housing and land use policies
  - governments base their figures on the housing shortage on middle-class values
  - lack of adequate national policies
  - conflicts or absence of coordination among the various levels of urban government
  - limited flow of information in the urban WSS sector
  - peri-urban sector planning is difficult
  - shortage of tools for collecting and managing information on peri-urban settlements
  - lack of a clear definition of administrative boundaries
  - poor motivation of local administrators
  - resistance of officials to innovations due to the excessive bureaucratization of local government
- b. The management of WSS utilities
- a narrow technical vision or an exclusive use of engineering skills
  - monopoly conditions
  - lack of autonomy in setting tariffs and staff salary levels
  - lack of motivation of personnel, also important staff positions are assigned on the basis of political affiliation rather than merit
- c. The action of external support agencies (ESA)
- increase local capacity by acting as facilitators
  - over-ambitious goals
  - conflicts that sometimes arise between ESA staff and the local population
  - scarce consideration on the part of ESAs to the time frames required for implementing certain projects
  - shortage of managers and professional staff with a specific competence in urban development
  - lack of operational coordination and information flow among different agencies

Source: Water and Sanitation Center Collaborative Council Working Group/Urban 1993

An alternative form is when the authorities formulate strategies for community-based water supply systems and negotiate with local organizations to manage such systems. An example is UEBM in Honduras, where water systems are community based and managed and women can have more influence on the service. However, as the organization lacks a gender strategy, women are more involved in construction and secretarial duties than in decision-making and control.

The other example is when a group or organization from the community takes the initiative. They either find external financing while they contribute in cash and kind (self-help schemes) or get a loan and build a system through the private sector (autonomous water systems). Despite the local initiative and control, local men and women seldom play a decisive role in the planning and designing. Usually they are dependent on external water technicians from public or private sectors who might have other interests and priorities than community members. Community water committees will be maintained and managed regardless of the system emerging from this process.

Women are the most directly concerned about water in the communities and have a great interest in a reliable and good-quality service. They also have more management experience in services at a neighbourhood level related to health and food. Therefore, water supply systems in which the community or neighbourhood can have control over source and service offer the best opportunity for women's involvement in management. In initiating and constructing local water systems, women to some extent, make a cultural breakthrough, determine gender roles and participate in physical construction and in management organizations (Table 3). In Cali, Colombia, "the women of la Sirena, with construction maps, controlled the construction of the distribution net. They discussed with the population the criteria on which to base the tariffs, have significantly reduced water leakage and wastage and constituted 70% of the water committees".

At the same time, women also adhere to gender-dictated roles within water management organizations. In Honduras, women form 30% of water committees membership, and in 57% of these committees they occupy secretarial positions but control over the source and distribution is in the hands of men. When women are involved, they often work as unpaid and unacknowledged stand-ins for fathers and husbands. Men formally hold the position of operator or treasurer and receive payments while their wives or daughters do the day-to-day work.

Due to the lack of explicit gender focus and strategies, current women participation is more the result of spontaneous initiatives of women themselves and does not lead to lasting changes in their condition and status. Formulation of gender strategies is needed with project organizations recognizing that water is a basic need but a power instrument as well.

Tabla 3. Forms of Women's Involvement

- a) **as members of local committees that manage communal taps or sanitation facilities** In the peri-urban communal water points projects in Malawi, women play a big role. In Salinas, for example, 53% of tap committee members are women and 58% of the committees are chaired by women. They look after the taps, collect user payments, control proper use of water, and often plant flowers around the waterpoints to make them more attractive. Women's participation in tap management closely reflects the approach taken by the original project teams in establishing them. When mostly men are contacted, committees are dominated by men. When the teams consulted more women, the committees reflect this with more women still active, since they have a feeling that it is *their* project (42). In Semarang, Indonesia, women take part in the local committee that manages the 15 communal toilets for women and 13 for men. The committee employs and supervises the two employees (cleaner and fee collector), checks payments, and manages funds. By collective decision, the project's revenue balance is used for repairs, garbage collection and street paving (43).
- b) **as organizers and managers of water vending ('kiosk system')**. United by their need for reliable and affordable water, and their dislike of high water prices from private vendors and licence holders, women in low-income urban neighbourhoods in Honduras, Burkina Faso and Kenya have taken on and managed their own licensed water vending points. Characteristics reported are a lower and fixed water price, provision of part-time employment to poor single women with children, and use of the group's surplus for neighbourhood projects (44).
- c) **as organizers and managers of neighbourhood water supplies and sanitation systems**. Poor urban women in, among others, Kenya, Brazil and Mexico, united by their needs for both water and income, helped organize either their own local water supply, or financed a connection to the municipal network. Water is used for income generation from beer brewing, teashops and a launderette.
- d) **as promoters and managers of household latrines**. Once women in the low-income urban neighbourhoods of Baldia and Orangi, in Karachi, Pakistan, were involved in the projects, they made very effective voluntary promoters of on-site (Baldia) and off-site (Orangi) sanitation systems (45). In a rural programme in the same country, paid male and female sanitation promoters receive 3 months' training in the construction of latrines, cisterns, soakpits, biogas plants, protected wells and small water supplies, food hygiene and soapmaking. The female promoters then form Ladies Motivation Teams in their home areas and visit and work with the local women in constructing and maintaining latrines, building water cisterns, etc. (46).
- e) **as participants and managers of urban waste collection and recycling**. In China, women take care of the voluntary collection of human waste in their neighbourhoods. The municipality subsequently collects the waste from the local depots for central recycling outside the city (47). In Mexico, women are the main participants in the cooperatives which manage the earlier mentioned community waste recycling plants. An elected committee operates, maintains and finances the operation and maintenance of the plants. Women of the first community also gave promotion and training on waste recycling to the second one adopting a plant. Compost and treated waste water are used to grow vegetables and the surplus compost is marketed. Surplus proceeds have been used to make a children's playground, and women in the group have united to buy food collectively from the wholesale market.

The potential for active contributions from women to waste recycling in densely settled areas is still very large. In The Netherlands, for example, one of the most densely settled countries in the world (384 people per sq. km in 1970), 60% of all paper, 55 % of glass used for household purposes and 25% of domestic chemical waste is already collected by local voluntary associations (paper) or brought to central collection points mostly by women (glass and chemicals), to be processed for reuse on a commercial basis (48).

Projects also need to take into account that for women in low-income urban communities, a sufficient and regular water supply is not only a matter of easing domestic work and protecting family health. Water is also used for informal economic activities women do in their households, such as home production of sweets and snacks, growing vegetables for their own use and for selling. Moreover, water use in the **barrios** is not only limited to individual households. Women collectivize their work in order to survive economically e.g. by establishing communal kitchens, laundrettes and child care centres. A gender perspective on water in the **barrios** would recognize this and instead of focussing only on yardtaps and house connections would also open opportunities for women to establish communally operated and managed laundry places and bath-houses.

## **INTEGRATING GENDER APPROACH IN WATER SUPPLY AND SANITATION PROJECTS: POINTS FOR DISCUSSION**

### ***1. Water is a vital element and a power resource***

Experiences in the rural areas related to water resource management, the value given to water for irrigation and domestic use, the politization of the water in the peri-urban areas, etc., show how water relates to "power" and results in power struggling. Therefore, water is not just a vital element people need for life but also an element that can lead them to economic resources.

Power issues place women in a very disadvantaged position. Their limited access to formal power reduces their negotiation capacity to get water supply systems required for their practical needs. By recognizing water as a power resource agencies and projects may develop strategies to reduce power consequences on women's conditions and position.

### ***2. Drinking Water is for health and for subsistence production***

A common assumption in water projects is that domestic use of water will lead to health improvement. Although this important relationship should be kept in mind, reality of peri-urban areas shows that "domestic use" goes beyond health purposes (personal hygiene, cooking and washing); it also goes into household production activities such as preparation of sweets, ice creams, food, washing, ironing, etc. As majority of households are female-headed in peri-urban areas the integration of domestic use for health and for household production become crucial for implementing gender sensitive water supply programs.

### ***3. "Domestic Water Supply" in the household and the community***

In peri-urban areas domestic duties are carried in and out of the household. Communal services are also settings where domestic work is done. For example, day care centres, community bathrooms, washing facilities, communal kitchens, etc. are all them, places where women collectively take care of domestic duties. Whether these services are municipality or women groups initiatives, women play a decisive role in the management and maintenance of such services.



A gender approach in water projects must take into account that households and community services are places for domestic work and integrate it into widening the concept of domestic use of water. A direct implications is that supply of water should equally reach both settings.

#### **4. *Water systems: supply, service and control***

Women's needs for water is both, supply and service. Good quantity and reliably quality, easy access, regularity and organized schedules for water distribution will fulfill women's practical needs.

Often water projects are supply-oriented and the capacity for offering a reliable service is still weak, at the agency and at the water committees levels. Training and capacity building involving women to improve service level will enhance women capacity to control the water resources for their practical needs.

#### **5. *Community Management as a setting for strategic needs***

The regularity and adequacy of water supply service and water quality depend on the level to which communities and women have an influence in, and control over the establishment and management of the water supply service. In many urban projects building capacity of communities and women for this control is a weak element. Water committees receive limited training to manage a water system and are dominated by male leaders and educated people. Projects need conscious strategies focusing on women and men support for management tasks and leadership positions. and trained in water system management.

#### **6. *Co-management between water committees and women's groups.***

Accepting that households as well as community services are settings for domestic duties, has implications for community management of the water supply systems. For example, water committees may link up with community services groups and share decisions over control, access, level of service and supply of water. This will also bring important consequences on the democratization of water committee decisions which are mostly taken with little or none community participation.

## ***Bibliography***

Allou, S. (1989). [Lima en cifras]. Lima, Perú. CIDAP Centro de Investigación Documentación y Asesoría Poblacional e IFEA Instituto Francés de Estudios Andinos

Blondet, C. (1986). [Muchas vidas construyendo una identidad, las mujeres pobladoras de un barrio limeño]. Lima, Perú, Instituto de Estudios Peruanos IEP.

Cáceres, L.E. y Vargas, S. (1993). [Mujer agua y saneamiento en Colombia : CINARA y su experiencia en el trabajo con mujeres : documento presentado en el Taller de Metodología Aplicada para Involucrar a las Mujeres en Proyectos de Agua y Saneamiento y Protección de Cuencas]. Cali, Colombia, CINARA.

CERES (1990). [Participación de los pobladores en la solución de las problemáticas de agua y saneamiento en las ciudades andinas. documento presentado en CIDAGUA ANDINA]. Cochabamba, Bolivia. REDES.

CIDAP y DESCO (1989). [Empresas de servicios y usuarios urbano populares : cómo desarrollar proyectos comunes?: documento presentado en CIDAGUA ANDINA]. Lima, Perú, CIDAP.

DelAgua Perú (1991). [Proyecto "implementación de estrategias de concertación para el mejoramiento de servicios de agua abastecidos por camiones cisterna en asentamientos humanos"]. 1ra. parte. Lima, Perú, DelAgua Perú.

Espejo, N. (1989). [Water committees in Latin America task and training]. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

Espejo, N. et al. (1993). [Informe final de la documentación participativa del programa UEBM/SANAA de barrios marginales en Tegucigalpa, Honduras]. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

IDEAS (1991). [Programas municipales de subsistencia y organizaciones de mujeres en el distrito de Ate-Vitarte 1984-1990 : documento presentado en el Seminario Mujer y Municipio en Quito]. Lima, Perú, IDEAS.

INSTRAW (1991). [The international drinking water supply and sanitation decade (IDWSSD) and beyond]. Module IV involvement of women in management of water resources, water supply and waste disposal. Santo Domingo, Dominican Republic.

Marcano, E. Foley, J y Benaiges, A. (1990). [Es posible en Venezuela desarrollar proyectos comunes entre el Instituto Nacional de Obras Sanitarias y los Sectores Populares: el caso Barquisimeto]. Caracas, Venezuela, Instituto de Urbanismo, Universidad Central.

Olaya N. y Villavicencio, G. (1990). [El desabastecimiento de agua potable en las áreas populares de Guayaquil : historia de una imposible cooperación participativa : documento presentado en CIDAGUA ANDINA]. Guayaquil, Ecuador, Redes.

Ruiz de Somocurcio, J. et al. (1987). [Procesos urbanos homogéneos en los distritos de San Martín de Porras y El Agustino]. Lima, Perú, Centro de Investigación Social y Educación Popular Alternativa.

Santana, P. et al. (1990). [Prestación del servicio de acueducto y alcantarillado en Barranquilla-Colombia : La participación de los pobladores : estudios de caso - Los Laureles y Siete de Abril : documento presentado en CIDAGUA ANDINA]. Bogotá, Colombia, Fundación Foro Nacional.

Marshall, A. (ed.) (1993). [The state of world population]. New York, N.Y., USA, UNFPA.

United Nations Development Programme (1992). Human Development Report 1992. New York, N. Y. USA. UNDP.

Water and Sanitation Collaborative Council Working Group/Urban (1993). [Report for consideration at the Rabat meeting of the council 7-10 1993. Volume 2: Main report]. Rome, Italy, WSSCC.

Wegelin-Schuringa, M. (1992). [Participatory approaches to urban water supply and sanitation: paper prepared for OECD/DAC meeting on participatory approaches to urban development]. The Hague, The Netherlands, IRC International Water and Sanitation Centre.

Wehenphol, G. (1986). [Inhabitant participation in the process of squatter upgrading with special regard to the technical infrastructure : paper presented at the Symposium Strategies for Slum and Squatter Upgrading in the Developing World held in Berlin 27-29 November 1986. Darmstadt, West Germany, Technical University.

Whitaker, H. (1992). [Participación, mujer y proyectos de abastecimiento de agua: marco para una metodología]. Programa UEBM-SANAA/UNICEF. Tegucigalpa, Honduras. Ediciones Zas.

Wijk, v. C. (1985). Participation of women in water supply and sanitation: roles and realities. (Technical Paper No. 22). The Hague, The Netherlands, IRC and PROWESS.



**Water and Gender on the Agenda: A Review of  
Water Resource Management and Gender Issues  
in Agenda 21**

**by**

**Irene Guijt**



**WATER AND GENDER ON THE AGENDA:  
A REVIEW OF WATER RESOURCE MANAGEMENT AND GENDER ISSUES  
IN AGENDA 21**

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## **Executive Summary**

Agenda 21 enshrines recommended activities that were the outcome of a process of global discussion and agreement about contemporary environment and development issues, known as UNCED. While the subject of much criticism, it does present options to specify the general nature of the recommendations and represents a public commitment by the nation states involved. This paper presents an overview of how Agenda 21 addresses water resources management and gender, and analyses how the two issues are linked. It highlights areas where Agenda 21 could be refined to incorporate gender issues better in what is, at this point, a relatively 'faceless' discussion of water resources.

Water is probably the natural resource with the most references in Agenda 21. It is dealt with extensively in two of the longest chapters and is addressed in many others. Despite this breadth of coverage, the discussion tends to focus on solving water-related problems at the macro-level, with technology, and with a superficial consideration of water users at the community level. Gender is not dealt with well in Agenda 21, although references to the word 'women' are many, yet inconsistently placed throughout the chapters. Women's role in water resources management is addressed in an unstructured manner. To integrate gender issues into existing recommendations on water resources management, special reference needs to be made to Chapter 24 on women's role in sustainable development.

Agenda 21 presents a vague and inconsistent analysis of gender issues and water resource management. However, there is considerable potential for clarification and specification in the implementation of recommendations. These areas include the following:

- deconstruct the notion of 'the community' which obscures underlying gender issues;
- specify what 'full participation' means from a gender-balanced perspective;
- develop gender-differentiated analysis of water resource use and management;
- identify and address gender-related issues in access to and allocation of water;
- present a gender perspective on the concept of demand management;
- specify recommendations in terms of gender-differentiated needs, uses and options;
- develop gender-differentiated approach to monitoring impact of water resources programmes;
- ensure that financial allocations for development of the water sector reflect gender needs and options.

## 1. AN INTRODUCTION TO AGENDA 21<sup>1</sup>

Agenda 21 is one of the key documents that was produced as a result of the UNCED process in June 1992. It was conceived as the Earth Summit's 'action plan' for the implementation of the principles set out in the Earth Charter. The principles were, incidentally, never agreed on but are instead described in a watered-down version known as the "Rio-Declaration". Agenda 21 was drafted over a two year period prior to UNCED, involving all nation states in 4 PrepComs (Preparatory Committee meetings), and the input of the five UN Regional Commissions, UN and other intergovernmental bodies, NGOs and international conferences. For the discussion on water resources management, the International Conference on Water and The Environment, held in Dublin in January 1992 was particularly important. Three main working groups were responsible for drafting the chapters, building on the work of the UNCED secretariat and contributions from consultants were hired (from governments and NGOs) who met in both formal and informal preparatory meetings.

Agenda 21 consists of 40 chapters which are divided into 4 sections, totalling 800 pages. After the preamble, it discusses environment and development issues in terms of:

- social and economic dimensions (Section I - 7 chapters);
- conservation and management of specific natural resources and special ecosystems (Section II - 14 chapters);
- strengthening the role of major groups (Section III - 10 chapters);
- means of implementation (Section IV - 8 chapters).

In neither its style nor its intention is Agenda 21 meant to be binding: it recommends that nation states "could implement any of the following activities" or sometimes "should do the following" (emphasis added). The document was adopted by consensus, with the intention that proposed activities would be refined and reconstructed at the national level and by multilateral bodies. It remains to be seen how the suggested activities will be translated into action. There are no sanctions in place to 'encourage' adherence to the recommendations, many of which are stated as conditional to the existence of supporting financial resources. As funds for the implementation of Agenda 21 were not provided to the extent required, this will likely further limit the implementation of recommendations.

What is the relevance of dissecting Agenda 21? Does the document carry any clout? Agenda 21 is sufficiently significant as to serving as a reference document for nation states and individual organisations in the development of environmental policies. For example, the World Bank refers to its recently published Agricultural Policy Review and Water Resources Management Policy as following the recommendations set out in Agenda 21. Many NGOs are referring to the document for the identification of areas of action, and it is being used to

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<sup>1</sup> This paper has benefitted from the valuable comments of Koos Neeffjes and Koy Thomson. Responsibility for the contents remains mine alone.

sell research programmes and design institutional strategies. With the present climate of restricted funding, UN agencies are also using Agenda 21 to identify priority areas for their work.

To monitor the implementation of recommendations, the Commission for Sustainable Development was created. It has set up a schedule for national progress reports, which are expected from all countries. In May 1994, the first reports are expected on Human Settlements, Freshwater and Toxic Waste. The CSD is developing indicators for measuring progress with the implementation of Agenda 21. Other follow-up mechanisms are in place, such as the Global Environmental Fund (GEF) which is managed by the World Bank, UNDP and UNEP. The GEF's terms of reference are for the moment restricted to 'globally' significant projects, with four priority areas being biodiversity, global warming, pollution of international waters, and stratospheric ozone depletion. It is a particularly powerful body, as it manages US\$1.2 billion worth of core environmental funds and gained semi-permanent status at UNCED, after a 3 year pilot phase. However, its progress to date has not been without criticism (Reed, 1993; Sachs, 1993). Besides this type of 'mega-fund', there are many other forms of national level and local level follow-up taking place, too many to discuss here.

### *Critical Notes*

The Rio process and Agenda 21 have received much criticism in various post-mortems since June 1992. Wolfgang Sachs (1993) summarises the critique well: the governments attending finally recognised the dangers of environmental decline, but did not reorient the development debate. Attention centred on natural resources in the South, avoiding discussions on industrial self-limitation and local regeneration. Agenda 21 seeks ways to guarantee that resource, with less attention going towards the rethinking of the premises of development. Sachs argues that Agenda 21 makes abundant use of phrases such as 'integrated approach', 'rational use', 'sound management', 'better information', 'increased co-ordination' to present the suggested activities as alternatives **within** existing economic growth model of development. But by and large, it fails to consider alternatives **to** this development paradigm (Sachs, 1993:11).

At UNCED there was a "*convention on biodiversity but not on free trade; on forests but not on agribusiness; on climate but not on automobiles*" (Hildyard, in Sachs, 1993:22-23). Agenda 21 included articles on "*enabling the poor to achieve sustainable livelihoods*" but did not discuss how the rich would achieve this; a section on women but none on men (ibid). At Rio, underlying conflicts of interest were generally avoided. Solutions were cloaked in universality, presented as a common responsibility and a common right, without looking at the power struggles inherent in some of the recommendations. The recommendations assume a need to increase investment, update outdated technology, to increase expertise by training, and to boost faltering economic growth by pushing for economic recovery in the North. As a result of the Rio process, environmentalism threatens to be reduced to management issues, with environmental concerns as bargaining chips in the struggle of interests (Sachs, 1993:13).

It is important to consider such fundamental criticism of Agenda 21, so as to be aware of the premises that are taken on board if its recommendations are considered seriously. Blind acceptance of the proposed activities would lead to adoption of the underlying development paradigm, while a particular agency might wish to pursue different development models. This could limit the options for a more innovative and fundamental reconsideration of water resources management, one in which gender issues are recognised as being a key concern.

At this stage, it is unclear how long the public and political interest in Agenda 21 will be sustained. There are initial indications of declining interest in the Rio principles and recommendations. Yet it is the only existing globally discussed and agreed document which recognises the fragility of nature, and scarcity of natural resources for development. It represents the views from the largest gathering ever of world leaders and representatives of civil society, debating the future of the environment.

### *Something for Everyone*

Agenda 21 attempts to explain the underlying rationale (in *Basis for Action* sections, see Box 1) of recommendations, attempting to draw together related issues. Yet the transformatory promise of action is limited to general recommendations and macro-level, technology-oriented problem-solving. Key concepts are used without definition, such as 'public participation'. Although intended as an action plan, *Activities* are worded as suggestions that may be implemented, without fear of sanctions whether this is the case or not. There is neither a prioritisation of activities, nor a thorough discussion of conflicting demands on resource use, such as industry versus agriculture or domestic use. The conditionality of financial support for what are referred to throughout as 'developing countries', and the existing lack of financial commitments for the implementation of Agenda 21, make it easy for nation states to opt out of recommendations. There is a similar disclaimer regarding cultural diversity, making it possible for nation states to use culture as camouflage when opting out of implementing recommendations.

Despite these limitations, it is important to consider what level of specificity is possible for a global document like Agenda 21. Agreement would never have been reached on issues of diverging political conviction. Furthermore, each national and local context is different and requires unique solutions and emphasis, the details of which could never be collated in a single process.

Nevertheless, it might have been possible to recognise areas of conflicting opinions and , to explore approaches to conflict resolution, and to identify priority areas of concern and sanctions for non-compliance. As it stands, Agenda 21 is open to interpretation. Therefore, every nation state, organisation or individual can lift from the document elements that best suit their particular needs and arguments. This makes it possible for all parties to continue pursuing their paths unchallenged, seeking protection behind the generalities of specific articles.

*Box 1 Structure of chapters in Agenda 21*

*Programme area(s)* are identified at the beginning of each chapter.

Each programme area identifies:

- Basis for Action
- Objectives
- Activities
  - For example:
    - a. empowering communities
    - b. management related activities
    - c. data, information and evaluation
    - d. international and regional cooperation and coordination
- Means of implementation
  - a. Financing and cost evaluation
  - b. Scientific and technological means
  - c. Human resource development
  - d. Capacity-building (relates to national institutions)

## 2. AGENDA 21 AND WATER

The quality and quantity of water resources vary enormously between countries and within each country. Water-related problems are equally diverse, ranging from groundwater pollution in areas of high-chemical input agriculture to insufficient drinking water in dry regions. Water conflicts can be enacted at the level of regions, such as the politics surrounding water scarcity in the Middle East and water ownership issues between Sudan and Egypt. Conflicts can exist between industry and domestic needs within one town, and between households in one neighbourhood. It is an immense domain of activities, including irrigation, drinking water, flood control, sanitation, and hydropower.

### *References to Water*

Water is perhaps the most discussed natural resource in Agenda 21<sup>2</sup>. Two chapters (amongst the largest three) deal specifically with water: the chapters on Oceans and on Freshwater. Chapter 14 on Agriculture also deals with water in some depth, for obvious reasons. Many chapters make no mention of water, or water-related issues: 17 out of 40. In others, water is mentioned only once or twice, including in the chapter on women, when it is mentioned

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<sup>2</sup> Each of the 40 chapters was screened for any references to the following keywords: water, irrigation, hydrology, wet (as for wetland), sewage/sewerage, sanitation, marine, aquatic, gender, women.

in relation to the need to reduce the workload of women and girls - and not in terms of resource management. Another example comes from Chapter 3 on *Combating Poverty*, where water is mentioned once:

*"Governments, with the assistance of and in cooperation with appropriate international, non-governmental and local community organizations, should establish measures that will directly or indirectly:...*

*(p) Provide the poor with access to fresh water and sanitation" (3.8)<sup>3</sup>.*

The types of references made to water in each chapter vary. A clear distinction is made between freshwater and coastal waters. Freshwater is generally seen as an essential life-enabling resource, a *"unitary resource"* (18.35) which requires holistic management. It is also recognised that the state of water (both in terms of quality and quantity) at present is creating present formidable problems for life on earth. Coastal waters are referred to as seas and oceans, marine environments, a special ecosystem encompassing economic zones, small islands, and home to marine living resources. These areas include inland waters and are home to more than half the world's population (within 60 km of the shoreline).

Freshwater issues cover its use in the urban context, for rural development, in relation to prevention of radioactive waste and as sewage. It is discussed in terms of being necessary:

- for land use;
- for domestic use;
- in industrial activities;
- as a component of natural ecosystems.

The other major reference to water is in the context of marine resources and coastal areas. It is recognised to be an indispensable zone for human settlement (more than half the world's population live within 60 km of the coast); an important natural resource to be used and conserved; particularly vulnerable to climate change, and particularly in need of international cooperation.

### *Aspects of Water Resources Management*

Each chapter identifies certain programme areas (see Box 1), for which management issues are discussed. These are referred to as *management related activities*, and tend to refer to macro-policy management issues. For example, with reference to coastal waters (Chapter 17), the following management activities are suggested:

- establishing or strengthening a high-level policy planning body to plan and implement coastal land use plans, make coastal profiles, monitor progress, improve infrastructure;

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<sup>3</sup> Numbers refer to specific articles in chapters of Agenda 21 - 3.8 would be article 8 in chapter 3.

- maintain biodiversity through surveys, inventories, creation of protected areas, scientific research;
- set up regional agreements at the national level to limit discharge of synthetic compounds into bodies of water, treat sewage in an integrated manner, encourage watershed management inland, etc;
- regulate shipping, dumping, high-sea fisheries, fishing techniques;
- develop productive fisheries sector, implement strategies for sustainable use, expand recreational and tourist activities;
- strengthen multilateral discussions about regional cooperation;
- study natural resource base of small islands.

Agenda 21 presents options for anyone's interest and area of work. This is, of course, part of the problem, as there is no prioritisation and suggestions remain general. The listed management activities include two references about considering the needs of local people, but without specifying whose needs, when, by whom or how. It is also noteworthy that in the suggestions for necessary scientific research, there is no reference to research on how water bodies are presently being used by local people.

Management-related activities for freshwater are not identified as explicitly as is the case with coastal waters. Recommendations are referred to simply as *Activities*, and are limited to macro-economic planning and technological efforts. They include the following suggestions:

- formulation of costed and targeted national action plans and investment programmes;
- development of interactive databases, forecasting models, economic planning models and methods for water management and planning;
- promotion of schemes for rational water use through public awareness-raising, educational programmes and levying of water tariffs and other economic instruments;
- developing and strengthening of cooperation at all levels;
- establish and maintain effective cooperation at the national level between the various agencies responsible for the collection, storage and analysis of hydrologic data;
- analyze and present data and information on water resources in the forms required for planning and management of countries' socio-economic development.

Suggestions on management issues are couched in general terms, such as "mobilization of water resources", "promotion of international scientific research", "integration of water quality and quantity management", and "support to water-users groups".

An important concept which appears in several clauses is 'demand management':

*"The role of water as a social, economic and life-sustaining good should be reflected in demand management mechanisms and implemented through water conservation and reuse, resource assessment and financial instruments." (18.17) [emphasis added]*

To date, water programmes have tended to stress the lack of supply as constraining factor, and based on that, developed technologies to increase the supply. Now that constraints in the water sector are seen to arise from excess demand for water, social and cultural factors that drive this demand have received more consideration. In theory this suggests a shift *"from a centralised, master planning (supply) type of management system to a decentralized, flexible, demand-driven way of doing things"* (DANIDA, 1991:9).

While demand-driven management, in theory, presents more scope for inclusion of all categories of water users in setting priorities, and choosing technology and delivery of services (DANIDA, 1991), it is in danger of being interpreted solely from an economic perspective. For example, demand management as defined by the World Bank is *"the use of price, quantitative restrictions and other devices to limit the demand of water"* (1993a:5). It does not, therefore, appear to deal with political decisions about pricing mechanisms or trade-offs, or the question of who makes such decisions. The concept, in practice, focuses on restricting the demand for water by such quantitative mechanisms and monitoring its impact in terms of a reduction in demand, which could obscure potentially detrimental social impact. The use of this concept has important implications for the discussion on water resources and gender, and will be addressed in more detail below.

### Points of Criticism

In general, water is treated quite thoroughly in Agenda 21, with references to a wide range of contexts and several cross-references, such as the need for integrated sewage treatment and watershed planning inland to safeguard coastal waters. However, the document also reflects certain limitations regarding the perception on water and its management.

### *Neither Priorities nor Trade-offs*

Agenda 21 tends to present different uses of water as a list, without prioritising them or confronting explicitly any of the trade-offs these imply in terms of use, users or levels. For example, trade-offs between industrial and domestic use are mentioned, with no suggestions as to where vested interests might lie and how potential conflicts might be resolved. Trade-offs are also an issue when considering different levels of water management: community, national, regional and global. Much of Agenda 21 deals with national and international levels of water resource management, with some attention paid to the level of catchments. However, ensuring sustainability at the village level might not necessarily result automatically in sustainability at the national level. A specific example comes from Chapter 18 in the discussion of four principal objectives for integrated water management. The second principle states:

*"To plan for the sustainable and rational utilization, protection, conservation and management of water resources based on community needs and priorities within the framework of national economic development policy"* (18.9.b).



Yet, there is no consideration that 'community needs' might be in conflict with national economic policies, let alone that there might be conflicts within a community over the allocation of water.

### *Technology as the Solution*

The water-related discussions during the discussions prior to UNCED were not as controversial as, for example, those surrounding women or climate change, but were largely of a technical nature. This is reflected in the recommendations which appear to assume that water management problems can be resolved by technology and resource databases.

There are two general risks in focusing on the power of technological innovations and on research on natural resources. First, it *"provides a knowledge which is faceless and placeless... offers data but no context, shows diagrams but no actors"* (Sachs). It is clear that any form of analyzing local difference, such as gender issues, is especially likely to be obscured when issues remain 'faceless'. Second, it obscures the non-technological social and cultural issues surrounding the use and management of water, and hides the constraints and the potential these might present for improving water management. This is the case despite the increasing allegiance to demand management.

### *Participation of Water Users*

The users of water appear in few recommendations, yet they lie at the heart of concepts such as 'demand management'. Demand management is implicit in different sections of the text, for example:

*"In developing and using water resources, priority has to be given to the satisfaction of basic needs and the safeguarding of ecosystems. Beyond these requirements, however, water users should be charged appropriately"* (18.8).

The role of local people remains essentially one of consultation, or feeding down information that is collected through national or regional data-collection exercises. This becomes clear in texts such as this, from the chapter on oceans and coastal areas:

*"Provide access, as far as possible, for concerned individuals, groups and organizations to relevant information and opportunities for consultation and participation in planning and decision-making at appropriate levels."* (17.5.f)

It is not made explicit in the text, who decides what an *"appropriate level"* or how much *"as far as possible"* is. There is little specific discussion about the role of water-users in decision-making processes at different levels: community, nation, regional and global, other than to mention that it is important to involve them.

### 3. AGENDA 21 AND GENDER<sup>4</sup>

#### *Women on the Agenda*

Principle 20 of the Rio Declaration states unequivocally that:

*"Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development".*

It is unfortunate that 'full participation' is not defined in the Declaration or in Agenda 21, as this could have provided a more concrete starting point to work from than is presently the case. However, if the political implications of 'full participation' had been discussed, this principle probably would not have been agreed in the first place.

In general, Agenda 21 does not deal with gender. The word makes a token appearance in a handful of texts, notably in references calling for the collection of gender-sensitive data. In Chapter 24 on *Global Action for Women Towards Sustainable and Equitable Development* gender is used more substantially:

*"Bodies of the United Nations system, governments and non-governmental organizations involved in the follow-up to the Conference and the implementation of Agenda 21 should ensure that gender considerations are fully integrated into all the policies, programmes and activities." (24.11)*

Though limited references are made to gender, Agenda 21 fares better when it comes to acknowledging 'women'. Despite the haphazard fashion in which chapters are strewn with the word 'women', the many references to women represent a marked improvement over the documents reviewed before the final Preparatory Committee meeting. For example, in Chapter 3 on *Combating Poverty*, women are mentioned throughout as a special disadvantaged category, with the *"advancement of women"* (3.6) suggested as a cross-cutting activity. This presents scope when arguing the case for considering incorporating gender in the development of concrete poverty alleviation plans.

In a review for CIDA and Status for Women Canada, Saniye Gulser Corat analyzed how gender had been addressed in Agenda 21. Due to the nature of the document, her analysis focused on women rather than on gender. Some chapters are more comprehensive than others in their incorporation of women in proposed activities. But in many cases, women are part of a list of special interest groups, alongside youth and indigenous people. As Saniye says, more than half the world's population are surely more than just 'a special interest group'.

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<sup>4</sup>This section draws on *Analysis of Agenda 21 Chapters From a Gender Perspective* prepared by Saniye Gulser Corat, September 1992, for WID-CIDA and Status of Women Canada.

In her analysis, she notes that women's traditional roles and domains are emphasised by highlighting their importance when discussing issues such as demography and land resources. Yet in the technical chapters dealing with *Desertification* or *Biotechnology*, or those dealing with macro-institutional issues such as *International Legal Instruments and Mechanisms*, women are not mentioned.

### ***Implementation and Financial Allocation***

Theodora Carroll-Foster, in another review of Chapter 24 for IDRC, highlights how, while strong on principles, the section is weak on practical implementation and fails to allocate real costs of implementing the measures proposed. Yet, for 'full participation' of women in sustainable development, a substantial resource allocation will be required. For this purpose it is interesting to reflect on the Secretariat's agreement of estimated costs (which were not agreed on by nation states).

In Chapter 24, it is suggested to set aside \$US 40 million to implement a range of activities, which includes an entire review of the UN agencies in terms of their adequacy of responding to women. By comparison, it is interesting to note that the development of biotechnology, addressed in a chapter which does not mention women or gender issues, is estimated to be worth US\$ 20.7 billion. Can one infer, therefore, that Agenda 21 assumes that biotechnology can contribute more towards sustainable development than strengthening the participation of women and consideration of gender issues? Although great care must be taken with reasoning of this nature, it is clear that Agenda 21 makes no mention of mechanisms through which specific financial allocations will be decided on, implemented or monitored, nor are any suggestions made to ensure that these reflect gender-specific needs and contributions to development.

Despite these and other limitations of Agenda 21, the document provides some scope for arguing for more support for women within a wide range of initiatives, and conceivably even some support for addressing gender issues.

## **4. WATER AND GENDER ON THE AGENDA**

In theory, it is not difficult to understand the logic behind an integrated approach to water resources management that recognises gender as a key determinant of social difference. Considering water resources with a gender-sensitive perspective would, for example, lead to a better understanding as to *whether and how*:

- women and men use water for different purposes;
- women and men affect water quality and quantity in different ways;

- women and men are affected by water quality and quantity in different ways;
- women and men are in a position (socially, economically or politically) to contribute to sound and integrated water resources management.

This could, in turn, lead to a greater clarity about and appreciation of the priorities, needs and constraints of different water users in a specific context. Knowledge about these and related issues could contribute towards a realistic formulation of water resources policies and implementation plans from the local to the national level. This section deals with how the two issues of gender and water resources management are addressed together in Agenda 21. It considers ways in which the recommendations could be refined to incorporate a more gender-sensitive perspective.

### *Fragmentation, Isolation and Inconsistency*

The compartmentalisation of Agenda 21 into its chapters, divorcing specific social groups from resources, processes and societal institutions could reinforce the isolation of 'women' as an issue in itself. This fragmented approach is reflected in a lack of analysis about the role that water plays in the lives of different community members. There is no analysis of different needs, gender-differentiated uses or gender-specific constraints related to use, control and access of water. In comparison there is more thorough analysis in other chapters of the complexities of certain natural resources.

The references to women and water are numerous, but are placed in a seemingly random fashion. In the chapter on women, the single reference to water is hidden amongst a long list of issues that could improve their lives. Chapter 5 on demographical issues, deals with water only marginally, as a critical resource that is being affected by the combination of consumption patterns, population growth and concomitant growth of production. Yet, this chapter deals in depth with women and their rights to population literacy and family planning. While mentioning the need to support women in the fulfilment of their productive and reproductive capacities, it does not discuss water resource management as an integrated element of this.

It is promising that in Chapter 18 on Freshwater Resources, one of the four main principles suggested for integrated water management refers to women:

*"To design, implement and evaluate projects and programmes that are both economically efficient and socially appropriate within clearly defined strategies, based on an approach of full public participation, including that of women, youth, indigenous people, local communities, in water management policy-making and decision-making." (18.9.c)*

Unfortunately, none of the targets that follow discuss gender issues. Instead they set general targets for national water-use programmes, in which the availability of sufficient money is

stressed as the condition for success. Chapter 18 lists 16 possible activities to improve integrated freshwater management, including the role of interactive databases (not specified to be gender-disaggregated) and forecasting models. Women are mentioned later on, where development of public participation approaches are called for. Yet there are clear gender issues underlying several of the other activities, eg "*Support to water-users groups to optimize local water resources management*" (18.12.m).

### ***Gender and Water at the Macro-level***

There is no gender perspective in sections on industrial uses/needs, privatization of water, or transboundary cooperation. Water resource planning and management are determined by the amount of water available, rather than needs of water users. While this is interesting from an environmental point of view (as it is a recognition that there are limits to growth in relation to water use), it does not address social issues. It is not made explicit how different demands will be valued, and whether social considerations will figure when monitoring for success. In the World Bank's recent Water Resources Management Policy Paper, examples were given of how 'successful' their demand management strategy was for municipal water supply. In Bogor, Indonesia, water fees were increased by about 30 percent, resulting in an average decrease in consumption by 29 percent. It is worrying that possible gender-differentiated impact does not seem to figure in the monitoring of a demand management strategy, as success is measured in terms of reduced use.

Several sections recommend activities that should focus on participation in existing international agreements about water, such as Mar del Plata Action Plan (1977), Global Water Quality Monitoring Programme (GEMS/WATER), the UNEP Environmentally Sound Management of Inland Waters (EMINWA), and the FAO regional inland fishery bodies. If these are indeed to play a central role as action documents, then these too must be reviewed and revised from a gender perspective.

Many of the texts stop short of concrete recommendations at the local level. For example, in the programme area *Water Resources Assessment* (Chapter 18) solutions are sought in national hydrometric networks, with local consultation featuring prominently in last place. By avoiding reference to and beyond the community level, it becomes especially difficult to identify gender issues. This would not be the case if there could be further specification of local-level activities.

## 5. IMPROVING THE AGENDA

Gender is an endangered word in Agenda 21, and extinct in relation to water. Agenda 21 clearly presents us with many challenges. What options are open and where can improvements take place?

The positive side of the general nature of the document is that there is space for refinement. In Chapter 1, the Preamble, it is explicitly stated that *"it [note:the document] could evolve over time in the light of changing needs and circumstances"* (1.6). If our aim is to integrate an understanding of gender issues in the analysis within the water resources sector for social equity and environmental sustainability, then the issues will need to be linked conceptually in a more thorough manner. Chapter 24 in particular provides much scope for improving the Agenda, by drawing on specific gender-focused recommendations to fine-tune the general recommendations on water.

### *From Women to Gender*

While there has been a marked improvement in the references to women compared to the Stockholm conference of 1972 and even gender enters, albeit hesitatingly, into the text, Agenda 21 demonstrates a marked lack of understanding about gender as an analytical concept. In the context of water resources management, the first challenge is to specify all references to 'people(s)/ communities/ human' further, into social sub-groups, and to specify recommendations in terms of gender-differentiated needs, uses and options regarding water resources management. This requires, in essence, a re-integration of Chapter 24 into other chapters. The danger with the present text is that it might well remain in its isolated position.

### *Ensuring Access to Water*

Chapter 3 on *Combating Poverty* mentions access to water once in relation to the poor, as a concrete measure that government must strive towards. Women are mentioned throughout as a special disadvantaged category, with the advancement of women as a cross-cutting theme. Yet there is no mention of specific measures to ensure access to or control over water resources. The chapter deals differently with land, recognising that certain measures will be needed to ensure access to land for women.

It is only in the chapter on agriculture (chapter 14) that access to water and women are linked in one clause:

*"To ensure equitable access of rural people, particularly women ... to land, water and forest resources and to technologies, financing, marketing, processing and distribution."* (14.17.b.).

Under management-related activities it is further recommended to:

*"Review and refocus existing measures to achieve wider access to land, water and forest resources and ensure equal rights of women and other disadvantaged groups..." (14.18.b).*

However, there is no analytical reflection on gender dimensions of access to water, and no mention of specific measures to ensure that access to water is to include women. There is, therefore, neither a discussion on how power relations might need to be redressed for this to be achieved, nor on legislative measures linked to water and gender. In several chapters there are general statement about *"empowering women through full participation in decision-making"* (3.7.a), but it is not made clear which specific decisions it refers to, or how this will carried out, let alone monitored. It will be important to review Agenda 21 for references where gender is not mentioned, yet where it is crucial, for example when discussing *"efficient and equitable allocation of water resources"* (18.59.b).

### *Gender Issues in Water Management*

While the references to women are many, especially as a vulnerable group, there are very few references to their specific role in water resource management. Sometimes they are referred to as a 'special' group, but overall there is great inconsistency in the references. By default it could be inferred that where women have not been mentioned it is not important to consider them specifically. One important activity would be to provide a gender-differentiated analysis of water resource use and management, in which issues such as access, control, use, impact of changes, and trade-offs are incorporated.

For example, one recommended activity is *"support to water-users groups to optimize local water resources management"* (18.12.m) but without reference to who the different water-users might be, or whether there might be any trade-offs between domestic versus productive use. Elsewhere, international agencies and donors are called on to provide:

*"support to developing countries in creating the required enabling environment for integrated water resources management. This should include ... support to local levels..., including community-based institutions, NGOs and women's groups."* (18.22)

These, and many other equally general recommendations would benefit from further specification to include awareness of potential tensions between water-uses and water-users groups.

Besides an anlysis of water users, international agencies and donors could also identify more specific suggestions in Agenda 21 to help orient their policies and plans. For example, in the programme area *Water Resources Assessment* (Chapter 18), specific mention is made of the

need to "encourage strengthening of managerial capabilities of water-user groups, including women...to improve water-use efficiency at the local level" (18.34.d). This is considerably more concrete than 'creating the required enabling environment', and could be pursued by international agencies and donors.

The principle underlying several management recommendations is that the lowest level of management should be sought. If decentralization is indeed to be a guiding principle, then strengthening local institutions by incorporating gender analysis and addressing internal gender dynamics becomes important. For example if water resource protection and conservation (18.40) is important, then it is essential to undertake gender-differentiated studies to identify the potential and obstacles that different community members might encounter in supporting community-based activities.

It is stated that policies must strive towards optimization of water resources allocation under physical and socio-economic constraints. But it is not specified who does the allocation, who decides what is optimal, and how constraints are identified. It would be important to address such questions with the aim of striving towards a gender-balanced perspective and gender equity.

Demand management, pricing mechanisms and regulatory measures are specific suggestions for the implementation of allocation decisions. Likewise, promotion of schemes for rational water use through public awareness-raising, education and economic instruments (ie payment) are mentioned. However, the impact of such measures merit careful consideration. If payment is expected, then it is essential to think through gender issues, such as different people's capacity to pay and options for creating income-generation opportunities.

As water tends to be referred to in Agenda 21 as an economic good, care must be taken in ensuring that the monitoring of water management retains a social equity perspective. In the present document, the evaluation of water resources programmes does not focus on specific indicators or social groups. To ensure equal benefits, this must be gender-specific, as laid down in Chapter 24:

*"Measures to develop and include environmental, social and gender impact analyses as an essential step in the development and monitoring of programmes and policies."*  
(24.8.f)

An important aspect of all water resources management is the allocation of financial resources. In the financial recommendations, Agenda 21 does not specify gender-differentiated allocations. It might prove worthwhile to explore the scope for ensuring that budget allocations for the development of water resources ensure a minimum expenditure on gender-issues or on women.



### *Improving Data Collection*

Data collection represents an important area with clear options for improvement. What is collected, how, by whom, from whom, for whom are several questions with a gender dimension.

It is important to shift the focus on collecting 'faceless' information about resources towards understanding needs and options of specific *users* of those resources. Although each chapter identifies data needs as an activity, few incorporate awareness about gender-differentiated information. Efforts could be directed at the integration of gender issues in suggestions for data-bases. For example, when considering the recommendation to "*improve networks to meet accepted guidelines for the provision of data on water quantity and quality for surface and groundwater, as well as relevant land-use data*" (18.27.b.ii; emphasis added), a gender perspective might contribute to the understanding of what is considered 'relevant'. Another example is: "*identify the need for water resources data for various planning purposes*" (18.27.c.i). A gender perspective could help in this identification process to ensure that gender-differentiated water resources data is included.

Overall, very few suggestions are made for research on the social dimensions of resource use, although this varies considerably between the chapters. New areas of information needs must be identified, including:

- how women participate in decision-making re water resource management: potable water, irrigation, etc;
- which measures exist to ensure gender-balanced participation in decision-making and access;
- which data is needed to monitor changes in participation of women and men in water resources management;
- what gender biases prevent equal participation.

Also important in relation to data collection, is addressing the question of whose knowledge counts. Chapter 24 states unequivocally that one component of data collection must be:

*"Knowledge and experience on the part of women of the management and conservation of natural resources for incorporation in the databases and information systems for sustainable development."* (24.8.a)

It is essential that those who collect water-related data collect it from those who know. Yet there is no provision for consultation of specific social groups in the majority of chapters. This would be a fairly straightforward recommendation to include in development of plans based on Agenda 21.

### *Training with a Difference*

There are several references in sections on human resources development, to women as a target group of training for water management skills: training "*equally for men and women*", or "*special education and training programmes for women should be launched with regard to the protection of water resources and water-quality within urban areas*" (18.62). In doing so human resource development emphasises an approach of "*dissemination of knowledge to local people*" (13.22.a).

This presents two problems. First, there is no mention of the need to include in training, understanding about social diversity, such as would be obtained by gender analysis. It is difficult to see how gender can become a critical factor in the development of a more effective and balanced water resources sector without including gender analysis and planning in training. Educating women and men equally about technology will not in itself "*eliminate constitutional, legal, administrative, cultural, behavioural, social and economic obstacles to women's full participation*" (24.2.c). Such fundamental areas where gender biases are perpetuated will only be tackled if all those working in water resource management receive training in the gender issues within that sector. Even with full participation of women, this will not, in itself, ensure a better understanding of gender relations and gender-specific needs and development options in relation to water.

Second, the inclusion of women as a specific group to merit training presents a dilemma between addressing gender needs and gender interests in the water sector. Redressing the existing power imbalance is possible through training women specifically, but it threatens to put the onus on women as responsible for clean and adequate water supplies. Emphasising women in the training context alone reveals a lack of understanding and analysis in Agenda 21 about the advantages and disadvantages of integrating women or isolating them as distinct strategies.

### *Thinking through Trade-offs*

As mentioned above, Agenda 21 is weak in the identification and prioritisation of potentially conflicting water uses. As many people and nations face an increasing scarcity of good, accessible water, it is likely that conflicts over allocation and access will increase and intensify. If development is to become increasingly gender-balanced, then the identification and possible reorientation of water development priorities to address gender concerns is needed. This will not necessarily be done by "*increasing the proportion of women decision makers, planners, technical advisers, managers and extension workers*" (24.2.b) as suggested in Chapter 24. There must be an increase in decision-makers who bring a gender perspective to their decisions. This will ensure that where gender relations become a factor in decision-making and management of water, these will at least be recognised and, hopefully, addressed.

## 6. CONCLUDING COMMENTS

Agenda 21 is a somewhat confusing and inconsistent document which reflects the political consensus on environment and development that was reached at UNCED in June 1992. At a global level, difficult political discussions such as that on gender relations, were largely avoided and are therefore absent from much of the document. These were, however, very much on the agenda in discussions that led up to agreement of the final document. Despite these backstage discussions, those now working on the implementation of the recommendations, must take Agenda 21 at face value.

Despite its many limitations, the document does provide options to move forward on more sensitive issues. For those agencies who are keen to support gender-balanced development of the water sector, the range of recommendations provide sufficient arguments to formulate concrete suggestions. In the development of such plans, due consideration should be given to certain areas which presently fall outside the scope of Agenda 21. Areas where improvement could be made in the integration of gender and water management include the following:

- deconstruct the notion of ‘the community’, the lowest management level to which Agenda 21 refers and below which it seems to assume that conflicts will not occur, as ‘the community’ obscures underlying gender issues;
- identify what ‘full participation’ is perceived to be by different implementors of Agenda 21, and what it could encompass, if gender issues are considered;
- present a gender-differentiated analysis of water resource use and management;
- identify gender-related areas of potential conflicts over allocation of water;
- present a gender perspective on the concept of demand management;
- specify recommendations in terms of gender-differentiated needs, uses and options;
- recognise the need for and develop plans for ensuring that gender issues regarding access to and control over water are addressed;
- recognise the importance of and develop approaches for gender-sensitive monitoring of impact of water resources programmes;
- incorporate gender analysis and addressing internal gender dynamics in activities which support local institutional development;

- ensure that financial allocations for development of the water sector reflect gender needs and options, if necessary making explicit allocations for this purpose;
- conduct a gender-sensitive review of other existing international agreements on water to which reference is made in Agenda 21.

Those working in the water sector can draw hope from the fact that many of these activities are already being undertaken, albeit not in a consistent manner on a global scale. Those who look towards Agenda 21 for inspiration on gender-balanced development of the water sector will not find it readily accessible but should discover much that can be used to further their cause.

### ***Further References***

Corat, Saniye Gulser. 1992. *UNCED Analysis of Agenda 21 Chapters from a Gender Perspective*. CIDA and Status of Women Canada.

DANIDA. 1991. *Copenhagen Report. Implementing Mechanisms for Integrated Water Resources Development and Management*. Report from Copenhagen Informal Consultation, November 11-14, 1991.

Reed, D. 1993. *The Global Environment Facility. Sharing Responsibility for the Biosphere*. Volume II. World Wide Fund for Nature.

Sachs, W. (ed). 1993. *Global Ecology. A New Arena of Political Change*. Zed Books, UK.

World Bank. 1993a. *Water Resources Management. A World Bank Policy Paper*. IBRD. Washington, D.C.

World Bank. 1993b. *Agricultural Sector Policy Review*. IBRD. Washington, D.C.

Yoon Soon-Young. 1991. *Water for Life*. Research Paper No.20 prepared for UNCED/UNICEF/UNFPA Symposium Women and Children First, July 1991.

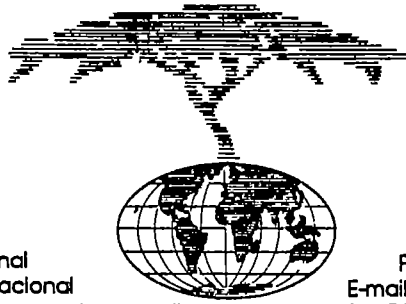
**Gender and Management of Water Resources in an  
Environment of Scarcity**

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## Gender and Management of Water Resources in an Environment of Scarcity

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GENDER AND MANAGEMENT OF WATER RESOURCE  
IN AN ENVIRONMENT OF SCARCITY

**INTRODUCTION**

Majority of the developing countries populations live in the rural areas, where in most cases they are not assured of potable water supply. In Africa it is estimated that out of 235 million people not less than 195 million live in the rural areas (Pickford and Ball 1980). A majority of these people in the rural areas are the women who have been left behind to cultivate the ground while the men have gone to the cities in search of paying jobs. While this may appear as complementary roles where each member of the society is assigned their own specific roles to play, of late this has been a major bone of contention. The divisions of labour in society which are rigid have created problems for the womenfolk.

In the arid and semi-arid areas<sup>1</sup> (ASALS) where water sources are located very far away from the household, women have persevered the long treks in the scorching sun in search of water. Pickford (1988) clearly puts this in perspective when he notes that women and children of today's third world spend considerable time and energy in collecting the minimum required qualities of water from sources at considerable distances from home. Women spend about 4 - 8 hours a day drawing and carrying water. Even when so many 'person' hours are spent on fetching this vital resource, women are still not able to use the water as freely as they would want. Instead they have to economize its usage sometimes denying themselves and their children personal hygiene, so that the little water left after the cooking has been done, can be used by the man of the house. A situation analysis done in 1992 on children and women, found out that when water was brought at home, the persons with the first right to consumption were men and boys. The women's efforts to collect water were made subservient to the convenience of the man at the expense of the household as a whole.

Kiriro and Juma (1989) report that in Baringo District in Kenya most Tugen women and children in the hills have to walk many kilometres to obtain fresh water. Donkeys which can be effectively used to lessen the burden of carrying water in the area are not used, instead the men use them. In Kitui they further report that water for domestic use is carried by women for 4 - 5 km in more than 2/3rds of the household in the area. Donkeys are also used in Kitui but the investment cost is beyond the means of most women.

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1 Daily requirement of water in:-  
rural areas is 120 litres,  
urban areas is 160 litres.



In areas such as Marsabit, fetching water is an ordeal. Ogana (1992) describes the process as requiring women to leave their homes at 4.00 a.m. to fetch water from a borehole in Bubise trading centre some 45 km away. The journey takes over 30 hours with the women resting for part of the night at the borehole and again setting off for home the following night at 4.00 a.m. Camels are used to help women in Marsabit to carry water but when the drought gets severe, these camels die leaving women and children bereft of the animal previously shared in transporting the water.

However, water scarcity is not only experienced in rural areas. It is also an acute problem in the urban area. In most urban centres in the developing countries, water is provided by the local authorities who in turn charge for the service. The fee charged in most cases is not affordable to most households. Urban poverty is a common phenomena in most developing countries and thus poor households who have very limited access to water resources opt for alternative sources. The alternative water sources include: nearby industrially polluted rivers, wells, potholes and other unhygienic sources.

For most rural and urban communities in the developing world, water is hardly adequate for their daily requirements. Thus, women's activities at the household level have become increasingly difficult to perform. This is not to say that women have all of a sudden become lazy but the roles that were initially performed by men have been taken over by women due to hard economic times. For instance women have been forced by circumstances to perform both their household chores and even go out in search of jobs to supplement their men's meagre incomes.

#### GENDER ISSUES IN WATER RESOURCE MANAGEMENT

There have been various responses to the water problem but all seem to have fallen short of gender expectations. Most responses have not been gender-specific but have been gender-blind. For instance, although the Kenya Government Policy notes that women and children would benefit most if potable water was availed, it fails to address their roles in planning and implementation of water projects. Community leaders who are often men are used to present the needs of the local community. It is at this decision-making level that stumbling blocks are found which hinder women from airing their opinions over issues in which they are best suited to comment. In the locally organized meetings (barazas), the sub-chiefs and chiefs are also mainly male and theirs is to call meetings (which are largely attended by women) and tell them what they should do. In most communities, women do not find this as absurd because culturally men are the leaders even if inadequate in their leadership.

Since most of the ideas are raised by men (this is not to say that they are wrong) they do not really help in alleviating the problems of women in water related issues. By virtue of the fact that men and women play different roles at the

household level, so are their approaches to water related problems. Whereas a woman would be concerned with the distance to the water source, the safety of her children as they go to collect the water, men would be concerned with the economic costs of the water source. Hence both views of the concerned players should be heard without bias. In most cases only the views of men have been expressed.

A needs assessment survey revealed that domestic water supply projects failed to capture community interest. When a follow-up study was conducted, it was found out that earlier surveys were directed toward village leaders who were men. They felt water was needed for agriculture, irrigation, cattle breeding and industry. Few mentioned water for domestic use. When women were asked, lack of water for family use came up immediately.

In the dissemination of the technical knowhow women are disadvantaged. Since men are more flexible, they can be able to attend courses which are held in district headquarters or capital cities in third world. The woman, because of child bearing and household chores that she has been assigned by society, ends up missing out on the opportunity to acquire the skills from which she would have benefitted most. For instance in the dissemination of technical knowhow on the maintenance of broken or leaking taps, fractured or leaking pipes, broken or faulty handpumps, faulty valves, meters and fittings, the woman stands to benefit most if trained. She is the one most available to do these jobs simply because her domestic chores dictate that she keep in touch with these areas - doing the washing, the cooking, tending the 'shamba' (farm) and so on. Rodda (1991) enhances this point, when she says that in those areas where water can be pumped, women have not been taken into account either in the design or location of the pumps breakdown. Women are not trained to repair them.

Economics also come into play as a very vital point. Whereas the jobs that men perform are of a monetary value to them, jobs performed by women and specifically domestic chores are not accorded a monetary value. Hence when water projects are initiated which require some initial deposit of money, most women are unable to raise the fees required and instead they opt to offer unskilled labour. The same situation is experienced in the building of water tanks.

Water tanks are used for harvesting rain water. However many women are unable to individually raise the amount required to build the water tanks. The financial weakness of the women therefore drags the process of realization of water accessing in the arid areas. Women's initiative has however helped them form cooperatives to help them realize this objective albeit it is a slow process and not all women have the capacity to initiate group activities.

In the management of village water supply system, those who comprise the village committee charged with the responsibility

of the village's water supply are mostly men. In a study conducted by Caincross in Lesotho on the evaluation of a village water supply, it was found out that culturally women were not supposed to be among the committee members. In other words then effective feed back on the progress and maintenance of the water supply by those most knowledgeable - in this case women - was cut off. Wijk-Sijbesma (1987) clearly indicates what happens when women are left out in the planning and decision making of those subjects which affect them most. She says that without the active involvement of women, such projects have no chance of success and moreover the exclusion of women from making decisions renders half of the adult population under-utilized.

Agriculturally, areas of environmental water scarcity require mostly irrigation of crops in order to realize good yields, alternatively the keeping of livestock which is profitable. However, livestock ownership has been the domain of men and as such women cannot sell these animals when in need of liquid money. This takes us back to the financial weakness of women which has not been addressed.

The cultural problem has not been addressed. This can be said to be the major obstacle which has made the division of labour among sexes as rigid as it is. In a World Bank report (1978) on the socio-cultural aspects of water supply and excreta disposal, it notes that although women play important roles in water procurement and waste disposal as well as training children in personal hygiene and sanitation practices, they are often not involved in the planning and promotional stages of water supply. This is due to traditional exclusion of women from decision-making roles at the community level and to the principal use of male promoters in health, education and promotion activities.

Khasiani (1992) in a report on the 'Mutomo soil and water conservation programme in Kitui district,' gives another cultural perspective. She notes that although women in Mutomo do most work which includes child care, housework, farming and soil and water conservation and that the programme is aware of this and tries to be sensitive and consider the women's agricultural calendar, women are over-burdened in contrast to the men. No effort is made to mobilize and utilize men's labour to ease the burden on women.

## CASE STUDIES

### I. Utooni village, Kalama Location Machakos, Kenya

In 1978 a young man named Mulusya initiated a self-help group in Utooni village with the objective of mapping out the communities agricultural priorities and implementing them taking into consideration the constraints of the community's resource base. Kiriro and Juma (1989). This area is characterised by arid and semi-arid conditions;

water scarcity and low agricultural production.

The project started as a six family working group based on the traditional 'mwethya'(self-help group). They began by growing vegetables for sale using water from rivers and springs located some distance away. The success of the project therefore depended on the commitment of the members. By 1980, there were already 10,000 families involved in the project. NGOs working in the area, were impressed by this community initiative and they approached them and offered any additional assistance they required. The NGOs working in this area include 'World Neighbours', National Christian Council of Kenya (NCK) and the Machakos Catholic Diocese.

The villagers in turn accepted the assistance and the stated that first in their priority needs was water. The NGOs responded promptly and by the end of 1985 there were 58 water tanks worth Ksh. 185,600, 171 water jars worth Ksh. 136,800, 54 improved toilets worth Ksh. 75,600 40 jersey cows worth Ksh. 2,000,000, a subsurface dam worth Ksh. 100,000, five river barrages worth Ksh. 800,000 and a gravity piped water scheme worth Ksh. 3,000,000.

The success of Utooni lies in the fact that as early as 1983, the community had identified their priority need and had worked towards achieving it using locally available resources. This community went beyond their cultural beliefs on division of labour and men and women worked side by side to ensure the success of the project. This is an interesting experience for this community, taking into consideration that the Kamba culture (in which the Utooni village falls) has certain tasks which are gender specific such as drawing of water.

In 1983 the community decided to work five days a week for 3 months, in order to construct a gravity water system to a primary school where later they would build a community technology centre. To ensure sufficient labour the community addressed the problem of division of labour at the community level. Community dialogue resulted in the members agreeing to end the traditional system on division of labour. This led to the completion of the gravity water system and more equal distribution of labour between the sexes within other activities.

Utooni project has brought about positive changes. Whereas in 1982 families were using an average of 60 litres of water per day, in 1986 they were using 120 litres of better quality water from various sources such as roof catchments, subsurface dams and gravity systems. Diarrhoea the most endemic disease in the area, was no longer reported and this is largely attributed to the

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2 I US\$ = Kshs. 70

better quality of water used.

## II CASE STUDY

### BURKINA FASO - Saye Village

In Burkina Faso severe water shortages face the people of Mossi. In Saye, the village women's local 'Naam' group organized themselves around the water shortage problem. Women and children were spending about 5-6 hours daily especially during the prolonged dry seasons, collecting water. The area is characterized by an ASAL region and therefore agricultural productivity is also low. Suffering most, the women of Saye Village decided to build small earthen dams that would collect water during the rainy season. The men were skeptical but the women demanded that the dams be built or else they would leave their matrimonial homes.

In 1981, the women's 'Naam' group working with the entire village population built the first dam. The national Naam office organized locally available resources (labour and land), while materials were donated by NGOs operating in the region. The federation of Naam groups provided the financial assistance to help buy a truck and sand. The whole project cost only a fraction of what the government normally spends on similar projects and the villagers maintain these dams IWTC (1990).

Many Naam groups in Burkina Faso have replicated this experience within their own communities. They have continued to use locally available resources. The men have also given support to the initiative having seen its success in other villages. NGOs have also responded positively to community initiatives through training and financial support.

### III SUDAN - Bahr El Ghazil Province

Women in Bahr El Ghazil Province spend many hours fetching water and carrying it over long distances. A water supply project was started by a non-governmental organisation to respond to the villager's needs for clean water and to provide women with a more accessible water source. Simple handpumps were installed and the villagers (mainly men) were trained in their use and maintenance. Health education was given to stress the importance of the new water source.

In the short-term, the villagers were excited about the project. The handpumps provided contributed in two ways: (1) time spent for fetching water was lessened and (2) there was a decrease in water related illnesses.

However, after a short while, socio-cultural factors came into play. Previously, the villagers collected water from nearby springs and rivers (surface water as opposed to underground water). The new technology definitely meant a change in their living style. Rumours went round the village that the water tasted bad; it lessened appetite for food; and that it changed colour when boiled or exposed to air. This led to the underutilization and eventual breakdown of the handpumps.

### LESSONS LEARNED

From the case studies cited, several lessons can be learnt. That the Kenyan and Burkina Faso studies were successful because:-

- 1) The projects were initiated by the villagers themselves.
- 2) Each member of the village both men and women played their roles (adjusting them when necessary) to meet their projects' objectives.
- 3) The women were accepted from the very beginning because their views were listened to and taken into account.
- 4) The projects were continuous. They did not just stop at the provision of one water source but they continued to find other water sources to supplement those they had already initiated.
- 5) The assistance of the Non-governmental organizations came after the villagers had embarked on their own projects with their own aims and objectives and not before.
- 6) The involvement of all villagers made them have a special attachment to the projects such that they felt that they owned them.

On the other hand the Sudan case failed because:-

- 1) The project was initiated by outsiders - that is the government and NGOs without the assistance of the villagers.
- 2) The villagers did not 'own' the project in the sense that although they were trained to maintain and repair it still the pump was reported as often being

broken meaning that they did not repair it themselves.

- 3) The project stopped at only one provision of a water source. Neither the outsiders nor the villagers saw the need to provide other water sources. The former felt that they had done more than enough while the latter felt that the 'outsiders' would as well continue providing water sources since they were never involved from the very onset of the first project.

### RECOMMENDATIONS

From the case studies presented, it is clear that women have more to gain from improved water supply and are therefore more motivated to ensure its continued provision. Considering the time they spend fetching water, time which they could have spent in some income generating (economic) activity advantage should be taken of this.

Therefore research conducted on women issues should be gender sensitive and incorporate a gender dimension as part of effective policy research. The research should illustrate careful analysis of gender relations such that women are not merely included as statistical examples.

#### Recommendations

- (1) Government policies should be gender sensitive from the grassroot level to the national level. They should eliminate structural and cultural constraints to women's water management activities and empower them to seek and obtain what can facilitate their promotion and efficient management of resources. For example, the policy process should be able to define the issue which is most critical and subject it to an examination of policy alternatives which can address the issue. An evaluation of the tools to address the issue can be done and a formulation of policy alternatives made.
- (2) The policy choices can be made by formulating choice-making criteria and analyzing the policy trade offs between objectives. Then the policy can be implemented by formulating implementation procedures and evaluating important impacts.
- (3) Monitoring and evaluation should be done to disclose the wrongs and rights throughout the process. The chart shown in the appendix is a simplification of the just described policy process. (See appendix). Other resource bases are also considered together with water resources for good policy implementation.
- (4) Water programmes should target women since they

constitute a large and accessible population.

- (5) Water programmes should facilitate women's application of their traditionally acquired knowledge and skills in water management and conservation.
- (6) These programmes should also utilize the participatory approaches that benefit women. In the long run women will be able to maintain water systems without asking for outside help. The technology and service level selection should be left to the women who are a majority.
- (7) Women groups and cooperatives should be targetted for utilization in ensuring continued improved water supply. As Orinda (1988) puts it, their perspectives must be considered as they are probably more available and open to change than men in nomadic areas which are basically in environments of scarcity.
- (8) There is a reservoir of male and youth labour in these areas of environmental scarcity. This should be tapped to ease off the burden on women. A case study done on the Utooni village found the adjustment of division of labour to have greatly influenced the development aspects in the village. Kiriro and Juma (1989) report that in Utooni village when it was discovered that the construction of a gravity water system to a primary school required five days work from both men and women, they (the villagers) addressed themselves to the problem of some homestead jobs being locked to the man or woman.

In summary the recommendations made should be addressed bearing in mind the following eight steps of incorporating gender in water resource management:

- 1) **EXPLORE** gender issues through two-way communication by recognizing tht the needs of women and of men may not be the same, and that the impact of projects on them may therefore be different.
- 2) **INVESTIGATE** the customs, taboos and time constraints that women face realizing that knowledge and common sense can go a long way to overcoming these constraints.
- 3) **PROMOTE** the role that women do and can play in natural resource management at each level, and analyze the ways in which projects either exclude or include them.
- 4) **EXCHANGE** information with individuals at every level, i.e., local communities, practitioners and policy-makers on involving women in natural resource management.
- 5) **SUPPORT** women's group and encourage the formation of new ones that help gain access to decision-making and the political process, and strengthen women's support for one another.



- 6) WORK together to provide access to resources recognizing customary and traditional women's holdings, and seeking creative solutions for landless women.
7. COLLABORATE to make credit and income available to women, either individually, or through women's groups.
8. CONSULT with women before introducing new technologies or species, ensuring that both women's and men's needs have been considered, and the input of new techniques on their lives have been evaluated.

### CONCLUSION

The paper demonstrates that gender and water resources management are closely connected. The sexual division of labour makes women (especially women in the south), important contributors to agriculture, and often makes them solely responsible for the collection of firewood, fodder and water. The situation is exacerbated in areas of profound scarcity. Women and children spend a lot of time carrying out household chores. They walk long hours and distances in search of small quantities of water, hardly adequate for their daily activities. In the urban areas, the situation is no better. Urban households have access to polluted water, which has serious health implications.

However, what emerges from this paper is that there is hope. That communities in the less developed world have found a solution for most their problems, water being top on the priority list. They have organised themselves and worked towards solving their own problems at the grassroots level with the locally available resources. Women groups have definitely been at the forefront of the initiative. Eventually, men have supported the initiative and this has led to the success of water projects in environments of scarcity in most developing countries.

The challenge now is for governments, NGOs and other implementing agencies to recognize the important roles of both men and women in water resources management. Incorporating gender issues in all the stages of planning in the water sector will lead to the success of water projects, especially in areas of scarcity.

## REFERENCES

- 1) Caincross, Burns et al ( ) The evaluation of village water supply in Lesotho. Some preliminary findings
- 2) IWTC newsletters (1990) Women and Water. A collection of IWTC newsletters on issues activities and resources in the area of women, water and sanitation needs. New York (1992)
- 3) GOK/UNICEF (1992) Children and Women in Kenya. A situation analysis, Regal Press Nairobi
- 4) Khasiani S. (1992) African women as environmental managers. African Centre for Technology Studies, Nairobi
- 5) Kinuthia C. ( ) 'Incorporating gender into environmental planning and implementation
- 6) Kiriro A and Juma C (1989) 'Gaining ground' Institutional Innovations in land use management in Kenya. African Centre for Technology Studies, Nairobi
- 7) Ladu M.B. (1993) 'Rain, Water Harvest in Nairobi Possibilities and Challenges. Paper presented in the 6th International Conference on rainwater catchment systems
- 8) Majeed Y.A. (1986) Anti-desertification technology and management. Assessment of water resources in Arid and Semi-arid regions. United Nations Publication
- 9) Orinda V (1988) End. 'Proceedings and recommendations of a workshop on basic needs of nomadic communities held at Gigiri, Kenya
- 10) Pickford S and Ball S (1980) water and waste engineering in Africa. Paper presented in the 6th WED Conference from 24 - 28 March
- 11) Ogana (1992) 'Where fetching water is a perpetual Life's Curse' article in Femnet News vol.1 No. 10 September/November
- 12) Rodda (1991) Women and the environment women and world development series Zed Books Ltd, London
- 13) United Nations Commission on Human Settlements (1993) 'Womens participation in the global strategy for shelter to the year 2000. U.N Publication, Nairobi
- 14) Water and Sanitation News Vol.1 No. 9 April 1993
- 15) Wijk-Sijbesma C (1987) 'Involvement of women in urban development'. International reference centre for community water supply and sanitation WHO collaborating centre

# **Gender and Peri-Urban Water Supplies in Malawi**

**by**

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WORKSHOP ON GENDER AND WATER RESOURCES  
MANAGEMENT . LESSONS LEARNED

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SUPPLIES IN MALAWI

BY

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## 1. INTRODUCTION

Between 1988 and 1992 Malawi implemented a project known as the Piped Supplies for Small Communities (PSSC) whose main objective was to develop improved community based approaches to piped water supplies for use in peri-urban and rural communities.

The project was implemented with financial support from the Dutch Government provided through the International Reference Centre for Community Water Supply and Sanitation (IRC), which also provided technical backstopping.

During the implementation of the project, focus was given to the development of methodologies which take into account socially constructed roles of men and women, among other issues.

This paper attempts to outline the experiences of the PSSC Project in gender issues and the implications in planning, implementation and management of peri-urban water supplies in Malawi.

Before outlining the PSSC Project experiences, policy framework for gender issues in Malawi is given briefly.

The project experiences are generally discussed in the following three phases:

- The "Learning-by-doing phase, where implementation proceeded without any intervention;
- The field testing of procedures phase, where procedures which were found to be effective were tried out;
- The strategy consolidation phase, where procedures proven to be successful were consolidated through field retrials and adaptations.

The conclusion is that there is a lot which can be learned from a community which is to be provided with a development program in terms of socially constructed roles of men and women.

Development programs need to be gender sensitive and to achieve this aim, there is need for gender analysis prior to commencement of the program.

When this is not done as the case was in the initial phase of the PSSC Project, the success of the program will be affected.



## 2. MALAWI-GENERAL INFORMATION

Malawi is a land locked country in Central Africa covering an area of 118,400 Km<sup>2</sup> of which 80 percent is land area and the rest is under lakes. Lake Malawi is the third largest lake in Africa which provides a large reservoir of water for development of hydropower, fisheries, communications, irrigation and water supply.

The last national population census carried out in 1987 showed the total de facto population of Malawi as 8.0 million with a growth rate of 3.7 percent per annum.

Malawi is still in an early stage of urbanization with only 11 percent of the total population living in urban centres.

Domestic water supply, urban and rural, occupies a prominent position in the exploitation and development of water resources.

### 2.1 Policy on gender

Gender-based discrimination seems to be deeply ingrained in the consciousness of both men and women and in developing countries it is reinforced through many cultural and traditional practices that continue to assign women lower status and less power. Men are often oblivious of the extent to which their attitudes towards and treatment of women contribute to women's lack of confidence, self-affirmation and self-worth. Control over wives by their husbands sometimes limits women's access to some essential services.

A means of ensuring that women and men both benefit from, and participate equitably in, development, is to include, in the national development process, explicit policy directions for incorporating women's components as a normal and integral part of plans and programs. National as well as sectoral plans of action should be formulated to address these components within the regular framework of operations in the various sectors of development.

In Malawi, a need was identified for a policy and plan of action to guide policy-makers and planners in considering the roles and needs of women in any interventions they may undertake, and design appropriate programs and projects.

The policy on women facilitates and supports national efforts to sustain social and economic development; enhance growth through poverty reduction and raise standard of living of the people through full and equal participation of Malawian women.

Government of Malawi endeavors to support all strategies and programs that are designed to redress women's constraints and facilitate women's access to sustainable agricultural production programs; environmental and energy programs; credit programs, education and training programs as well as technical co-operation programs.

## 2.2 Urban Water Supplies

Responsibility for urban water supply outside the two Water Boards which serve Blantyre and Lilongwe cities lies with the Ministry of Works, which is managing 58 urban water supply schemes.

The main sources of water supply being rivers, dams, springs, boreholes and Lake Malawi. The extent of treatment varies according to the quality of raw water and is generally regarded as adequate.

Water is supplied to consumers by individual metered connection or Communal Water Points.

The urban water supply schemes have a unified tariff structure, charging on monthly water consumption. The current water rates are US \$1.44 per m<sup>3</sup> for the first 8m<sup>3</sup>. US \$0.37 per m<sup>3</sup> for the next 8-30 m<sup>3</sup> and US \$0.39 m<sup>3</sup> for consumption in excess of 30 m<sup>3</sup>.

In the case of Communal Water Points a flat rate of US \$0.11 per m<sup>3</sup> is charged.

### 2.2.1 Water Supply to Peri-Urban Communities

In Malawi it is estimated that up to 60 per cent of the urban population live in the fringes of the urban centres commonly known as traditional housing areas.

These areas often lack the most basic facilities normally provided to urban communities.

Before the International Water and Sanitation Decade in 1980, water supply to communities living in peri-urban areas was not coordinated. Communities got their water from various unreliable sources, contaminated sources for those who had no any income or had unreliable income and others got their water from vendors at very high costs

In order to ensure that these people were adequately supplied with potable water at a cost which they could easily afford, the government launched the Urban Communal Water Point Project in 1981, with financial and technical assistance from United Nations Capital Development Fund (UNCDF) and WHO.

The main project objective was to provide water supply services to low income groups in urban centres, those who could not afford the cost of private water connection and considering the fact that water schemes in the urban areas operated on a cost coverage basis, the collection of water rates for the water so provided.

The physical target of the project was to construct 600 Communal Water Points in 50 urban centres in Malawi

### 2.2.2 Users involvement in local planning and implementation

At each centre, when the tap users' groups were set up, they were asked to select the location of their Communal Water Point. The project staff guided the groups on social and technical aspects of site selection.

After identifying the location of the Communal Water Point the group signed an agreement with the Water department defining the rights and duties of each party.

It was clearly explained to the group that every month a bill would be issued charging their water consumption based on the meter reading and that they were expected to contribute money to settle the bill.

After forming a user group, the members were invited to register on a user list. Thereafter the Communal Water Point was constructed according to standard designs.

### 2.2.3 Group management of use and financing

Use of the Communal Water Point is managed by the tap committees, consisting of ten elected members, chairperson, secretary, treasurer and their deputies including four committee members.

To control water wastage, one of the committee members holds a key to the Communal Water Point valve box. He or she opens the valve every morning and evening for the hours agreed upon by the group's members.

The committee members also collect funds from each household once a month in order to settle the water bill and maintain the group's credit with the Water authority. Monthly household contributions vary between \$ 0.46 and \$ 0.69, depending on the size of the groups and their consumption.

Every month, the local water operator visits all Communal Water Points in his area. He reads the water meters kept in lockable valve boxes and issues a remittance advice (bill) to the tap committees. This gives total consumption of that month, amount due, and arrears outstanding. The committee uses the advice and the money collected to make a payment.

By August 1985, 600 Communal Water Points had been constructed, These Communal Water Points were a success in terms of providing affordable and safe drinking water to over 24,000 low income fringe-urban families mostly living in Traditional Housing Areas in Malawi.

However, over time problems with user management began to surface

These problems were manifested in failure of the user groups to settle their bills.

Although the new approach to low-income peri-urban community water supply proved its value, several areas for further improvement existed. Some of these were tried during a new project, the Piped Supplies for Small Communities (PSSC) Project 1988-1992.

### 3. PIPED SUPPLIES FOR SMALL COMMUNITIES (PSSC) PROJECT

#### 3.1 General framework

The Piped Supplies for Small Communities (PSSC) Project was implemented in Malawi between 1988 and 1992, as a second phase of the Public Standpost Water Supplies Project 1985--87, funded by the Netherlands Government through the International Water and Sanitation Centre (IRC).

The demonstration project was part of a two-country program which IRC supported, the sister project was implemented in Zambia.

The project was implemented in response to the United Nations endorsed International Drinking Water Supply and Sanitation Decade 1980--1990.

Malawi specifically strived to increase coverage of water and sanitation facilities to low income fringe urban communities. However a constraint identified at that particular time was that there was insufficient knowledge and information on the most feasible, effective, economic and sustainable way of serving this type of communities.

It was with this view in mind that the Malawi Government approached the IRC to help in generating the necessary knowledge and information through a pilot demonstration project.

### 3.2 Project aims and objectives

The main aim of the Piped Supplies for Small Communities Project was to stimulate the development of more appropriate, sustainable and successful methods to plan, implement and manage piped water supply systems with full community involvement for use in rural and low income fringe urban areas.

The general objectives of the PSSC Project were:-

- To develop and demonstrate more efficient, sustainable and appropriate ways of planning, implementing and managing piped water supply systems, with appropriate sanitation for use in rural and low income urban fringe areas.
- To promote the sharing and application of such knowledge, information and understanding at national, program and sector policy level and in other projects.

Specific Objectives included:-

- To conduct a series of studies and to prepare guidelines on particular organizational, socio-economic, financial management and technical aspects of piped water supply and sanitation systems.
- To set up and develop a number of pilot study and demonstration schemes on these systems.
- To promote the large scale application of the strategies and methods developed.
- To contribute to the international exchange of information on aspects of piped water supplies and appropriate sanitation systems in line with the concept of Technical Cooperation Amongst Developing Countries.

### 3.3 Project organizational structure

#### 3.3.1 Institutional structure

The Organizational structure of the projects was selected to promote multi sectoral collaboration. Taking into account the FOUR major components which were to be given priority in the project, Water supply, Community Involvement, Hygiene Education and Sanitation and Socio-economic Research, four institutions were mobilized, the Water Department as the Project Coordinating Institution (PCI), the Ministry of Health, Ministry of Community Services and Centre for Social Research of the University of Malawi as Project Participating Institutions (PPIs).

#### 3.3.2 The Project Working Group

The two PPIs, Ministry of Health and Ministry of Community Services together with the PCI formed the Project Working Group (PWG) which was the inter-ministerial Management Committee and Policy making body for the project. The PWG was chaired by the Controller of Water Services.

The PWG was responsible for guiding the planning, implementation and evaluation of the project, it also provided a platform for co-ordination of inputs from the PCI and PPIs.

#### 3.3.3 The Project Team

At the Project Implementation level each of the three ministries assigned a project officer to work on the project either on fulltime or part time basis. The three officers formed the Project Working Team.

The Project Team was responsible for Planning, Implementation and Evaluation of Project activities.

The Team was also responsible for Coordinating inputs from all participating Institutions and monitoring of project activities, including the coordination of research activities.

#### 3.3.4 The Local Project Coordinating Teams

At the Demonstration Centre level (local level) there were Local Project Coordinating Teams comprising Field Staff and Extension Workers from the PCI and PPIs - Water Monitoring Assistants, Health Assistants and Community Development Assistants.

The Local Coordinating Teams were responsible for the coordination of project implementation at the local level which among other activities included, community mobilization, data collection and monitoring including the provision of integrated extension services to the communities.

### 3.3.5 Auxiliary project committees

These inter ministerial committees were established at the regional and district levels comprising regional and district representatives from the three collaborating ministries mostly to ensure sustainability of the program after donor support.

These committees were established as a result of recommendations which were made at workshops for regional and district officers, who felt that they were not involved enough in project activities under the existing structure.

The main responsibilities of these committees were mostly to monitor project activities and render operational support when required.

## 3.4 Local Organizational Structure

### 3.4.1 Centre Water Councils

At the community level, Centre Water Councils were established at each demonstration centre, to oversee coordination of the project.

Centre Water Councils are sub committees of District Development Committees and membership include community representatives such as Members of Parliament, Party leaders, Councilors, Chiefs and Village Headmen.

Centre Water Councils were mostly responsible for assisting in mobilizing communities, selection of sites for constructing water points and generally supporting operation of tap committees and monitoring operation and maintenance activities.

In two demonstration centres, Likuni and Mponela where Centre Water Councils proved difficult to establish, Executive Committees were established and worked just as effective as Centre Water Councils.

### 3.4.2 Tap Committees

At each water point communities elected a ten-member committee to manage operation and maintenance activities. The committees were directly answerable to the Centre Water Councils.

## 4. PSSC PROJECT EXPERIENCES WITH GENDER ISSUES

The PSSC project experiences with gender issues can best be discussed in three project phases, namely first phase which was a "learning- by-doing" phase, where implementation proceeded without any special intervention.

The second phase was for field testing of procedures while the third phase was a strategy consolidation phase.

### 4.1 Learning-by-doing phase

Although one of the aims of the PSSC Project gave emphasis to the development of approaches for ensuring full involvement of women, there were no initial deliberate project interventions to tackle gender issues.

When the project was planned, no gender analysis was carried out to try and identify gender roles and division of labour. Our assumption was that water being the traditional responsibility of women, the women would automatically dominate the committees which would be responsible for managing the Communal Water Points.

What developed was quite interesting, initial discussion with communities were done normally. General meetings called were attended by both men and women with the traditional sitting arrangement whereby women remained behind the men. When it came to the formation of the tap committees, the obvious happened, the socially constructed leadership roles compelled men to dominate the Tap Committees. The composition of the committees turned out to be between 80 -90% men and 10 - 20 % women, see table and no women held the key positions of Chairman, Secretary or Treasurer.



This was quite contrary to our assumptions. The questions which immediately came to mind were:

- What prompted the men to dominate the Tap Committees ?
- Why should women take a lead in the management of traditional water supplies and lag behind when it comes to management of improved water supply ?

The answer, according to surveys which were carried out, lies in the coming of the project into the community, which was seen as an external intervention in the traditional social setting and warranted substantial reversal of gender roles.

According to the surveys, what actually happened in the PSSC Project situation was that when the project was introduced, with the objectives to be achieved outlined, communities took it as a "challenge" or rather as an "external invasion", which had to be defeated if the integrity of the community was to be upheld. As such, men took the leading role even if it meant reversing gender roles.

In Malawian society reversal of gender roles take place in emergency situations, for example when a woman is sick or away from home, the husband will take over all household chores such as drawing water, cooking and looking after children. Similarly, in the absence of her husband, a woman will do all the jobs which the man is supposed to do.

In this regard the coming of the project to the community was looked at as an emergency situation.

The second reason was the approach to the community itself. No efforts were made to look into factors which might constrain the involvement of women. Attempts were not made to try and convince the men why it was necessary that women should take a leading role in the management of water supplies.

#### 4.1.1 Impact of male dominated Tap Committees

The operation of the male dominated committees were observed for a period of 18 months and the following were findings:

#### 4.1.1.1 Inactive Committees

The committees met rarely and the main reasons were traced to the fact that the majority of the men were most of the time out of the villages either at work or doing business.

#### 4.1.1.2 Ineffective Extension Service

As a result of the fact that the majority of key members in the Tap Committee were out of the villages most of the time, integrated extension service reached the wrong targets. Hygiene Education and Sanitation Promotion which was planned to be participatory suffered the most.

#### 4.1.1.3 Leadership problems

In their efforts to ensure full community participation, the male dominated Tap Committees who in most cases had very little time to make full consultations with user communities, used autocratic methods. This led in most cases user groups changing taps every now and then. This was reflected in dwindling membership in most of the Communal Water Points.

This again was a reflection of the leaders failure to utilize the extension support and their failure to attend leadership training courses.

#### 4.1.1.4 Operation Problems

Since communal Water Point Keys were kept by the key members in the Tap Committee, their absence from home affected the operation of the Communal Water Points. Agreed opening and closing periods were not adhered to. This again resulted in user communities changing taps.

#### 4.1.1.5 Financial Management Problems

The above stated problems were manifested in poor financial management. This is not to say men are poor financial managers, but rather the men in the Communal Water Program failed to meet the conditions which would have facilitated good management of finances.

#### 4.1.1.6 Poor Rate Collection

Consumer groups had agreed on specific dates for payment of water rates. The dates varied from centre to centre depending on whether majority of the users are wage earners or business people. The mode of collection also differed from place to place. Other taps agreed on house to house collection, others agreed to remit the fees to the treasurers while others agreed to bring the fees at the tap on an agreed date.

This worked well where the Key Tap Committee members were always available within the community where these leaders were scares as the case was with the male dominated Tap Committee leaders, collection of water rates suffered. The Communal Water Point soon run into heavy debit balances not because communities were unable to pay, but the collection mechanism was rather faulty.

In yet other cases, users complained the approach used by the leaders to collect rates as being aggressive. This again resulted in migration from the taps.

#### 4.1.1.7 Mismanagement of funds

Money collected was also mismanaged particularly surplus cash which remained after water bills were settled was not properly accounted for.

This was again reflected in debit balances on the Communal Water Point Accounts and also poorly maintained Communal Water Points since maintenance funds were misused.

#### 4.2.1 Field Testing of Procedures Phase

During the second phase 1990-91 the PSSC Project used several strategies to address the gender issue aimed at increasing the involvement of women in the management of Communal Water Points.

From the experiences gained in the first phase, it became clear that although the main issue which prevented the women from taking active part in water management had something to do with gender roles, other factors included:

- Fear of speaking up in group meetings;
- Lack of experience in working with groups;
- Fear of criticism for overstepping customary roles
- Sense of powerlessness;
- Lack of skills in planning and problem solving.

#### 4.2.1.1 Project Intervention

Efforts were made to integrate the women directly in general Community participation structures through the following practical measures:

- During Committee elections, the communities were guided on the composition of the Tap Committees to be 60% women and 40% men to balance interests.
- Efforts were made to develop positive attitudes of men to the involvement of women in accordance with women's customary tasks.
- Consultation of women were done separately at meetings or at places where they gathered for daily activities.
- Use of both female and male extension workers. Where the Water Department had no female water assistant, use was made of female Community Development Assistants.
- Involvement of women in design and location of the Communal Water Points.

#### 4.2.1.2 Intervention Results

The results were quite encouraging. Most tap committees began to have more women in key positions.

The interventions succeeded in raising the percentage of women in Tap Committees from 20 per cent to 60 per cent and later to over 90 per cent.

A survey to determine willingness and affordability to pay had the following observations:

" Women dominate Communal Water Point Committee membership and occupy the prominent positions even at election time and in all but three cases they comprises the only longest surviving active members. The problem of male membership is generally that of minimal involvement. In some centres previous committees had been all-male and run into trouble because they could not keep the tap site clean and the rate collection was reported to have been harsh and impatient. This led to the temporary closure of the Communal Water Point, until the committee was replaced by a predominantly female committee" 1

The following were some of the changes noted in the female dominated Tap Committees:

#### 4.2.2.1 Active Committees

Surveys showed that the female dominated committees were active in that members held meetings regularly and that attendance of the meetings were good.

This was attributed to the fact that most of the key members were available within the villages whenever they were needed.

#### 4.2.2.2 Effective Extension Support

Extension workers reported that they were able to meet the majority of tap committee leaders on their routine visits to the taps. The Tap Committee leaders received extension messages.

Hygiene Education and Sanitation also received a boost. Using participatory approaches, the extension workers passed on hygiene messages to Tap Committee leaders who in turn passed messages to the communities. Surveys showed remarkable improvements in hygiene habits during this phase as compared to the previous phase, see table 1.

TABLE 1

NUMBER OF HOUSEHOLDS WITH PIT LATRINES DURING MANAGEMENT OF MALE DOMINATED COMMITTEES

CENTRE	NO. OF HOUSEHOLDS COVERED	SATISFACTORY LATRINES		UNSATISFACTORY LATRINES COVERAGE		
		No.	%	No.	%	%
Kasungu	298	92	31	126	42	73
Salima	246	66	27	103	42	69
Mulanje	254	74	29	72	28	57
Monkey Bay	150	39	26	60	40	66
TOTAL	948	271		361		

However, the observation was that although the women occupied the key positions in the Tap Committees, in a number of cases decision making still remained with the men, within the committees or even outside.

It was observed that within the Tap Committees, men continued to dominate decision making even when they occupied lower positions. In yet some instances, husbands of the women who occupied key positions made major decisions and sometimes represented their wives during committee meetings

In issues of a technical nature, the women totally relied on the menfolks.

This has also been observed in a handpump program where caretakers comprising two women and one man are trained in carrying out repair works.

However, observation of actual repair work shows that the two trained women play minor roles of assisting the trained man.

Evaluation of the program showed that the women lacked confidence, hence the project organized special training programs for the female dominated committees. Major issues covered during the courses included leadership; community participation; problem solving steps; community financial management; hygiene and sanitation; operating procedures and maintenance.

The training program was complemented by exchange visits which were organized for committees from one centre to visit other centres.

#### 4.2.2 Impact of female dominated Tap Committees

The results were quite encouraging. The women in the Tap Committees gained sufficient confidence and began to run the committees without the "invisible" support of the men.

Eventually men began to disappear completely from the Tap committees. In any new elections or re-elections of Tap Committees, the composition of the committees turned out to be between 90--100 per cent women and where a few men were included, they occupied the lower non-influential positions.

*Cont. Fabiano Kwame*

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TABLE 2

NUMBER OF HOUSEHOLDS WITH PIT LATRINES DURING MANAGEMENT OF FEMALE DOMINATED COMMITTEES

CENTRE	NO. OF HOUSEHOLDS COVERED	SATISFACTORY LATRINES		UNSATISFACTORY LATRINES		COVERAGE
		No.	%	No.	%	%
Kasungu	298	185	62	100	33	95
Salima	246	150	61	75	30	91
Mulanje	254	175	69	72	28	97
Monkey Bay	150	100	67	39	26	93
TOTAL	948	610		286		

Tables 1 and 2 above compares latrine coverage during the management of the male dominated tap committees to that of the female dominated tap committees which reflects the impact of hygiene education and sanitation promotion.

4.2.2.3 Operation and Maintenance

The other area which showed impressive changes was operation of the communal water points. Opening and closing periods for the taps were no longer an issue, Tap Committee Leaders opened and closed the taps as agreed to the satisfaction of the users.

The result was that membership of the water points improved.

Maintenance of the water point surroundings also improved.



The PSSC Project experience suggests that guided discussions with groups of women are more useful.

As a first step, it is often necessary to contact the men or male leaders to explain why participation of women is wanted and often to obtain their support.

Special measures are also needed to ensure that project information reaches women and that they can and will attend project meetings.

Depending on local circumstances, personal contacts, involvement of local key women and exchange visit programs are some of the ways found effective to inform women about the projects and enhance their participation.

When general project meetings are held, their time and place should be suitable for women and women encouraged to attend.

Culturally appropriate sitting arrangements should be planned so that women can sit together if they wish to and are not forced to sit at the back, where they cannot hear what is said and where it is difficult for them to speak out.

In order to consolidate these findings special guidelines were developed. The guidelines focused on approach to communities, and special training for women.

A special guide was also made to ensure the participation of men in the committees which were then running to 100 per cent women.

A survey to assess problems affecting sustainability of Tap Committees had the following observation:

"More men be included in Tap Committees. It was felt that the existing female dominated tap committees perceive keeping tap surroundings clean as their main duty. That is why the committees largely comprise women, neglecting men and underestimating what the men could contribute to the sustainability of the Tap Committees".<sup>3</sup>

A survey to find out more on the use of the Communal Water Point structure found out that the women were not using the standing area mostly because it was filled with gravel which made it uncomfortable for the majority of women who had no shoes on to stand when drawing water.

It was further disclosed that the platform was too low, for the women to lift their buckets on to their heads. This was why the women used the pillar for lifting the buckets.

In places where three taps were fitted on the structure, the women often never used the middle tap since they felt squeezed.

Based on these findings, the Communal Water Point designs was revised but most women still expressed dissatisfaction. They were however unable to explain what exactly was wrong.

Plans were therefore made to use brick models. The women used bricks to model a design which they preferred. From the modelling, two designs came out, a multiple tap structure with taps on both sides but with very raised platform.

A special design was simple twin tap structure with raised platforms and concrete standing area.

Where these designs were tried, women have not complained in any way.

#### 4. Conclusions

In order to implement a truly gender responsive program there is need to carry out thorough gender analysis to identify socially constructed gender roles and gender division of labour which should be taken into account at all phases of the project cycle. The end result is to ensure that women and men have equal access and equal control over the resources and benefits of development.

The PSSC project experiences in Malawi has shown that unless gender roles are known to planners, wrong decisions will be made which will effect project progress.

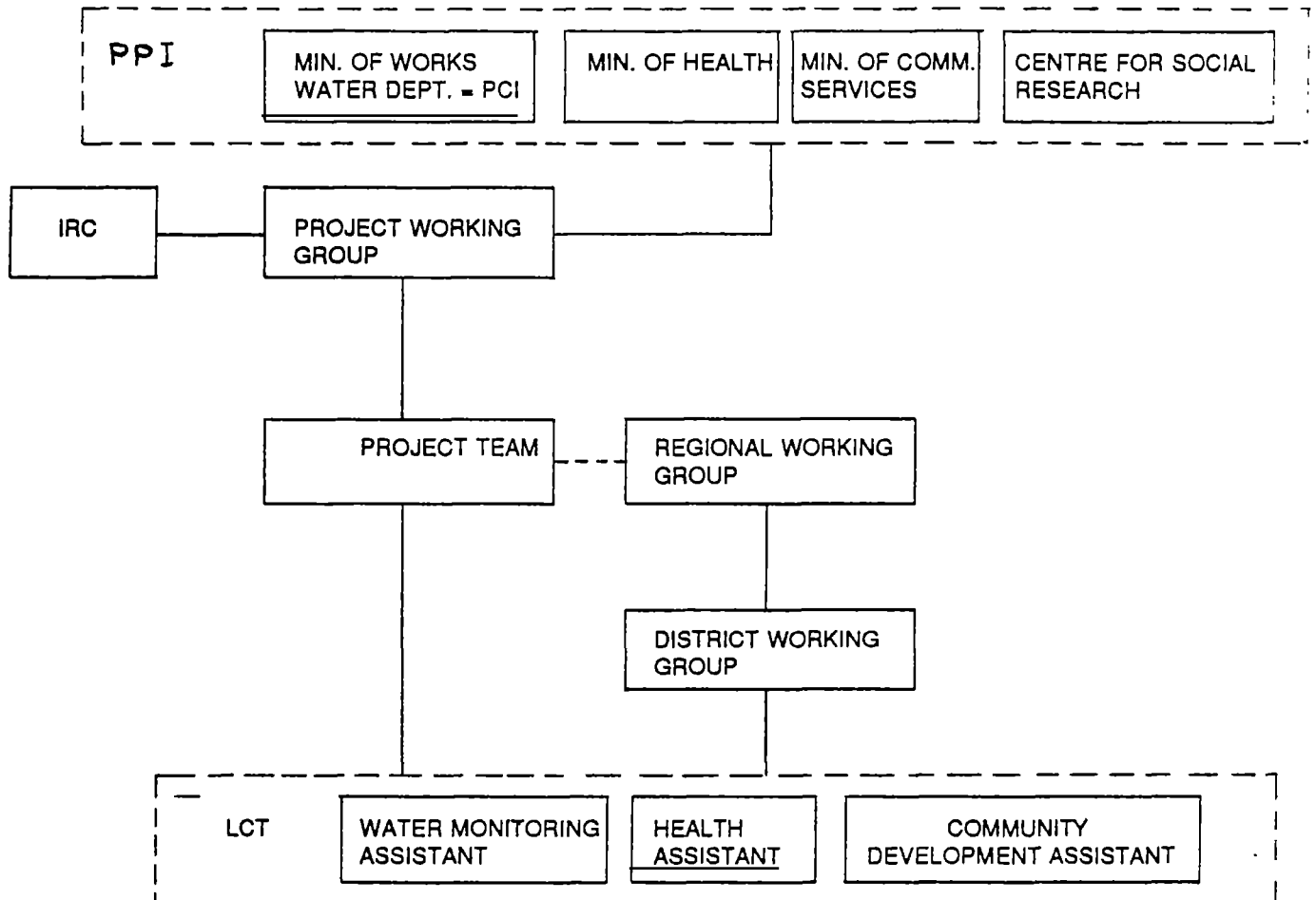
## Foot Notes

1. Kayira J.M and others - Survey to assess problems affecting sustainability of Tap Committees, PSSC Project, Malawi, August 1991 p 10
2. Kaluwa Ben, Proposed Improvements to 14 District town water supply schemes---Socio-Economic Study, September 1993, Economics Department, University of Malawi. p18
3. Kayira J.M. op cit p 8

## References

1. Kwaule F. Piped Supplies for Small Communities Project--Malawi Final Report, July 1993, Water Department Ministry of Works.
2. Kwaule F. Piped Supplies for Small Communities Project--Malawi Interim Report, June 1990, Water Department, Ministry of Works.
3. Kwaule F. and Chandiyamba B.B. Report on Self-Evaluation of Piped Supplies for Small Communities Project, November 1991. Water Department and Ministry of Health.
4. Kayira J. and Kanyangale M.I. Report on Survey to assess problems affecting sustainability of tap committees, PSSC Project, Malawi, October 1991.
5. Wijk-Sijbesm Christine, Participation of Women in Water Supply and Sanitation, Roles and Realities TP 22, IRC, The Hague, The Netherlands, 1985.
6. White Alastair, Community Participation in Water and Sanitation, Concepts, Strategies and Methods, TP 17, IRC The Hague The Netherlands, June 1989.
7. Chilowa Waycliff, Overview of Piped Supplies for Small Communities in Malawi, Centre for Social Research, University of Malawi, June 1988.
8. Kaluwa Ben, Proposed Improvements to 14 District town water supply schemes---Socio-Economic Study, September 1993, Economics Department, University of Malawi.
9. National Commission on Women in Development and USAID, A Policy and Plan of Action for Women in Malawi (Draft)

## PROJECT ORGANIZATIONAL STRUCTURE



### Legend

- IRC = IRC International Water and Sanitation Centre
- PPI = Project Participatory Institution
- PCI = Project Coordinating Institution
- LCT = Local Project Coordinating Team

# **General Introduction to the Concept of Water Resources Management**

**by**

**Jan Lundqvist**



## **General Introduction to the Concept of Water Resources Management**

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## Purpose and main points of paper

The purpose of this paper is to summarize some of the current discussions related to water resources management. In projects and in development plans, water is usually seen as a technical input in terms of amounts required to be supplied. This disconnected view on water is not tenable. Increasingly it is recognized that water should be seen as a resource and treated accordingly. Moreover, water has some characteristics and functions in society and in life-support systems which distinguish it from most other resources; it can hardly be substituted for other resources and its availability and the need for it, is strongly related to climatic context and landscape features.

The prevailing attitude to water does not tally with the tremendous challenge that we face. Attempts to link "project water" to a resource perspective are few. It is unfortunate that respect for water has been allowed to vanish and that so little is done to foster more caring and disciplined attitudes to water.

In the presentation below it is argued that strategies and principles for its management must depart from some "non-negotiable facts". The prevailing notion of water as a free good, to use and to pollute, leads to unjust allocations, abuse and environmental problems.

## Revive respect for water

Water is indispensable for life, for human dignity and well-being. It is necessary for almost any activity in society and it is significant for the functioning of ecosystems. In contrast to many other resources that are demanded for the development of society and for the satisfaction of human aspirations, there is no substitute for water. We can grow crops without soils, but not without water.

The significance of water for our well-being, let alone our very existence, has echoed in poems and in religious texts and rituals. In a historical and cross-cultural perspective, no other resource has received the same attention. Apart from the praise for its divine characteristics, water has also been guarded by secularized custodians. The development and use of water has been of great concern to kings, communities and individuals alike. A famous expression by Parakrama Bahu I (1153 - 1186 AD) through whom Sri Lanka reached the highwater mark in the harnessing and use of water resources, illustrates this concern: ".. not even a little water that comes from the rain must flow into the ocean without being made useful to man".

The concurrence of an ethical perception of water and a pragmatic, and, notably, despotic and hierarchical approach in its management has been a distinguishing trait in the evolution of cultures and societies throughout history. Respect and reverence for water was parallel to the building of sophisticated hydraulic arrangements. Presumably, the ethical connotations facilitated the building of these systems and also their operation and maintenance. In contrast to the prevailing attitude today, the utilitarian approach was not founded on a mechanical and disconnected view on nature, but was linked to an environmental ethic. With reference to contemporary debate, it is relevant to note that the social institutions together with a set of clear incentives and sanctions *visavi* water management, were part of the prevailing culture and integrated with overall development objectives of society.

The perception of water and the approach to manage this resource has changed significantly, particularly during recent decades. The sense of respect is very much reduced. Arrangements to augment the supply and distribution of water has increasingly become a profession alongside with the evolution of other professions intended to deal with other issues. As of recent times, water, or rather the lack of water, has become a problem which requires technical and organizational arrangements to solve, but hardly any other qualifications.

This is no attempt to downgrade the significance of professionalism nor the relevance of technical and hydraulic skills for proper water management. My concern is related to the concentration of attention on certain skills at the expense of an empathy for the social and environmental context in which (water) development takes place.

Separation of duties and obligations into various departments, sectors and geographical regions is, of course, practical and may often facilitate operations and project execution. But that is not enough. The objective of water projects is not to build a dam or to install a pump. It is to ease the burden and drudgery of those who have to draw water from unsafe and far-away sources. It is to improve health, boost production, stabilize income etc. And for that to happen and for the positive results not to wither away quickly, the projects must function, be used, and perhaps most important, they must be part of a more general process of social change. However, when the practising of professionalism leads to compartmentalization and to a disregard for social and resource linkages, there is a big risk that water development projects will not achieve the objectives.

## Scenario

We all know what are the problems in the field of water and we have our views about what are the shortcomings. Obviously there are no easy solutions nor are there any shortcuts to overcome the problems. Lack of adequate and safe water is frequently stated as the reality for about one billion people, almost every fifth person on earth. Close to the double number of people, or around 1.7 to 1.8 billion, do not have access to adequate sanitation. Staggering as these figures are, it is more challenging to ponder over water requirements to produce the food, biomass and other necessities of a decent life. A few litres of water a day are a basic minimum for survival for a human being. To produce the amount of food needed for a human, almost a ton per day on average is required.

The implications of these facts are far-reaching when compared with figures on the number of people in water scarce areas of the world. By 2025 it is estimated that over 1 billion people in Africa and South Asia will live under conditions of severe water scarcity (Falkenmark & Widstrand 1992). By the same time, that is from 1990 to 2020, we may also expect an increase of the urban population in the South by some 2 billion, corresponding to the current population of India and China together.

The need and demand for water will thus continue to escalate and most probably also pollution. But hydrological circumstances will not permit a corresponding increase in supply, as we have been accustomed to think. This is especially so since a large fraction of the growth of population will take place in areas where water is scarce. It takes a lot of imagination to sense the reality behind this scenario and what will be the implication for water management.

In the light of the possible future indicated above, there is a need for a new professionalism with regard to water resources and their management. Water is already a significant constraint to a decent livelihood and progress in large parts of the world. If current trends are to continue as indicated above, the scenario for livelihood for millions and millions of people are, indeed, gloomy. And water problems are certainly playing a crucial role in most scenarios.

It is a tremendous challenge which calls for joint efforts based on a common water ethic which recognizes water as a vital but scarce resource, necessary for life and human well-being. Skills at various levels and among various groups of society must be included in a strategy to improve water management. The plea for a water ethic has been eloquently forwarded by Postel (1993). Other prominent colleagues have

displayed the shortcomings of conventional approaches in resource management (see, for instance, Chambers, 1993; Daly & Cobb, 1989).

## "Non-negotiable" facts basis for water management

A water resources perspective departs from a few "non-negotiable" facts which must be the basis for the management of water resources;

(i) the amount of water which is available to humans is **finite**. Almost by definition, this is a most real and mounting problem for communities and countries in the tropical and subtropical areas where most of the semi-arid and arid regions of the world are located.

In principle, the amount of water that can be made accessible for various purposes is determined by the precipitation. The amount varies between years and between seasons. Apart from these fluctuations, which are quite significant in the South and may extend over long periods, it is virtually fixed. This amount is the same today as it has been historically and future generations will have to do with the same amount. On a *per capita* basis, the availability is thus dramatically reduced over time.

(ii) water is a **vulnerable** resource. Water is an active solvent constantly on the move through the hydrological cycle. On its way, it passes through the soils in the landscape; it is used in industries and then returned to recipients; humans and cattle need it for their daily sustenance, etc. Various substances and pollutants are absorbed and accumulated along its passage through the landscape. Degradation of water quality and negative environmental impacts, usually concentrated to down-stream areas, are noticeable both in the North and in the South.

(iii) water has **no substitute**. This is of particular importance in connection with food production and, generally, for the functioning of life-support systems. In contrast to other resources used in production and for our sustenance, the amounts of water used in the production of food and other biomass can hardly be reduced nor can it be exchanged with other resources. A kilo of rice or any other food item requires about the same amount of water for production today as previously. (The difference is between different food items, between types of rice and between climatic zones where food may be grown). Water may be more or less efficiently used in the production of food and other biomass. But it can not be replaced. The amounts of water needed to produce food and to maintain the functioning of life-support systems may be reduced in relation to current practises, but basic laws of nature must be adhered to.

Industrial production, by comparison, follows other laws. The requirement of water, energy, minerals etc. in industrial production has

been substantially reduced as a result of technological developments. Moreover, most materials used in industrial production may be substituted by other materials. Postel (1993) provides several examples although mainly from industrialized countries, of reductions in water use by upto 90% in various industries. It is interesting to note that investments for recycling and reuse could be repaid within the period of a few years.

The significance of these basic conditions for human livelihood increases with the rapidly growing needs and demands for water. The tremendous growth in population and particularly the growth in already water-short areas and in burgeoning cities and conurbations, contributes to a new and historically unprecedented pressure on water resources. The growing needs and demands will push for arrangements that will augment supply. They will also lead to increased competition between different users for the amounts of water that are actually accessible. And what is more, the stiff competition for water contributes to the build-up of tensions in parts of the world which now and then explode in open hostilities. It is enough to point at the situation in the Middle East, along the Nile, between countries and states in South Asia, USA and Mexico etc.

Against the short background presented above, some questions may be posed: What are the possibilities for augmenting water supply? What principles and procedures may facilitate a realistic policy for water management with due regard to a mounting scarcity? How can such policies be promoted and accepted by the constituencies and "beneficiaries"?

## How much water can be made accessible?

We have to distinguish between what is potentially available through precipitation and what amounts are made accessible to humans. The withdrawal of water from streams and lakes and the extraction of groundwater has increased substantially in recent decades. The amounts made accessible to humans have increased about tenfold during this century. This might be compared to the growth of population during the same period which has been in the order of about three times (FIGURE 1). The increase in the supply of water for various uses in society has thus been about three times faster than the increase in population.

Augmentation of supply has been possible through the construction of dams, reservoirs for storage, conveyance structures, technologies to exploit ground water etc. These hydraulic achievements have, no doubt, been instrumental in the implementation of many development projects. They have also contributed to a lowering of groundwater tables around the sites where ground water has been mined, to the reduction of

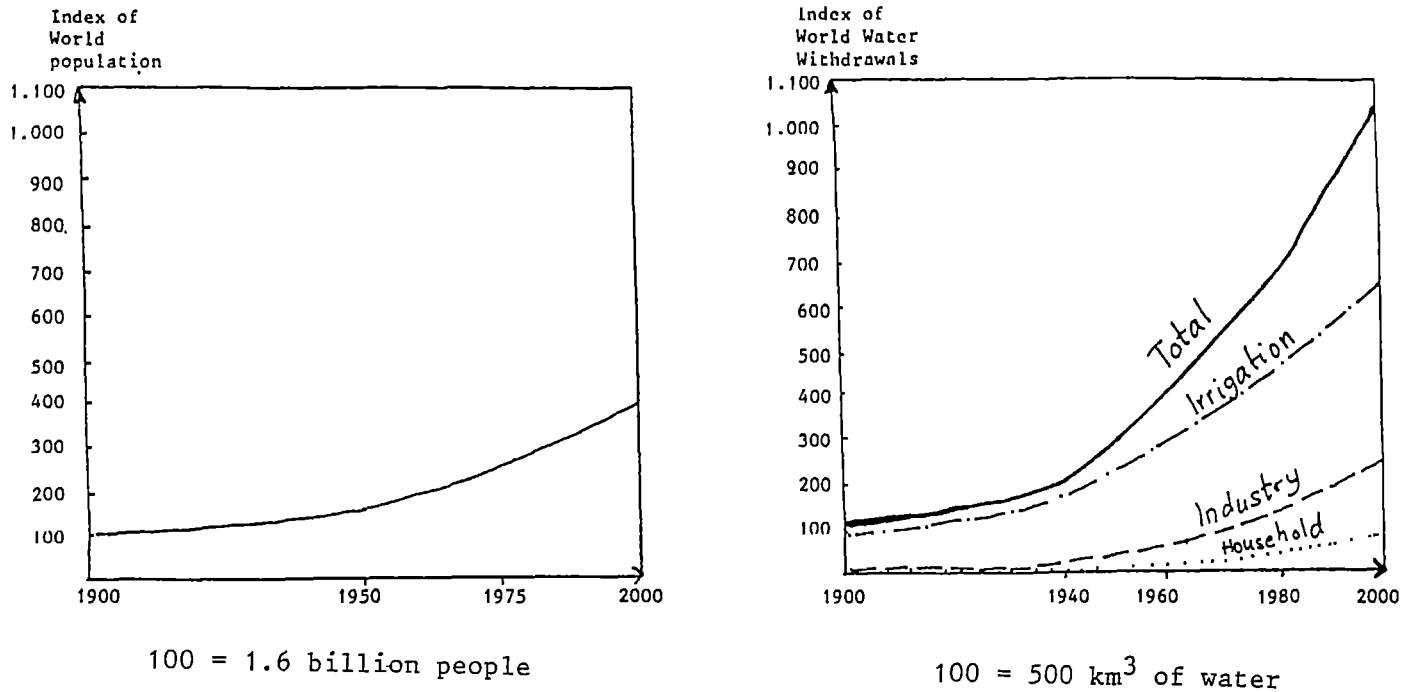


Figure 1. Left diagramme illustrates actual and projected growth in world population between 1900 to 2000. Right part of figure shows growth in water withdrawals during the same period.

wetlands, to salt water intrusion, reduction of water in lakes, etc. Salinization, erosion, desiccation of entire landscapes and floods are other worries which signal a lack of an integrated land and water management. Whether or not the benefits can be compared to the costs will not be discussed here. It suffices to mention that part of the increased supply during recent decades is quite obviously in excess of what can be made accessible on a long term basis. Recent developments in terms of water development do provide concrete examples of a water policy that has to change.

### Connections and competition between "green" and "blue" water

Focus on supply aspects do unfortunately remove interest away from the conditions that basically determine how much water can actually be used for various purposes. Variations in climate and landscape characteristics will very much determine how the precipitation will be partitioned into various flows and thus how much water is accessible for various needs and demands. A simplified technical account together with the drawing

presented in Figure 2 may illuminate some aspects which are of paramount importance for how much water that can actually be used.

In the tropics and subtropics, most of the water available through precipitation is subject to a rapid return flow to the atmosphere due to the high potential evapotranspiration. While potential evapotranspiration may be between 1,500 to 2,000 mm, the precipitation is usually much less. In large parts of Africa and Asia, there is a substantial water deficit due to climatic conditions, which, of course, lead to scarcity of water in society.

A large fraction of the rainwater which does not infiltrate through the soil may either return to the atmosphere as direct evaporation from moist surfaces ( $E_o$ ). This return flow represents *an unproductive loss* which unfortunately can be quite large in semi-arid regions. Another fraction will run off to downstream areas. Out of the amounts which infiltrate into the ground, some will return as transpiration through the crops, trees and other biomass ( $E_t$ ). This is one of the most important fractions since it represents *a productive flow*. Still another fraction of the water that has infiltrated into the soil, will recharge groundwater aquifers. The main fractions after the two main partitioning points of rain water are shown in Figure 2.

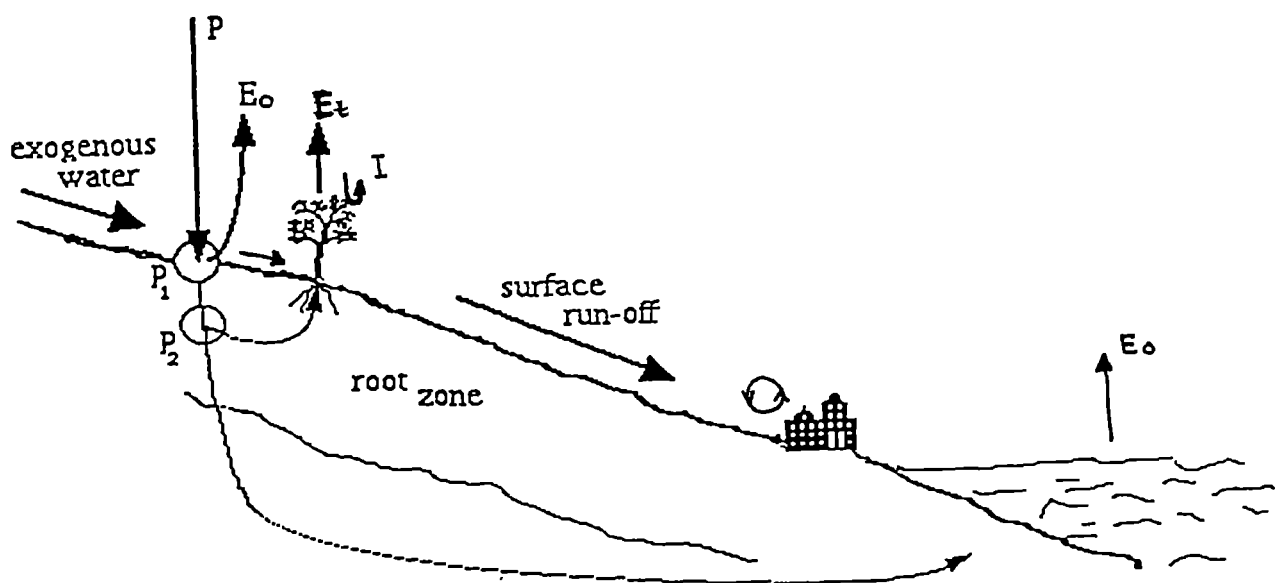


Figure 2. A schematical presentation of the partitioning of precipitation in main fractions

The partitioning of rain water into the various flows is a crucial process which determines how much water that can be made accessible for various purposes in various parts of a landscape and during different periods of the year. The most important part of the processes is infiltration through soil surface. Moisture in the soil is a necessary precondition for the greening of the landscape and without which there will be no biomass, no food, no nothing.

Soil moisture is the invisible "green water" (Falkenmark, 1993) which is the basis for agricultural production and rural development. It also represents the largest amount of water consumed. About 75 to 80% of the fresh water consumed in the world is for agriculture. A kilo of rice typically requires between 2 to 3 tons of water to produce. The surplus of rainwater to recharge aquifers, rivers, lakes etc. with "blue water" (ibid.) is thus a small fraction. Only a few percent of the overall accessible water are allocated for household water purposes.

Growing needs for food and other biomass, for instance, in terms of afforestation, may thus have significant implications for the amounts of water that will be accessible for households and other uses in society. Accessibility will be affected in two ways. First of all will the large supplies of water needed for irrigation and industrial development tend to lower the ground water table and reduce surface water to the extent that the household supplies become more costly and difficult to arrange. This is the situation for many households, for instance, in parts of South Asia. Secondly, the reduced amounts of water in wells and other sources mean that the dilution effect on pollution is reduced. Intensified production will therefore affect quality of the remaining quantities quite strongly. Serious deterioration of water quality is most problematic in and around big cities but also in connection with intense agriculture.

### **Approaches to deal with growing water scarcity**

The growing needs and demands for water can only partly be met through increased supplies. To cope with the situation it will instead be necessary to use the existing supplies more efficiently with due consideration to social and environmental objectives. The strategy must include three main components:

- a) it is necessary to reduce unproductive evaporation losses,
- b) the efficiency and productivity in the use of water must improve,
- c) there must be criteria and mechanisms for allocation and re-allocation of scarce amounts of water between competing needs and demands.



In semi-arid regions, the unproductive evaporation losses ( $E_o$  in Figure 2) may be quite substantial. A typical situation is presented by Breman & Uithol (1984) with data from the Sahelian rangelands. They show that only 10 - 20 % of the precipitation was productive and as much as 60% returned to the atmosphere as unproductive evaporation. Theirs and other studies indicate that it is possible to reduce the direct evaporation substantially through soil and water conservation, by improving access to nutrients, etc. (R. Clarke, 1991, gives a valuable perspective on these approaches. See also P. Harrison, 1993, and earlier publications by the same author) .

Efficiency refers to the amounts of water in a reservoir or similar that are actually reaching the intended use, for instance, crops in a field, industries or households. Low efficiency is quite common in most irrigation systems. At the same time the productivity of water is low in the sense that crops with a heavy demand for water are cultivated. Most observers agree that it is possible to improve water management in irrigated agriculture so that "more can be produced out of less".

The allocation between sectors has not been discussed very much. The largest amounts of water supplied to irrigation. This is especially the case in Asian countries. While irrigation development has slowed down in the world as a whole, several African countries have plans to expand their irrigated agriculture and they also do, although the absolute size is comparatively small. In spite of irrigation developments, there seems to be a consensus at various levels of society, nationally and internationally, that drinking water (and sanitation) should have first priority. This is, for instance, a respected principle in India. In chapter 18 of Agenda 21, this priority is also quite noticeable. The financing and cost evaluations for this programme area together with the programme for improvements in urban areas (which is also mainly household water and sanitation) suggest that resources required to implement activities in these areas should be much higher than in any of the other programme areas.

In Figure 3 an attempt is made to summarize the discussions above.

## Water as an economic good

Priorities and consensus about priorities of allocation of water may, however, be jeopardized by the actual water developments and withdrawals. The use of large quantities in one part of a basin or the heavy pollution, will effectively block the possibilities for others to acquire what they need. This is typically the situation for household supplies, but also for other interests, notably more general ecological concerns. This kind of indirect but quite noticeable consequence, represents a kind of abuse which is probably due to various circumstances. The lack of

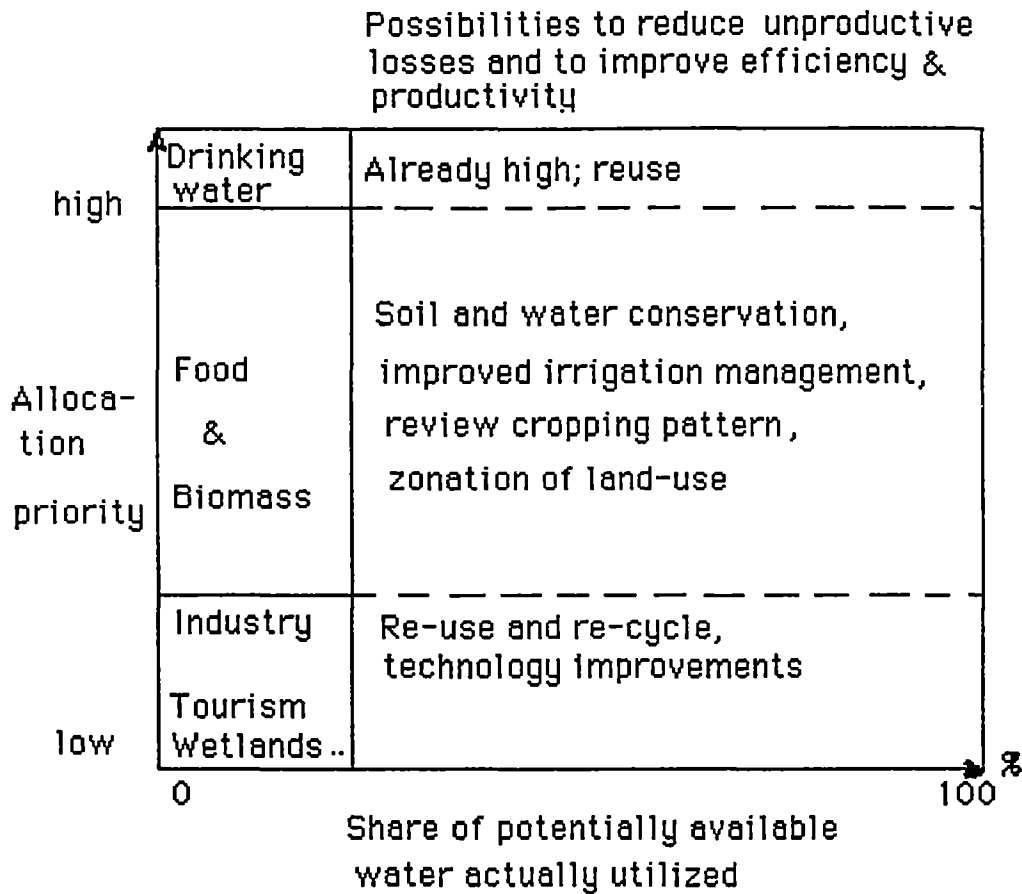


Figure 3. An schematic illustration to indicate a common order of priority in water allocations to main water uses (vertical axis). The horizontal axis is used to illustrate what amounts of potentially available water are actually used. In the figure it is also indicated what possibilities there are to reduce unproductive losses and increase efficiency and productivity in water use. (Scales are not absolute).

incentives and sanctions to discipline water use are, however, very noticable, even in areas where water is in limited supplies.

One aspect of the prevailing pattern of water use is that water has generally been taken as a free good. Even in connection with very costly water-development schemes, subsidies, in one form or another, have been and still are substantial. The rationale for subsidies is primarily to meet

basic social objectives. Since water is indispensable for life and human dignity, discussions about price and economic aspects in general, have often met with indignation and objections. Lobbies and constituencies in the South as well as in the affluent North do vigorously oppose attempts to increase water and sewer rates. Water is invariably considered free both for use and to pollute. Dianne Dumanoski reports in the recent issue of *Stockholm Water Front* (1993) that such attempts is the hottest political issue in Boston. Although an overwhelming majority of people want to see an end to pollution, the answer is also overwhelmingly negative when asked about their willingness to personally pay for efforts to cleanup.

But water supply is not free nor do subsidies benefit everybody. Several studies show that the subsidies paid for water supply are primarily benefitting the better-off sections of community, while the poor have to pay dearly for water in cash, efforts and in health. The number of taps and supplies from public operated systems are far below the needs. Under these circumstances, the poor have either to rely on insecure and unsafe sources or they have to purchase water from vendors.

In Tamil Nadu, for instance, prices are 10 times or higher as compared to the water tariff charged by the municipality. During the summer periods, the price of water will usually rocket to much higher levels. Other studies have revealed a similar situation in Nigeria, the Sudan, Nicaragua. The argument that poor will suffer or that social objectives are endangered if economic considerations are implemented does not tally with current situation.

From a water resources perspective, the main challenge is the supply and use of water in the irrigation sector. Tremendous amounts of money have been invested in dams and various conveyance systems, but to my knowledge, the very majority of the schemes supply water virtually free. A nominal flat rate is though common. The prevailing policy gives no incentive to use water sparingly and choice of crops for cultivation will not be affected by water resources considerations but by other circumstances. An efficiency of about 50% is common, especially in large schemes. For small schemes, the variation is considerable. Figure 4 illustrates the discrepancy between amounts of water required to grow certain crops and the return per unit of water.

If the farmers were to pay for water in relation to what society has invested to supply the water, it is likely that abuse of water would be reduced both with regard to how much water will actually reach the crops and with regard to choice of cropping pattern. It is also to be noted that farmers' reluctance to pay is very much due to deficiencies in the security of supplies. In projects where they can be certain of the needed deliveries, the willingness to pay for water has been noted.

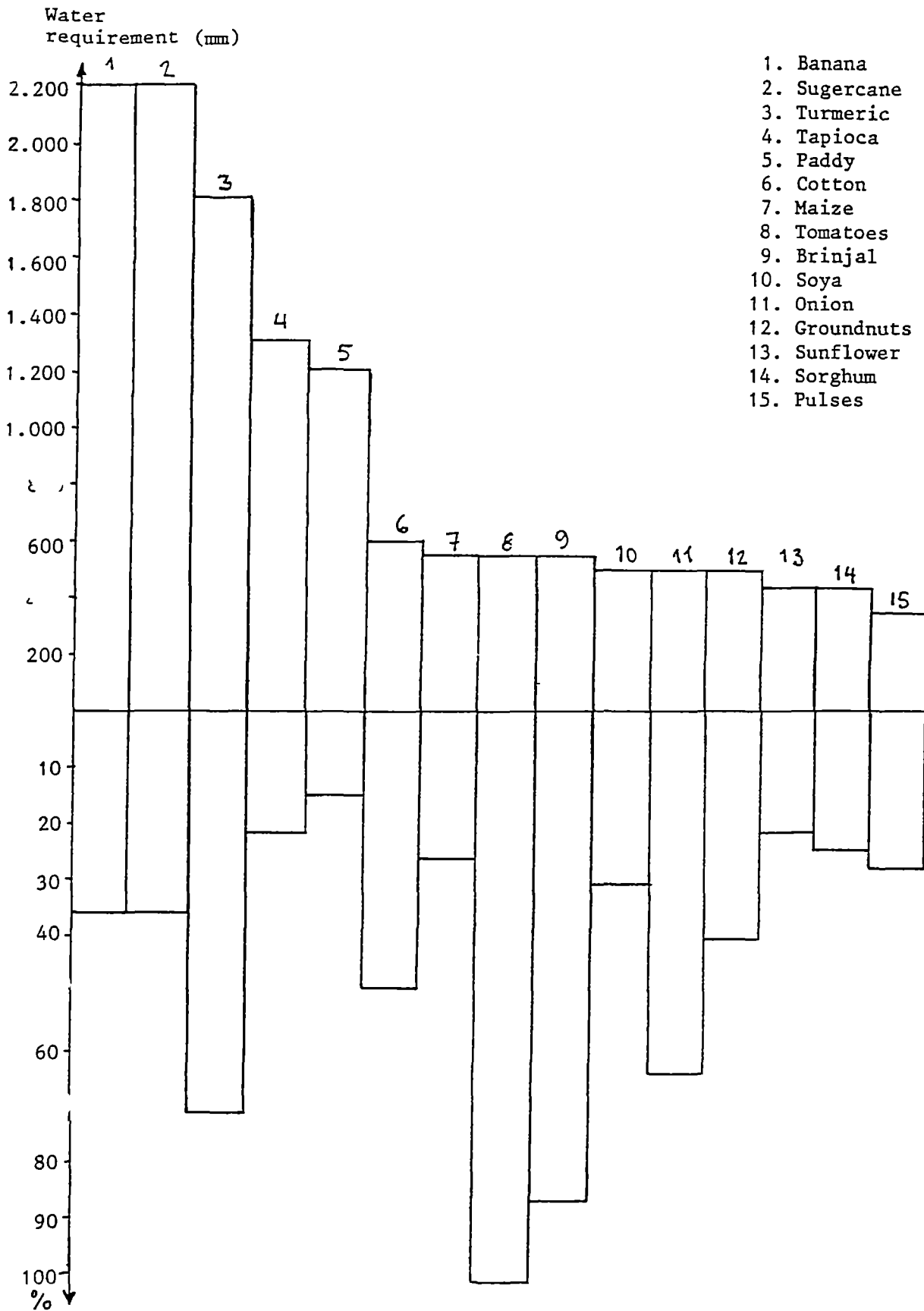


Figure 4. Diagramme illustrating differences in amounts of water required to grow different crops (top part of figure) and relative return per volume of water used. Diagramme based on information and calculations carried out at Tamil Nadu Agricultural University, Coimbatore, India.

# **Gender and Wetlands Management: Issues and Challenges in Southern Africa**

**by**

**Tabeth Matiza**



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**Wetlands Programme Coordinator  
IUCN Regional Office for Southern Africa.**

**Paper Prepared for the Workshop on "Gender and Water Resources Management. Lessons Learned  
and Strategies for the Future"; Stockholm, Sweden, 1st - 3rd December, 1993.**

**Note: Views Expressed in this Paper are Purely the Author's views and Do Not Reflect the views of IUCN.**

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# **GENDER AND WETLANDS MANAGEMENT: Issues and challenges in Southern Africa.**

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## **Abstract:**

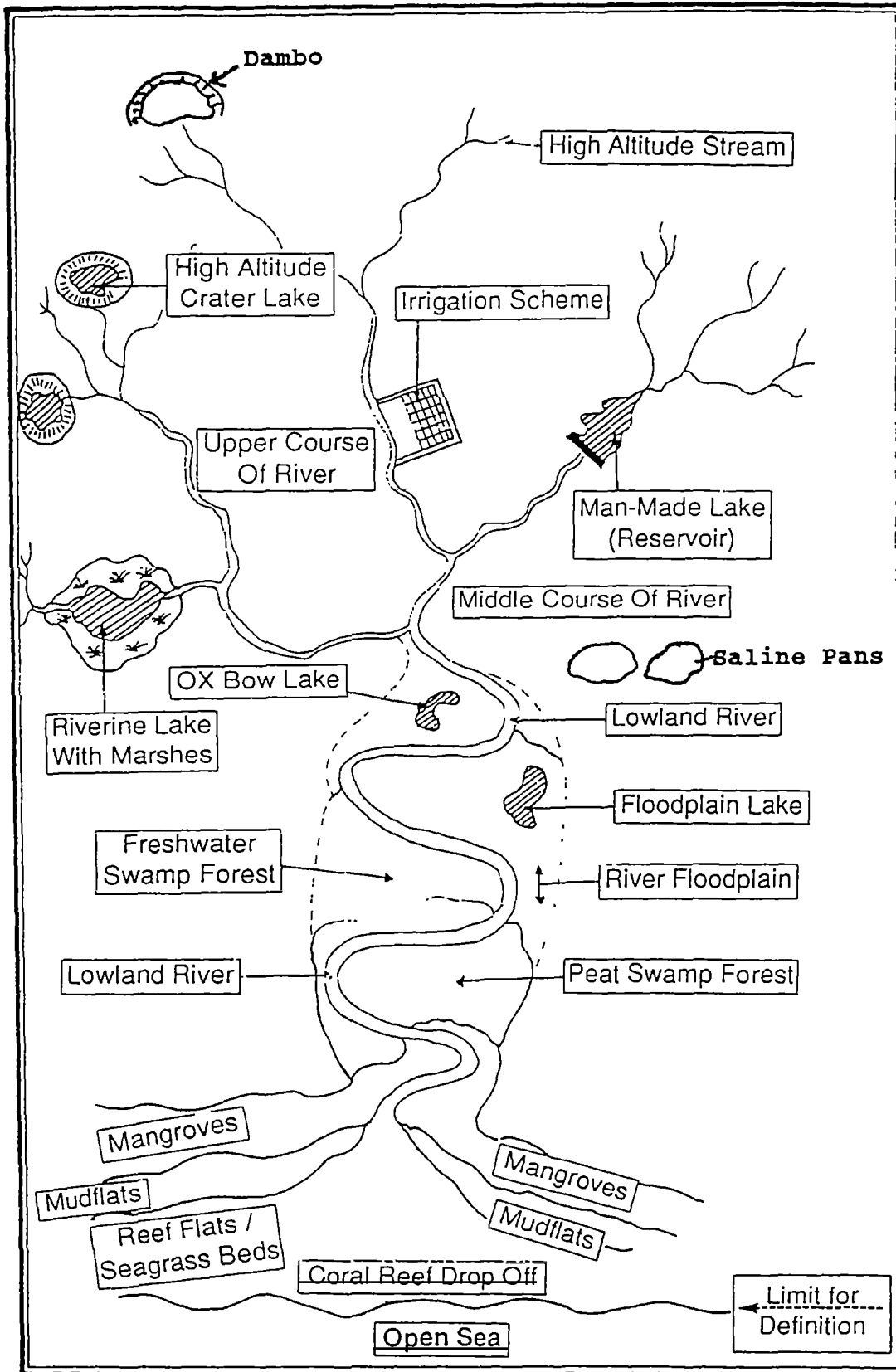
*Wetland ecosystems constitute a very important resource for rural development and contribute significantly to the national economies of Southern African nations. A number of water resources, fisheries, wildlife management, tourism and agricultural projects and programmes are based on wetland resources. Stereotype gender aspects in division of labour, access to and responsibilities on wetlands resources exist in many rural communities. The aspect of gender and wetlands management have not been studied in Southern Africa. Infact, the understanding of the gender concept is very limited and very few people are trained in gender roles analysis. This has result in the neglect of gender roles in wetland projects and programmes development.*



1. Introduction.

The term wetland is a word generally used to describe various forms of landscape characterised by wetness. There are about 50 wetland definitions and all these can be classified into either broad or narrow definitions. The Ramsar Convention (1971) definition which defines a wetland as an 'area of marsh, fen, peatland or water that is static or flowing, fresh, brackish or salt, including areas of marine, the depth of which at low tide does not exceed six metres' is very broad and widely used. This definition encompasses quite a wide range of landscape. It encompasses reef flats and seagrass beds in coastal areas, mud flats, mangroves, estuaries, rivers, freshwater marshes, swamp forests, man-made and natural lakes, artificial impoundments, dambos, as well as saline marshes, lakes and pans (figure 1). The narrow definitions on the other hand look at wetlands as 'ecotones', i.e. areas which are transitional between terrestrial and aquatic environments and where waterlogging of the soil causes the development of a characteristic vegetation (Davies, J. and Claridge, C. F. 1993). In addition to these numerous definitions, various wetland classifications exist. Some of these classifications are based on geographical location while others are based on water quality and mode of wetland formation.

**Figure 1: TYPES OF WETLANDS**



**Source: Davies, J. and Claridges, G. (eds), 1993**

2. The Importance of Wetland Ecosystems:

Wetlands are very important ecosystems providing numerous benefits to communities living around them. Wetlands perform very important functions, provide numerous products and are centres of biological diversity. They perform very important hydrological functions in groundwater recharge and discharge, flood and erosion control, sediment and nutrient retention. In addition to these functions, wetlands are also very productive. Wetlands provide water for human, livestock and wildlife consumption and development; pasture for livestock and wildlife; fertile soils for agriculture; a major harvest of fish protein and important populations of wildlife (Table 1; Figure 2). Wetlands are also becoming more important for the biodiversity they support. The products provided by wetlands ecosystems are very essential to both rural communities and national economic development.

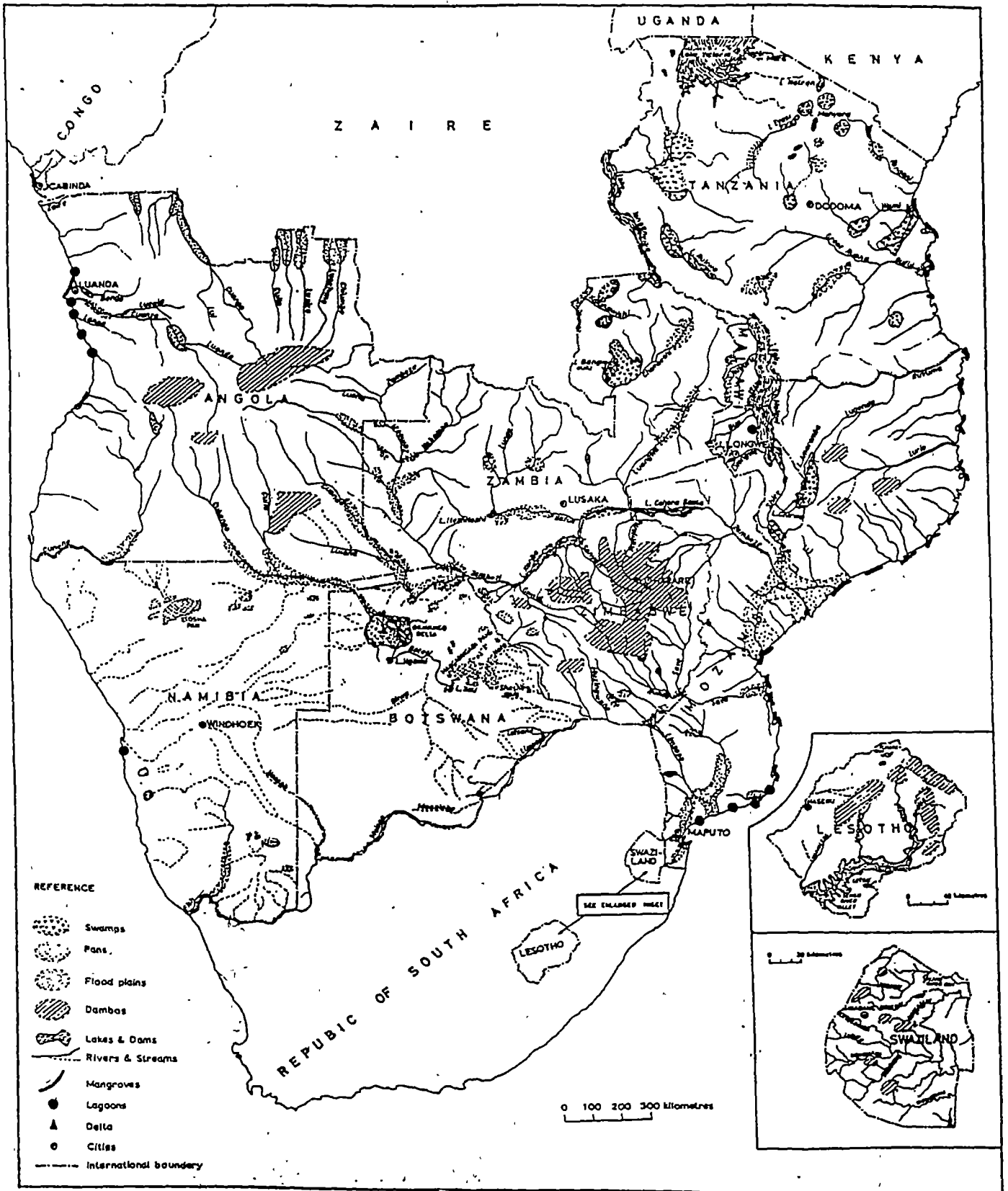
Wetland products have been exploited by rural communities for centuries and several communities have developed stereotype gender patterns of wetland resource use and allocation (figure 2). Despite the changes in intensity of resource use and mode of resource exploitation through time, the gender roles stereotypes in wetland resource use and allocation has not changed much.

Table 1:                    Some of the Values of Wetlands:

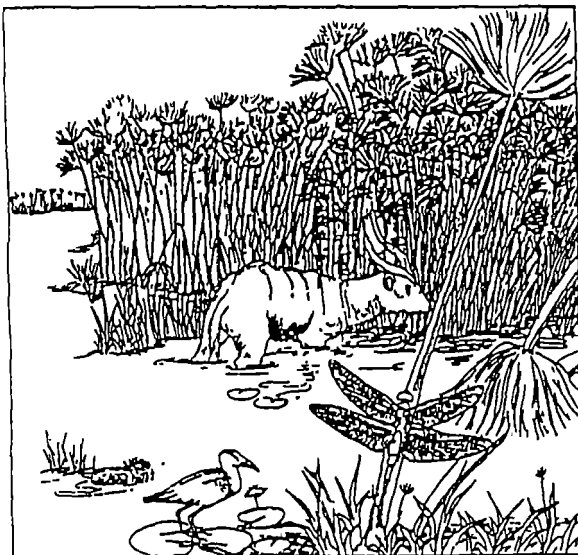
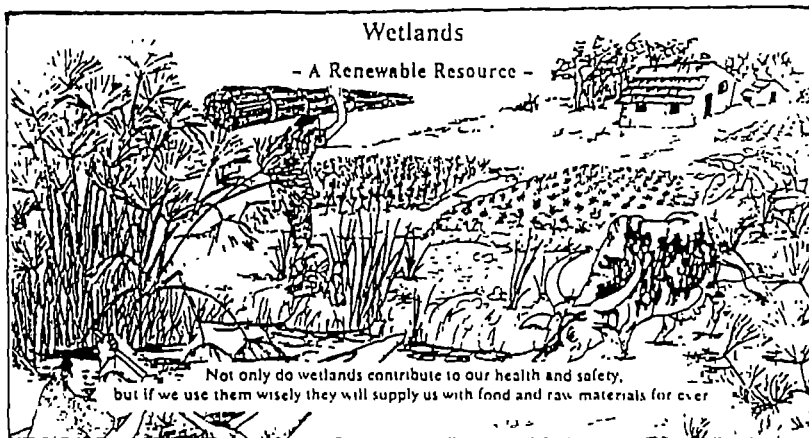
Products	Functions
Forest resources Wildlife resources Fisheries Forage resources Agricultural resources Water supply	groundwater recharge groundwater discharge flood & erosion control toxicant & nutrient retention water transport recreation/tourism

Source: Dugan, P.J. 1990

# WETLANDS OF SOUTHERN AFRICA



**Figure 2: Wetland Benefit and Uses.**



**Source: Wetlands of Uganda, National Wetlands Conservation and Management Programme; Awareness Booklet.**

3. Gender Perceptions in Southern Africa.

Gender issues in natural resource utilisation and management are topical issues in Southern Africa and the world at large. It is now accepted that natural resources conservation and management can not be achieved without the involvement of both men and women. In fact, gender roles analysis is now considered to be an integral component of the socio-economic factors that have significant implications for the success of natural resource conservation and sustainable development. However, the way gender aspects are treated in Southern Africa is largely dependent on the individual's perception and understanding of the gender concept. Although the concept is widely used in the region, it is not well understood. Many people consider gender to be synonymous with women. This narrow perception and limited understanding is reflected in various research papers whose theme include gender issues but goes on to focus on women, ignoring the learned behavioural differences between men and women and the gender roles which classify actions, tasks and responsibilities according to sex in a given community or household.

This limited understanding is not unique to Southern Africa but is shared throughout the African continent. Reflections on the evolution of gender issues in Canadian International Development research do indicate that the theoretical development of the gender concept is closely related to the issue of women (Thomas, P.F. 1991). The gender concept evolved from the Women in Development (WID) concept which later became Women and Development (WAD) and now Gender and Development (GAD). These shifts in approach were necessitated by the need to consider both feminine and masculine roles, responsibilities and expectations in a society or household. The current Gender and Development approach is not concerned with women only but with the social construction of gender and the assignment of

specific roles, responsibilities, and expectations to women and men (Thomas, P. F. 1991). This meaning of gender roles approach have not been fully appreciated in Southern Africa.

4. *Gender Issues in Wetlands Management:*

Issues of gender in wetlands resource management have not been well studied in Southern Africa. Wetlands, like many other natural ecosystems, constitute a very important source of natural resources, and the communities living in and around them significantly depend on them for survival. These communities have, over the years developed intricate patterns of wetland resource use. Production systems on fishing, hunting and gathering, and agriculture were developed (figure 2). The logic of these production systems is embodied in the set of interconnected relationships which underlies the way a community organises access to the means of production, to labour, and the distribution of the product. This is largely dependent on a complicated web of reciprocal obligations, kinship and sexual division of labour (Crehan 1985). Access to resources is also often organised through kinship, sexual division of labour and type of production. It is on the basis of these traditional kinships, sexual division of labour and type of production that wetlands resource use stereotypes were developed. Stereotypes in agriculture, fishing, hunting and gathering are known to exist throughout Southern Africa.

Although research has established that the issue gender cut across all aspects of development, gender issues have not been accorded the attention they deserve in most development initiatives. In Southern Africa, wetlands constitute a key resource for economic development. The region's water resources development, freshwater fishery, irrigation agriculture, hydropower and the world renowned

wildlife estates and tourism are developed in/or dependent on wetlands. The fisheries, agricultural, wildlife and tourism potentials of wetlands in Southern Africa is well documented (Chabwela, 1992; Mpemba, 1993). Documentation on gender issues in wetland development is not readily available in Southern Africa as the subject has not been extensively studied. Although it is known that both men and women do utilise wetland resources, gender roles analyses have not been carried out. Because of this dearth of information, the views expressed in this paper are based on personal field observations and experiences of the author.

#### 4.1: Water Resources Management.

Water constitute the most important component of a wetlands ecosystem. Since this workshop is on Gender and Water resources development, this paper will not discuss the issue of gender in water resources management since this is covered elsewhere in the workshop agenda. However, it is important to mention that, large scale water abstractions from wetland ecesystems does have numerous impacts on wetland communities, affecting the gender roles in wetlands resource use.

#### 4.2: Fisheries Management and Development:

By virtue of the proximity to a major harvest of fish protein, most wetland communities are involved in fishing. A lot of the households are involved in fishing as an occupation and fish is an important part of the diet. Stereotypes on sexual division of labour and differences in fishing gear by sex in traditional fishing have developed in many fishing communities. The sexual and age division of labour, modes of fishing and allocation of fishing zones may still exist among many fishing communities of Southern



Africa although generalities are difficult to make. In most fishing communities in Southern Africa, deep water fishing in dugout canoes is usually done by men and young boys while women are heavily involved in the post harvest activities such as processing and marketing of fish and fish by products. In the Kaonde community (Zambia's Western Province) Crehan, (1985) established that fishing is dominated by men although when poison is used, women and children participate. In the same community, smoking of fish is also mainly done by men. However, personal experience and archival traditional models of the Lozi people in Zambia's Western Province do show that women and young girls were also involved in fish harvesting especially in shallow water fishing using trap, baskets and sand weirs. This zonation of fishing grounds by gender may still exist in some communities especially around swamps, floodplains and along rivers. In Zimbabwe's Lake Chivero and Manyame fishery (a few kilometres south of Harare), women are also involved in hook and line fishing activities in addition to processing and marketing of fish. This may be true for other fisheries around the region.

Gender roles are a dynamic feature which changes with population growth, production systems and time, however, traditional stereotype gender roles are still pertinent and evident in traditional (artisanal/subsistence) fishery. These gender roles should be considered in fisheries projects and programmes are being development. Before the construction of lake Kariba, most of the Mid-Zambezi valley communities (both men and women) were involved in flood recession agriculture and traditional fishing, using traps, baskets, hook and line and weirs. The construction of the dam disrupted the traditional pattern of resource use. After the dam was filled, artisanal and commercial fishing were developed to absorb some of the displaced population. In the traditional culture of most African rural communities, men are regarded as bread winners in the

household, and once an activity is commercialised, men usually displace women and become the main beneficiaries of the development. This is reflected in the set up of the Lake Kariba artisanal fishery which is based on temporary villages, gill nets, licences and contracts. This set up has sidelined fisherwomen and reduced the participation of women in fish processing and marketing thereby denying them an equal opportunity to benefit from the fisheries industry.

Commercial (industrial), ornamental/sport and semi-subsistence fisheries have developed in most Southern Africa's wetlands. Since commercial and ornamental/sport fishing are carried out in deep water and is run on commercial basis, very few people from the surrounding communities are involved. The employment generated by this type of fishery is often taken by men who by tradition are experienced in deep water fishing. Men are the predominant workers and beneficiaries in the Lakes Kariba, Tanganyika, Bangweulu and Malawi fisheries. In fact, women are usually not counted in the employment figures in the fisheries industry. Investment in artisanal fishery in terms of capital, fisheries extension and education is often directed towards fishermen and fisherwomen are ignored. In those communities where fisherwomen still exist, gender blind extension and education exist and can cause irreversible damage to the fishery, for it is the women, who often fish in shallow waters where fish breed, are not taught about fish conservation. In spite of the gender sensitivity of aquaculture development, a study on gender issues in fish farming in Chibote (Zambia), indicated that aquaculture ideas were first sold to men before they reached the women of Chibote (Mbozi, E.H [undated]).

#### 4.3: Agricultural Development:

In addition to fishing, agriculture is perhaps the second important activity among most wetland communities. Because of the nutrients they trap, wetlands provide very fertile soils for agriculture. Flood recession agriculture and dambo cultivation constitute the most important activities. Where large flood plains exist, these have been turned into large scale rice and sugar production schemes (Kafue Flats and Shire valley). Depending on culture, type and size of wetland and range of activities, stereotypes in wetlands cultivation do exist in Southern Africa. These are mainly confined to small wetlands such as dambos and very remote areas like Bangweulu swamps. For these communities living within or near wetlands, wetland agriculture based on flood recession or small scale irrigation is very important with rice and vegetables as the main crops. In Zimbabwe, dambo cultivation is a very important activity for most rural communities. Stereotypes on dambo cultivation in Zimbabwe, Zambia and Malawi indicate that dambo cultivation was/is a women's activity. Since dambos were regarded as waste lands, they were not considered as important agricultural areas but women found them useful for vegetable gardens to supplement household food security. These wetlands were used to grow rice, tuber crops and vegetables while men concentrated on dryland cash crops.

Trends in the utilisation of dambos in Zimbabwe show that the stereotype of cultivation and access to dambo garden have changed in some areas and countries as soon as markets for vegetables and green mealies were developed. Although a considerable proportion of the dambo cultivators are women, access to dambo gardens changed as vegetable gardens became an important economic activity especially around major towns. Further away from major urban centres, wetland garden cultivation is still identified with and dominated by women who grow vegetables for household consumption and

for sale to the local market. In these communities, men assist women with garden fencing and construction of wells, while the control over the garden rest on women. However, for those dambos found in communal lands around towns, women have been displaced by men who are growing vegetables and early maize for the urban market. This is true for Seke, Chinamora, Chiota, Zvishavane and Svosve communal lands in Zimbabwe. Although women still participate in dambo cultivation by providing labour, they have lost their control over these gardens. Infact, the importance being attached to dambo cultivation as the key to rural development and food security in Southern Africa is going to hasten the women's loss of access to and control on dambo gardens unless the issue of gender is addressed in the planning and development of dambo cultivation policies and programmes. However, deliberate efforts to target women in wetland cultivation are being promoted by various non-governmental organisations such as Africa 2000 Network, Zimbabwe Women's Bureau and others.

#### 4.4: Wildlife Management and Tourism Development:

Apart from the provision of important natural resources for fisheries and agricultural development, wetlands in Southern Africa support large populations of wildlife from which the region's world renowned tourism industry is based. By tradition, hunting was/is a male affair, while fruits and edible wild plants collection was done by women and children. This is the stereotype often associated with the exploitation of wildlife and plants among most rural communities in Southern Africa.

Because of wetland biodiversity, protected areas have been gazetted and developed around many wetland ecosystems and many more are being planned. Examples are; Etosha Pan, parts of Caprivi Strip (Namibia), Moremi and Chobe

(Botswana), Kafue and Bangweulu-Chikuni (Zambia), and recreation parks around artificial impoundments (Zimbabwe). A proposal to develop a Southern Africa Wildlife Sanctuary has been proposed for the wetlands of the Zambezi river upstream of Victoria Falls. In many of these cases, wetland communities are denied easy access to the resources provided by these wetlands. Although it is often argued that affected communities do still get limited access to natural resources in some protected areas, the hassles of obtaining a licence to access these resources are unconquerable to many people especially the poor and women. Even for those resources that do not require licences, the harassment that women and children face in their attempt to exploit forest and water resources is often humiliating and deterrent. In Kasanka National Park and the surrounding Kafinda Game Management area of Bangweulu swamps, chief Chitambo's community complained of constant harassment from the park management (personal communication, 1992). Very often it is the women and children who are affected most.

In many of the wetland related protected areas, tourism and wildlife harvesting have been developed and it is quite evident that a majority of these developments have not accorded the issue gender roles the attention it deserves. Considering the proposed benefits to the affected communities in the Proposed Southern Africa Wildlife Sanctuary (PSAWS) area, it is very clear that gender issues and roles were not fully considered when the concept was being developed since the project has not provided measures to ensure that both women and men will benefit and participate in the project. The proponents of the scheme argue that the scheme will directly benefit the communities through *"direct employment in the management and protection of the PSAWS; direct employment opportunities in tourism and other aspects of the wildlife utilisation industry; employment by supplying of foodstuffs and other locally available materials such as reeds, thatching grass and*

firewood; contracting with tourist establishments as game guides, boatmen, professional hunters and artisans; allowing continued wildlife utilisation (fishing and hunting) under licence; passing on to villagers the meat derived from culling operations; establishment of a training institution to prepare people at all levels of entry into the industry; and manufacture and supply of handcrafts and curios to the tourism industry". Although a number of the proposed activities can be directed towards women, women are bound to be displaced once these traditional women activities are commercialised. This is true for many of the already existent projects and programmes. The management and sustainable utilisation of lechwe in Kafue flats and Bangweulu swamps have not really addressed gender issues. These projects are designed to benefit the communities through management and harvesting of wildlife. Although women's clubs and training courses in jam making, sewing, and vegetable gardening, have been established as components of the Kafue Flats and Bangweulu Swamps projects, these activities are marginalised from the main activities of the projects. Men are hired as scouts, and provide labour for the guest houses run by the projects. This is supported by personal observations at Chikuni Camp (Chiundaponde Village - Bangweulu), camps in Kasanka National Park and Lochnivar (Kafue Flats) where about 90% of the employment generated by wetland projects is taken by men. Although the role and participation of women was considered when the Kafue Flats and Bangweulu Wetlands projects were designed, the current approach of marginalised women's clubs seem not to be fully addressing gender issues. This may also be true for the ADMADE Programme (Zambia), Campfire Programme in Zimbabwe and many other community programmes in the region.

5. CONCLUSIONS AND RECOMMENDATIONS:

Although gender roles analysis is now accepted as a key element to the success of natural resources and biological diversity conservation, personal experience and observations have shown that these roles are rarely considered when wetlands projects and programmes are designed in Southern Africa. There are many reasons why gender aspects in wetlands management have not been addressed in Southern Africa. First, the concept of gender and the socio-economic structures of rural communities and their main production systems are not well understood and appreciated by policy and decision makers, planners and natural resource managers. Fundamental socio-cultural issues of traditional culture and women empowerment have often come up in arguments for gender sensitive development and this seen to be the bottleneck in the integration of gender issues in wetlands management and development. In addition to lack of appreciation of the important roles women play in wetlands resource conservation and management, many planners and managers lack the skills and tools to incorporate gender analysis in their programmes and projects.

Lack of women participation at the management level, is another aspect that is very apparent in Southern Africa. This may be due to various reasons such as traditional culture, nature of activity, training etc. In Zimbabwe, where the government has made a deliberate policy of advancing women, one finds that there is a general tendency by women to prefer certain professions than others thereby limiting their participation. This has been the case in wetlands conservation and management. Despite the deliberate efforts by the IUCN Wetlands programmes in Southern and East Africa to involve women in various projects and programmes, women participation and interest in wetlands issues at a management level is very low and

this is an issue of great concern to many development and conservation agencies in the region

In view of the widespread limited participation of women in wetlands management and development, and the gender blind projects and programmes in Southern Africa, it is important that:

Gender perceptions be corrected and improved through gender awareness campaigns.

Gender roles research be carried out to establish the current assignments of specific roles, responsibilities and expectations of women and men.

planners and wetlands resource managers be trained on how to identify and address gender issues

gender issues be considered as an important variable in the all wetlands projects cycle including monitoring and evaluation.

It is my belief that and understanding the evolution of gender roles and responsibilities, their dynamic qualities, the social status attributed to them and how they affect or are affected by the establishment of a wetlands project or programme can ensure that the practical needs of each member of the community are met. This will in turn encourage and ensure sustainable utilisation and management of wetland resources.



## REFERENCES:

- Chabwela, H.N., 1986, Wetlands as Potential Sites for Future Tourism Development, in Jeffery, R.C.V., etal. Managing the Wetlands of Kafue Flats and Bangweulu Basin, Proceedings of the WWF-Zambia Wetlands Project Workshop, Musungwa Safari Lodge, Kafue National Park, Zambia, 5th-7th November, 1986, IUCN, Gland, Switzerland.
- CIDA, [undated], Women id Development: A sectoral perspective, Public Affairs Branch Report, Hull, Quebec.
- Crehan, K. 1985, Production and Gender in North-Western Zambia, in Food Systems in Central and Southern Africa, edited by J. Pottier, 1985, School of Oriental And African Studies, University of London.
- Davies, J. and Claridge, G. (eds), 1993, Wetland Benefits: The potential for wetlands to support and maintain development, Asian Wetland Bureau No. 87, IWRB Special Publication No. 27, & Wetlands for the Americas Publication No. 11.
- Dugan, P.J., (ed), 1990, Wetland Conservation: A Review of Current Issues and Required Action, IUCN, Gland, Switzerland.
- Gibson, J. 1993, The Proposed Southern Africa Wildlife Sanctuary: Why it will Work, An article published in Wildlife Watch in and around Botswana, Vol. 1, No 1.
- Jeffery, R.C.V., Chabwela, H.N., Howard, G. and P.J. Dugan, 1992, Managing the Wetlands of Kafue Flats and Bangweulu Basin, Proceedings of the WWF-Zambia Wetlands Project Workshop, Musungwa Safari Lodge, Kafue National Park, Zambia, 5th - 7th November, 1986.

Kipuri, M. O., 1991, Age, Gender and Class in Scramble for Masailand, in Nature and resources: Managing our Common Resources, Vol. 27, No. 4, Partheon Publishing, Unesco.

Kokwe, M. (ed), 1993, Sustainable Use of Dambos in Southern Africa, Proceedings of the Regional Policy Workshop, Lusaka, Zambia, January, 1993.

Machena, C. 1986, Identification of the Needs and Problems of the Local Black Fisherman in the Kariba Fishery (Zimbabwe), in the Proceedings of the International Conference on Fisheries, University of Quebec, Rimouski, Canada, August 10-15, 1986.

Matiza, T. and Chabwela, H.N., 1992, Wetlands Conservation Conference for Southern Africa, Proceedings of the Southern African Development Coordination Conference held in Gaborone, Botswana, 3-5 June, 1991, IUCN, Gland, Switzerland.

Mbozi, E. H. [undated], Integration of Gender Issues into Fish Farming in Chibote, Zambia, FAO Aquaculture for Local Community Development Document, GCP/INT/436/SWE.17

Ministry of Water, Energy, Minerals and Environment Protection, [undated], Wetlands, National Wetlands Conservation and Management Programme, Kampala, Uganda.

Mpemba, E.B., 1993, Wildlife Resources and Tourism in Wetlands of Tanzania, in Kamukala, G.L. and Crafter, S.A. (eds), 1993, Wetlands of Tanzania, Proceedings of a Seminar on the Wetlands of Tanzania, Morogoro, Tanzania, 27-29 November, 1991, IUCN, Gland, Switzerland.

Personal Communication (Chief Chitambo IV), 1992.

Thomas P.F., 1991, Women and Natural resource Management: An Overview of the Activities of Canadian Governmental and Non-Governmental International Development Organisations, Unpublished report, IUCN, Gland, Switzerland.

Zwart, G., 1991, Gender Issues in Agriculture in Zimbabwe: with special reference to the Environment, An unpublished paper presented at the IUCN Workshop on Human Aspects of Conservation, Harare, 17-20 November, 1991.



**Gender, Water, Environmental Health - An  
Inventory of SIDA-supported Programmes  
(Executive Summary. Full report available  
separately)**

**by**

**Eva Poluha**



**GENDER, WATER, ENVIRONMENTAL HEALTH -  
AN INVENTORY OF SIDA-SUPPORTED PROGRAMMES**



June 1993

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## EXECUTIVE SUMMARY

- At the end of the 1970's and the beginning of the 1980's reviews of SIDA's water sector revealed that participation of women in water and environmental health projects was negligible. SIDA's water strategy in 1984 was a conscious attempt to remedy this by demanding that, henceforth, emphasis should be given to popular, especially female, participation in all the projects and programmes. The present study was commissioned to find out what, if any, effect the change in emphasis had had on the concrete activities in the respective programmes and countries.
- Despite a large amount of written documentation about the respective programmes it was found that hardly any information existed about the form and content of the step-by-step contacts between projects and target populations. Furthermore, almost none of the information on people's participation was disaggregated according to gender. This lack of, for the inventory basic, information made it necessary to delimit the study to projects in which people, easy to contact for interviews, had worked. As a result, the study deals with the SWACH project in India, the Kwale project in Kenya, the HESAWA project in Tanzania and the SWIP project in Uganda.
- It has been found that all the SIDA-supported programmes exhibit certain similarities with regard to **objectives** and the **means** employed to obtain these. The objectives aim at improving the health conditions for and at reducing the work load of vulnerable groups - especially women and children - by providing water closer to the home. The means to obtain these objectives include involvement of local people and local institutions in the planning process, strengthening the capacity of local individuals, especially women, and choosing and using simple techniques.
- In the inventory it was found that in the water programmes, pre-assessments of people's own needs and priorities, local disease patterns and people's economic, cultural and social capacities are not done in any of the countries. Instead ready-made packages allowing for comparatively little flexibility are offered to the target populations which can accept or reject the offer.
- Social mobilization is emphasized in all programmes as something that should be carried out before drilling and other material interventions are introduced. Part of the mobilization message consists in informing the local population about the close relation between dirty or insufficient water and bad health - in SWACH, in India, emphasis is also put on explaining about water and guinea worm; the other part of the message deals with the labour and financial inputs expected from the local people to facilitate drilling and the erection of handpumps or protection of springs etc. However, during this phase, people are very seldom informed that they will be responsible in the future both financially and for the maintenance of any installations although this should be part of the message. They often believe that the government will continue serving them. A frequent problem encountered is that mobilization is very time-consuming, the time needed differing from area to area and therefore difficult to predict, while drilling is much faster with the time span required for each location easier to foresee. Although mobilization of necessity must precede interventions, the different **modus vivendi** of

mobilizers and drillers have created clashes in all programmes, with drilling teams intervening before people have been mobilized.

- The social mobilization teams are trained for the purpose in all the programmes. In India they are made up of local people recruited for the specific purpose while they, in the other three countries, are made up of project and/or government personnel. Women are part of all the teams. In India half the members are women. In the other countries their number is related to the number of women employed in relevant positions. Employment of women in government positions is rare, surrounded with problems, in all countries.
- In general, SIDA's strategy to involve women and men, and thereby develop a gender-aware, popular participation in the water and environmental health programmes has included the following:
  - \* to attach great importance to the choice of simple technologies so that maintenance is possible at the community level;
  - \* to underline the importance of social mobilization and open meetings so that women and men become aware of the project and its messages, are reached by it and have a chance to participate in and influence it;
  - \* to require that women are members of the water user committees together with men since women, generally, give higher priority to a well-functioning water system than men;
  - \* to see to it that women, along with men, are elected to the new jobs and positions created within the project and that women and men are trained to carry out these jobs properly;
  - \* to train women in jobs that are already their traditional responsibility, like caring for the health of family members and improve the capacities of specialists like the TBA's.
- With the above strategy SIDA has succeeded in accomplishing the most general goal of the projects, namely to provide the people with better quality water at a closer distance from home.
- The more complicated objective, of increasing popular participation in the programmes, has also met with considerable advance. Strict adherence to simple techniques and emphasis on human resources development has made it possible to train and involve women and men in especially operation and maintenance. This gives hope for sustainability. As compared to the beginning of the 1980's SIDA is now on the right track to reach its objectives.
- The inventory also points to some weaknesses in the hitherto applied strategy. First, that the participation of the people is very limited during the pre-assessment and early implementation stages. In the best of cases local people are trained to handle operation

and maintenance. Secondly, the involvement of women is relatively weak, especially in relation to the very strong emphasis that SIDA has given the issue.

Popular participation is weak in the early stages of the projects because these are often designed, like ready-made packages, thereby only allowing for little influence and flexibility. Furthermore, the people are often viewed as the "target" of the activities, as people who must be taught what to do. Thus, they are not expected to take initiatives or take on responsibility until later on.

The limited involvement of women can be attributed to three causes:

\* First of all, people within projects and ministries are not aware of the limited participation of women because gender disaggregated data are lacking. This goes with an absence of a monitoring system that seeks for explanations about **why** and **how** women/men can/not participate and why/how things have become the way they are.

\* Secondly, discussions about the water programmes and election to committees as well as to jobs usually take place during general community meetings. At these meetings fewer women than men attend; older men speak more than younger; and the latter speak more than women. Thus, to hear the opinions of women, it is not enough to hold general meetings with the communities, other means must also be sought.

\* Thirdly, the recruitment to the various positions created within the projects is skewed. In general it was found that greater appreciation is attached to technical training and care of motors than to health and care of human beings. While women are found in positions of lower rank, less pay and caring roles, men learn techniques and motors and have positions of authority. The most frequently forwarded reason for this state of affairs is that "local culture" prevents women from participation. In no case was it clear **who** represented this local culture. Practical problems, like overnight courses, can always be solved. However, a proper gender strategy must be flexible and based on what women and men themselves want to do. Thus a basic prerequisite for any project is to find out what women and men of different categories want to do and what they are already capable of doing.



**Gender and Management Issues in the Water  
Sector. Women and Management - The Case of  
Rural Botswana**

**by**

**Mayling Simpson-Hebert**



## GENDER AND MANAGEMENT ISSUES IN THE WATER SECTOR

### WOMEN AND MANAGEMENT - THE CASE OF RURAL BOTSWANA

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In rural Botswana, when the groom's relatives arrive to fetch the bride at the conclusion of the festive day-long wedding celebration, they come to "ask for water"(1). This is the poetic and symbolic expression of a cultural reality. This bride, like most women in rural Botswana and other rural areas of the world, will become the water-bearer for her family. However, carrying water does not begin at marriage for women in Botswana. From the time they are old enough to carry a bucket, children of both sexes are also household water carriers.

So how involved are the women of Botswana in the planning, operation and maintenance of their village water supplies? To what extent do they occupy higher posts at District and Central levels, and what are their chances for advancement in a sector so vital to their lives?

The Government of Botswana, with assistance from the Swedish International Development Authority, has provided safe reliable supplies of drinking water with reasonable access to 80% of rural villages. This is a remarkable and commendable achievement in a country where 20 years ago nearly every village used traditional and relatively unsafe sources, such as ponds and dug wells. As Botswana has very little surface water, the programme has focused on an engineering solution: the sinking of boreholes near villages and piping the water to several standpipes evenly distributed around the village. Women and children come to the standpipes with buckets and carry the water home. The water is stored in containers in the home.

Villagers are grateful for their water supply improvements. The drudgery of finding water in this drought-prone country and carrying it long distances has been greatly reduced (2). But conditions are still not ideal. A recent knowledge, attitude and practice study in Botswana (3) shows that water-related hygiene practices in the home are generally not good, that water stored at home becomes highly contaminated and that standpipes are not fenced to keep them clean nor are they repaired quickly when they break down. Households still fetch water on average seven times per day and only those homes very close to a standpipe have increased their consumption of water for hygiene purposes. Long queues at standpipes still waste time for about half of the rural households and tempts them to return to more convenient unsafe sources (2). These factors have resulted in the rural inhabitants not receiving the health benefits from their new water supply systems (3).

Now Botswana is embarking on a programme to rehabilitate and augment the older water supply systems and to redress the problems uncovered in the recent KAP survey. As a result, questions of community participation and women's involvement are naturally arising. It is widely recognized that improvements both in the water supply systems themselves and in maintaining the cleanliness of the water once it leaves the standpipes is largely in the domain of women.

Achieving women's participation in Botswana's future programme on water supply, sanitation and hygiene will be challenging. Obstacles to women's participation in Botswana that will need to be overcome have a familiar ring. The following points, taken from a 1991 study of women's and men's participation in the water sector in Botswana (2), sums up the situation there and for many other parts of the world as well.

- Women are not involved in the initial planning stages of water supply schemes because at community level it is mainly men who make decisions through the Kgotla (customary meeting place).
- Women participate in the water sector mainly as Water Supply Operators (WSO) who are part of the industrial class cadre. The position of WSO is relatively financially less rewarding than the professional and managerial ones which are occupied mainly by men.
- Very few women go for technical training, hence women lag behind in technical skills. Their role becomes restricted to the clerical pool where there is very limited scope to learn technical skills.
- Culture and tradition have fashioned out the Botswana society in such a manner that there is a very strong correlation between type of work and gender. The division of sex roles of men and women is such that technical positions are occupied mainly by men, and women do the clerical jobs which give virtually no high level decision-making power.
- As very few women go for skills training in technical schools, very few of them can be absorbed in the technical, professional and managerial positions. Both men and women do not have any problem in adapting to simple basic technology. There is so much social resistance from men that they openly expressed that they are the ones better suited for technical work than their women counterparts. Even in cases where men worked alongside women, they (men) felt it was more of their job than anybody else's. Women on the other hand were not very confident that by taking technical jobs, they were at their rightful place. Even though they were performing the same, if not better than men, they still felt the position of WSO is mainly for men. Very few women were confident enough to recognize their own potential vis-a-vis that of men.

This same study shows, however, that these obstacles can be overcome. Policy makers were very enthusiastic about the idea of greater women's participation in the water sector. Those who had women working in their employ said that women excel and there is no reason why they should not be recruited. The few women role models that do exist



in the sector demonstrate that women, given equal training and employment opportunities with men, can perform the same, if not better, than men.

To enhance women's participation in the water sector in Botswana, and largely elsewhere, the following steps would have to be taken.

- Women would have to be encouraged and recruited at the village level to join the technical field. Strong campaigns to give women information on available technical jobs would need to be launched. The campaign also needs to highlight the achievements of a few women role models in the sector.
- Once women's interest in technology is aroused, training and employment opportunities for them would have to be offered.
- There must be equal opportunities for women to advance through the system as their male counterparts do. Agencies would have to make an effort to seek out and promote women who qualify for advancement.
- The government would need to keep a data base on women's employment and advancement and should hold gender-sensitive planning workshops for senior decision-making men and women.
- Attention would need to be given to building the confidence of women to take on technical positions. Certain training courses could be offered to women only that would concentrate not only on technical skills but also on assertiveness and overcoming inhibitions.
- On a long term basis there must be campaigns through all the media so that women can see their own potentials rather than accepting a stereotyped notion that men must do all the planning in the water sector. Women would need to be encouraged to develop an identity which is not submerged in their roles as girls, wives and mothers.
- More attention would need to be given to methods of involving women in village level decision making.
- Women's participation at the village level as well as their recruitment and advancement within water departments should not be taken for granted but should be carefully monitored.

Difficulties in involving women in the water sector have been recognized for a long time. In 1983 UNDP launched a research and development project, called PROWESS (Promotion of Women in Water and Environmental Sanitation Services), to find solutions to this problem. The result is a set of training tools for community participation that has a particular goal of involving women in planning and decision making. These methods have been shown to be effective in achieving women's participation in a wide variety of cultural settings.

So now that the tools have been developed and experience in their application have been obtained, Botswana and other countries facing similar obstacles to women's participation in the sector have a resource that can offer a solution. The PROWESS project did not, however, address how to increase the employment and advancement of women in the sector, and that can only come from within countries themselves.

Results from Botswana's KAP study demonstrates what is known from many countries. Without the involvement of the main user of water supply systems, the women, systems will not be properly maintained and the health benefits of these systems will not be realized. The water sector requires the participation of women, not only at the community level, but at all levels. This requires a commitment from international agencies, bilateral donors and non-governmental agencies to continue to support women's participation in the sector. The case of Botswana demonstrates that the movement toward women's participation in the water supply sector is still in the early stages and the application of the methods to involve them more requires often a reorientation of priorities, such as putting people's development before the laying of pipes, and a commitment to sustain the effort. It needs to recognize that to involve women meaningfully at the community level, women should be involved and active at every level.

### References

1. Enge, Marianne 1985. Women in Botswana. Dependent yet independent. SIDA/Office of Women in Development, p. 12.
2. Natural Resource Services, 1988. Socio Economic Effects of Village Water Supplies in Botswana. Report to SIDA, p. viii.
3. SIAPAC-Africa, 1991. Water Hygiene, Environmental Sanitation and the Control of Diarrhoeal Diseases in Botswana: A Knowledge, Attitudes and Practices Study.

### Note

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**Building Gender Strategies for Flood Control,  
Drainage and Irrigation in Bangladesh**

**by**

**Helen T. Thomas**



**BUILDING GENDER STRATEGIES FOR FLOOD CONTROL, DRAINAGE AND  
IRRIGATION IN BANGLADESH**

Paper Prepared for:

Workshop on Gender and Water Resources Management -  
Lessons Learned and Strategies for the Future

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Paper Prepared by:

Helen T. Thomas

## Introduction:

This paper is not based on "formal" research conducted in Bangladesh, but on several year's of involvement in planning and implementing water sector program and project interventions as part of a Canadian International Development Agency (CIDA) team. This involvement has afforded me an opportunity to become familiar with a fascinating literature that has been attempting to bring together two very formally separated fields - feminist social impact analysis (Gender and Development/GAD) and hydrological engineering in a development setting. I have also had the opportunity to work on many occasions in Bangladesh and discuss with women activists, government officials and researchers the impact of the water sector interventions of donors agencies and the Government of Bangladesh (GOB) on those living with the extraordinary hydrological regime that is Bangladesh.

As a contribution to this workshop, I will present some background material regarding the circumstances and challenges governing the role of water as a resource (and threat) in Bangladesh and an overview of the past approaches to donor interventions in this sector. This will be followed by some conclusions drawn from the experience of trying to change these former approaches and to create a more people centred, gender sensitive methodology to plan, develop and manage water resources. These conclusions will be presented in the form of recommendations for planners and implementors of projects and programming to enhance the sustainable development and management of water resources, specifically in Bangladesh, and, by inference, many other areas of the world.

As my experience in Bangladesh has been based in the context of several consultancies for a donor agency, the analysis in this paper is presented in anecdotal form. The ideas and analysis presented are my own based on these experiences, and are not intended in any way to represent the position or policies of CIDA or the Canadian Government. I have attached a selected bibliography based on the materials I have found useful over the years, but there are also several CIDA and other donor agency

mission reports, monitoring and evaluation documents, which have been a collective effort of many individuals, to whom, with thanks, I also owe much of my knowledge and understanding.

**Background:**

Bangladesh lies within the deltaic plain of two of the world's great rivers, the Ganges and the Bramaputra (named the Jamuna in Bangladesh) which converge just north west of the city of Dhaka to form the Padma river. Another drainage system to the north and east of Bangladesh creates the Meghna river, which joins the Padma delta south of Dhaka. This confluence of the major "run-off" systems for the Himalayas forms a highly complex hydrological region with 24,000 kilometres of rivers, streams and canals covering seven percent of the country.

The impact of the hydrological regimes governing the flooding and subsequent drainage of the territory of Bangladesh is extremely important to all aspects of life in the country. The effective management of the water based resources derived from these river systems through structural intervention is greatly constrained, however, as only 7.8 percent of their catchment areas lie within the boundaries of Bangladesh.

Heavy rainfall during the monsoon season varies from an average of 1400 mm in the Northwest part of the country to over 5000 mm in the Northeast region. To complicate matters, the evidence appears incontrovertible that the river systems and the country's network of inland waterways are undergoing considerable change due to scouring and river bank erosion, and to siltation deposits which give rise to altered courses, and rising river beds. The speed of change appears, moreover, to be increasing and its consequences are genuinely alarming. Under these natural conditions Bangladesh lies in one of the most complex hydrological geographic regions in the world.

The country's water resources are characterized by two hydrological and climatologic extremes. During the monsoon season (May-October) water is in abundance, leading to varying degrees of

annual flooding. By contrast, in the dry season (November-March) water is scarce due to extremely low levels of precipitation and a drastic reduction in cross-boundary river flows, rendering the otherwise fertile arable land unfit for cultivation without supplementary irrigation.

In Bangladesh, flooding is a common, recurrent phenomenon and very much part of the normal cycle of the seasons. Settlements, infrastructure and cropping patterns are generally well adapted to the seasonal flooding. Nevertheless, crops are damaged when floodwater rises earlier, more rapidly, higher or later than 'normal'. Infrastructure, property and crops are damaged mainly by flash floods, exceptionally deep floods and/or river-bank erosion.

In an average year, 'normal' floods typically inundate an estimated 20 percent of the land area, while extreme floods such as those which occurred in 1987 and again in 1988 covered close to 50 percent of the country. Approximately half of the country's 142,000 sq. km. are vulnerable to flooding of varying depths which constitutes about 70 percent of the cultivable acreage.

For centuries the people living on this delta have adapted to cycles of annual flooding and drought, adjusting the pattern of their lives, revenue generating activities and agricultural practices to the vagaries of this extraordinary hydrological regime. Floods are an inevitability to which the population are accustomed and in the face of which they have developed a remarkable resilience and an indigenous capacity to cope. Granted floods cause hardship, but they also bring considerable benefits in terms of sediment deposits which raise land levels, water borne algae which fertilize the soil, annual flushing which contributes to a healthier environment, maintenance of wetlands and fish spawning habitats, and the recharge of the aquifer which is essential to ensuring the availability of groundwater for both domestic and irrigation purposes during the non-flood seasons.

#### **Flood Control, Drainage and Irrigation Interventions:**

The history of Flood Control, Drainage and Irrigation (FCD/I)



interventions since the founding of Bangladesh in 1971 has been one typified by donor planned and financed structural interventions on both a large and small scale. Hundreds of kilometres of embankments have been constructed along shifting river banks to reduce flood risk while thousands of smaller scale pumping stations and sluice gates have been erected to release flood waters and hold back reservoirs to be utilized for surface irrigation during dry season or to facilitate ground water recharge.

Many of these interventions have proved to be: technologically or environmentally inappropriate; difficult to operate and maintain; or less relevant than originally planned because of other interventions along the river systems or outside the Bangladesh national boundaries. A lack of coordinated approach among the many donors involved in the sector and the absence of a comprehensive water resource development and management policy from the GOB, also have often been cited as additional constraints to achieving project goals. Furthermore the goals of almost all FCD/I interventions tend to be more focused upon increased agricultural productivity than a more long term sustainable water resource development and management strategy.

The disastrous floods of 1987 and 1988 stimulated the GOB to undertake a comprehensive review of flood control policy. Following preliminary studies by several donors, the World Bank agreed to coordinate the various flood control initiatives and prepared a five-year Flood Action Plan (FAP) for the period 1990-95, which was endorsed at a GOB, World Bank, and donor conference in December 1989. The FAP comprises a phased program of flood management activities supported by surveys, special studies and pilot projects. However, the primary focus of this program is on flood control.

Farmers in Bangladesh are understandably opposed to a too rigid focus on the elimination or reduction of flooding. In fact, in the aftermath of the devastating floods of 1988 the country's agricultural productivity reached record levels which many Bangladeshis attribute in part to richer soils and greater reserves

of groundwater. Some analysts have argued, furthermore, that the extreme flooding breached countless existing flood-control embankments thereby improving post-flooding drainage which also contributed to the higher yields. This experience raises the need for strategic FCD/I planning that builds towards a contiguous, optimal development and management of both surface and ground water resources, in a sustainable manner.

### **Gender and Social Impact Analysis in the Water Sector:**

The usual discourse of analysis concerning the water resource sector in Bangladesh is as presented in the above background section. Limitations on the scope of continued structural interventions are considered to be associated with technological or physical/environmental factors, with some causal linkages to macro/micro economic factors within the agricultural sphere. Until very recently, there was almost no inclusion of the political or socio-anthropological factors that govern the impact of and interaction between technology, the environment and the people whose entire lives revolve around the awesome forces of water in Bangladesh. Completely absent from this conventional discourse is a consideration of the gender dimensions of the impacts of structural interventions.

There has been some recognition by planners of the positive potential for a more participatory approach to planning and implementing water resource based projects, which are inclusive, rather than exclusive, of the concerns of women. But this recognition has been uneven, and often poorly implemented. Extensive, country-wide initiatives such as the World Bank consortium Small Scale Flood Control, Drainage and Irrigation Project (SSFCDI), which provides technical assistance for the design and construction of hundreds of small scale structures and loan funding for materials, has a very limited process through which community groups can contribute meaningfully during the stage at which the responsible GOB agency, the Bangladesh Water Development Board (BWDB) decides where, when and what type of

technology will be used.

As seems to be almost universally the case, the role that women play in Bangladesh in the management and development of the natural resources available to a community, has been vastly undervalued. Women in Bangladesh have not traditionally participated in public decision-making, and are typically ascribed dependent, domestically based roles in society. Their vital contribution in agricultural production, processing and consumption of food has been historically, physically limited to the homestead by the culture of purdah or seclusion, which is re-enforced by Muslim social norms. This has resulted in a highly gender-segregated society where men generally do not have a clear understanding of women's needs or potentials, and certainly rarely act to empower women to participate in decision-making. These relationships are reproduced as girls are habitually fed less than their brothers and are encouraged to drop out of school earlier. The consequent impact on the health, education and economic status of women is a fundamental factor in their disempowerment.

Women are not only responsible for and full participants in activities that relate directly to the production and processing of food in the farming systems in rural Bangladesh, but also for the preparation and management of food resources within all households. Water related risks, such as early flash floods, can damage more than the fields producing crops, but also food stores and processing equipment driving up the prices of food staples. Any disruption in food supply will impact on a woman's responsibility to eke out existing resources. Women's lack of mobility also limits alternative strategies she could adopt to cope with stress on family resources, especially if she is, de facto, the head of a household owing to male migration or desertion.

As has been pointed out extensively in the literature, in Bangladesh as elsewhere, women bear responsibility for obtaining domestic water and managing the community potable water resources, while having limited access to skills concerning recent technologies or knowledge concerning future groundwater

interventions that will affect this vital resource.

Considerable amounts of development assistance in Bangladesh have targeted women over the past two decades, through such programming as Food For Work - rural infrastructure rehabilitation and maintenance, credit provision through NGOs and family planning activities. The targeting, however, has been from a welfare approach (see Moser's most recent work Gender Planning and Development, 1993) in response to the clearly evident, appalling living conditions of many thousands of destitute women. This programming has been planned and implemented completely separately from other sectors of activity (e.g. FCD/I or agriculture), and rarely with empowerment objectives or women's long term strategic interests taken into account.

In fact, much of the relief to the poor and post-liberation war rehabilitation donor activities treated all beneficiaries, women and men, as somewhat inanimate objects of pity whose full participation in sustained economic growth seemed highly unlikely. This approach to the less powerful, landless and destitute people living in and around areas where FCD/I interventions were planned was typical of the donor community and the BWDB alike.

Employment opportunities cited for women in such project documents were as labourers building embankments. Usually, however, only those tasks of least interest to men anyway were given to destitute women (i.e. women with no males to 'protect' them), who were habitually paid less than half the rates men would receive for similar hard labour. Potential opportunities for using these work venues for non-formal education purposes (such as numeracy training for women, nutrition information etc.) were rarely identified. Indeed, BWDB officials and powerful landowners in a particular district would often disrupt any organizing activities, perceiving threats to their control over the local communities and their continued disproportionate appropriation of benefits from a project.

This situation is changing, partly as a result of the downfall of the authoritarian government regime in 1990 and the instigation

of the process of democratization. Also partly because of the need to provide much higher rates of return for capital investments, and the need to recapture recurrent costs by GOB in the water sector as donor funds shrink and the negative impacts of large structural interventions are recognized. The methodology used for the planning of structural interventions is gradually shifting to a more holistic approach that encompasses, to a greater extent, the Guiding Principles of the Dublin Statement on Water and Sustainable Development. Furthermore, the relationship of the development and management of water resources, to the sustainable reduction of poverty in Bangladesh is being acknowledged by GOB and donors as one that will require local community commitment and meaningful input from women. Where change is evident currently, it appears to be donor driven.

In recent years CIDA has attempted to alter its approach to water resource based project interventions. This shift has been in response to several factors including a CIDA Women in Development Policy and the Agency's Bangladesh Program Gender Strategy that requires project activities to promote gender equity through the empowerment of women. The shift, however, is more significantly from a recognition that much of the structural investment to date in the water resource management sector has been inappropriate, or less than satisfactory through a lack of longer term Operations and Maintenance (O&M) activities by the BWDB or local users and beneficiaries. A lack of community participation in planning and organizational constraints within the BWDB were identified as partially responsible for these problems. Consequently, some pilot schemes were established in the CIDA component of the SSFCDI Project to illicit meaningful community participation. Also, at a more macro level, the CIDA funded component of the FAP, a regional planning exercise for the Northeast sector, was implemented with a more holistic approach than usual, which included significant proportions of technical assistance and funds provided to develop a clearer understanding of the social context of the region, including gender based factors.

**New Directions for Water Resource Development and Management:**

The following recommendations are provided from within the context of how the existing system of "development" is carried out in Bangladesh, with high proportions of funding received from outside the GOB revenues, and hence under the substantial influence of donor agency priorities. This external influence can act in favour of achieving some social equity goals within the mainstream of donor funded activities, that the "disempowered" cannot advocate for themselves in emerging democracies. Clear and consistent conviction of the efficacy of social equity goals in bringing about sustainable development must be provided by the donors to support efforts from within the country. However, recipient governments may avoid responsibility or accountability for such policies when they are imposed through the conditionality of donor agencies - potentially impeding or complicating the longer term process of democratization.

Nonetheless, these external influences are part of the structure of the political dialogue in Bangladesh. This sets the context within which women's issues must be placed. There exists already within Bangladesh an active discussion among feminists regarding the validity of "mainstreaming" gender equity concerns into a structure so hostile to their aims (see R. Jahan - 1992). Irrespective of what recommendations are made or acted upon by donor agencies, time and space must be created to ensure that such discussions with Bangladeshi women can be continued, and that the tentative channels of communication already created by these women with their own government are not blocked or trivialized.

Furthermore, there is a critical assumption under which the following recommendations are made: that any project and program planning for water resource development and management recognizes the need to integrate gender differentiated concerns into the process in order to promote equitable sustainable development. This is not an assumption that can be applied to all donor agencies active in Bangladesh - or elsewhere. While the need for significant shifts in approaches and attitudes of the GOB and its

institutions for the implementation of gender based policies exists, the same need is evident in the recalcitrance of some donors to change their basic parameters in development philosophy. This shift must demonstrate an acceptance by all the partners involved in sustainable development activities that long term strategies for social change are required - no "quick fixes" are available, and when progress is slow, the solution does not lie in the tendency to withdraw funds because short term results are not evident.

**Priority Recommendations for Strategic Gender Sensitive  
Planning and Implementation for Water Resource Development:  
RECOMMENDATION I**

A participatory methodology must be adopted by all those involved in the planning of water resource management and development projects and programs to ensure flexible and timely responsiveness to the gender dimensions that exist within communities, particularly if the objective of increased gender equity through the empowerment of women is to be achieved. Empowerment in this context refers to women (or the "disempowered" poor) acquiring the ability and opportunity to influence and participate in decision-making processes and outcomes. This requires knowledge, self-respect and self-confidence.

In the evolution of participatory approaches to project and program planning in this sector the following issues should be taken into account:

- a) A realistic approach needs to be adopted by all stakeholders that acknowledges the long-term nature of the processes required to allow true, equitable participation by all members of a community. It is necessarily slow, and in some cases in Bangladesh, impeded by a lack of confidence in projects and initiatives promoted from the outside. NGOs operating in almost all areas of the country have had much more success working with community development and organizational strengthening than have government agencies,

Lessons should be learned from these experiences, especially in the area of community "confidence building" and in terms of greater GOB/NGO collaboration. There are also many areas where long-standing community conflicts have festered under authoritarian government controls. The resolution of these conflicts is gradually evolving through improved respect for human rights and democratization, which process must not be disrupted by the need for rapid donor fund disbursement.

- b) Some large and renowned NGOs, such as the Grameen Bank and BRAC, have many years of experience working in group formation, informal education for women, organizational development etc. associated with the provision of credit and income generating activities (IGA). CIDA has utilized these experiences on many occasions through collaborative involvements, even in the water sector. Goetz recently pointed out in, as yet unpublished research, disturbing evidence that donor agency insistence on the inclusion of women in NGO implemented IGA/credit schemes does not necessarily lead to their empowerment. Project planners have to be cautious to ensure that the shift to promote women's empowerment does not actually reflect an instrumental use of women for the realization of a development agency's goal - such as improved loan recovery rates as in the case of Goetz's research.

Similar dangers exist in the case of water resource management project planning where a woman may be coerced by local power elites, or indeed their families, to participate on project committees, adding unnecessary burdens on her work load, or placing her in a vulnerable position regarding her relations with her family or other community members. As suggested above, community and gender dynamics have to be carefully understood and time taken to allow for truly voluntary participation in the project planning process to evolve.



- c) Detailed, gender disaggregated data has to be collected regarding who benefits from all aspects of water development and the impacts of interventions. The CIDA funded component of the SSFCDI Project is now utilizing Participatory Rural Appraisal (PRA) techniques, such as community mapping exercises to both gather data concerning complex community inter-relationships with water resources on pilot schemes, and to increase community commitment and understanding of the planning process itself.
- d) Data and less formally gathered anecdotal evidence of examples where certain technologies have been successfully adapted according to local conditions also have to be collected and analyzed. This is of particular significance for women, who have often had to adapt water related technologies through their own ingenuity, rather than scientifically based "reasoning" as they have been so infrequently consulted or formally trained through conventional mechanisms of technology transfer.
- e) As good data is being gathered and analyzed, channels for transferring this information into the government organizations responsible for finalizing engineering plans, follow-up maintenance inputs etc. much be clearly established. A compilation of analysis, particularly concerning impacts on social as well as environmental structures, has to be integrated into central government policy planning as well as at more local levels of project and policy implementation. This process can be strongly encouraged by donors through support for 'good governance' policy formation and implementation that incorporates gender equity objectives.
- f) When locally based, decision-making committees for structural O&M are established, a significant number of women must be formally recognized as members. The SSFCDI Project

has commenced the process of passing through the central government a set of bylaws to govern membership criteria of locally based Water Control Structure Maintenance Committees. These Committees were created to help resolve the chronic O&M problems by encouraging local involvement at all stages of structural design and construction, who would then take on responsibility for ensuring that the structure would continue to work and benefit the community. As mentioned above, care has to be taken to ensure that all those involved in committees or related income generating activities are not coerced into participation. Moreover, at least 30 percent of the members of user committees should be women. When only one or two women are placed on committees their views are often marginalized or they may be intimidated by more publicly adept male members.

- g) A participatory approach to the development and utilization of monitoring indicators can also afford entry points for discussions and group formation around gender equity issues. Many of the constraints associated with social changes promoting equity are related to issues such as acquiring the skills and will to change behaviour, which have qualitative dimensions. These social changes involve project staff as well as those living in the communities directly affected by project activities. In order for indications of progress or constraints to be identified, all the stakeholders involved in the inevitable change development brings, must be sensitized to the process itself and what they would identify as qualitative as well as quantitative change. These indicators then have to be integrated with whatever other indications of project progress towards technical milestones used by the GOB or donor agency.

This is an area of activity which, in my opinion, has been relatively neglected by those working in GAD/WID. The drive to demonstrate the value of women's participation, and

to develop tools for training and base-line data gathering, has subsumed the need to generate effective and applicable monitoring and evaluation indicators. This need is now increasingly recognized by donors, and resources must be applied drawing from participatory approaches at the project level and institutional indicators at the policy management level.

## **RECOMMENDATION II**

The professional skills represented on project/program teams have to be better balanced to reflect a more holistic approach to water resource development and management. This is necessary to create an appropriate enabling environment to evolve within implicated government and non-government institutions in the north and south. In this context the following issues must be considered:

- a) Engineers are not necessarily the best leaders for multi-disciplinary teams. Frequently planners with experience in balancing social equity policy issues with technical requirements are more appropriate. The past tendency for government bureaucracies and donor agencies to divide activities along strict sectoral lines, associated with fields of professional skill, has created a legacy of development workers unused to the compromises required to integrate multiple issues into their professional work.

CIDA's experience with the FAP Northeast Regional study in Bangladesh demonstrated how many different skills are required to bring together a multi-criteria feasibility grid for structural interventions. This grid takes into account social and gender equity, environmental, economic, agronomic and hydrological factors. The challenge for the project team lay as much in the extra time and patience required to ensure positive interaction at meetings where relative significance was accorded to each criteria, as in convincing the GOB and

BWDB that certain design proposals for FCD/I structures should be refused. These refusals were proposed not on the grounds of a poor cost-benefit analysis, but because the affect on social equity would be regressive (for example agricultural benefits accruing disproportionately to large land owners).

Interestingly, when certain feasibility studies were examined under the multi-criteria grid, gender equity impacts were considered to be progressive as homestead areas would be protected, improving women's safety and working conditions. These criteria did not provide similar guidelines to judge impact on empowerment potential for women. This is an area requiring attention.

- b) Government agencies, such as the BWDB, must integrate of other skilled professionals into their ranks. Better status has to be accorded to non-engineering professionals such as community organizers, social scientists/ policy analysts, environmentalists, etc. Currently, there is little incentive within these agencies for building holistic project design teams that are capable of adopting the participatory approach recommended above.
  
- c) Employment equity policies for donor agencies and the GOB alike would also provide an atmosphere within these institutions more conducive to the adoption of gender sensitive approaches to project and program planning. This is of particular significance in the Bangladesh context where many aspects of life are segregated along gender lines. It is often impossible to hold discussions with women in the presence of men other than family members. Those women who are working alone among men usually have to forgo their negatively perceived "feminine" traits in order to survive professionally. Significant issues such as sexual harassment in the workplace, are not acknowledged or mitigated against in the professional environments of government and many NGO

offices in Bangladesh.

Recognition of these kinds of forceful constraints on women agreeing to participate with the "mainstream" must be made by donors advocating gender equity in all aspects of development assistance. Positive experiences in involving women in all levels provide role models for other women, and contribute enormously to the long term strategic interest of women to change their image away from one of dependence to full participation in the public as well as domestic sphere.

- f) Training and sensitization regarding the importance of gender equity, and to provide the tools and techniques to help overcome resistance and constraints, should be provided to all levels of GOB and donor agencies. Achieving this goal requires often radical shifts in attitudes, and the provision of opportunities, supporting networks through discussion and team building can assist in what is a long and often discouraging process. The development of indicators to assist groups in understanding where progress has been achieved can be a very useful mechanism to extend training experiences. Extensive experience in this area of training is now available to be drawn upon both in Bangladesh and the donor contexts. Sufficient time and funds have to be allocated to integrate these experiences into current activities and training sessions.

### **RECOMMENDATION III**

As presented in the Dublin Statement Guiding Principle No. 4 - water has an economic value in all its competing uses and should be recognized as an economic good. In this context, pay-for-use has to be established in the context of FCD/I structural interventions, not only to promote "ownership" and responsibility for these structures and by the local community, but also to cover recurrent operating and maintenance costs. Considering the long history of the introduction of often highly inappropriate

technologies in Bangladesh, and the consequent lack of confidence from the more vulnerable members of communities affected by these interventions, I would suggest that purposeful confidence building through participatory decision-making processes must be undertaken first.

In a pilot scheme for the SSFCDI government owned embankments were used by local community groups of men and women to generate income, a portion of which was to be retained by the maintenance committee for the local flood water regulating structure for recurrent O&M costs. While the idea was good in theory, in practice it was hard for the groups to be confident that the energy they had invested in the IGA schemes, which was in addition to other responsibilities and activities, would be worth their while. The women's group had already been involved with an NGO IGA scheme, the manager of which absconded with their savings. The BWDB and Local Government Engineering Board (LGEB) had never provided the materials required for maintenance on time, and so forth. In other words a "leap of faith" was required by the participants which they were ultimately unwilling to provide. This draws further attention to the long term front-end investment in confidence building required, with a corresponding responsibility to follow through with promised commitments.

An important step towards resolving these difficulties, both from the perspective of the government agencies responsible for O&M of structural interventions (BWDB and LGEB) and the participation of local communities, would be to decentralize the pertinent functions of government. Under the former political regime, each district and smaller administrative division of thana (then called upazilla) had a LGEB office responsible for the maintenance of local infrastructure. However, all planning, design and maintenance of surface water structures funded through the central government (i.e. by donors) were controlled by the BWDB. Many LGEB officers would not be aware of plans for construction, nor the rationale behind location or technologies selected.

This situation is now slowly being resolved with radical

reorganization of local and central government functions. Once these changes have been completed, and a more decentralized system of government services is able to respond more readily to local needs and resources, water user confidence can be solidified, and a sustainable pay-for-use method to recapture recurrent costs could be established. This in turn could begin to alter attitudes within communities and government structures in a concerted rather than competitive manner towards the sustainable development and management of water resources.

**Specific Role for Donors:**

As mentioned above, donors can and should play an important role in conveying the interests of the disempowered directly to the recipient government in almost any development assistance context. Policy dialogue in Bangladesh concerning the implementation of the GOB's own Women in Development objectives, and to promote more gender equitable policy formation within the water resource sector should be pursued by the donor community in a coordinated manner.

The donor agencies can also encourage intra-disciplinary planning and programming within their own organizations to promote gender equity in all their activities, rather than constrain the process by constructing artificial sectoral lines between project and program activities. This approach could also be extended, in the Canadian context, to encourage collaboration between and among private sector project implementing agencies, rather than competitive relationships that once more divide activities in a manner unnatural to participating communities.

In my opinion, the most important indicator of support from the donors for a more gender equitable approach to water resource development would be to acknowledge more clearly the long-term nature of the efforts required. Commitments to staffing and funding within their own structures and those of the implementing agencies to gather the necessary data, provide adequate training and monitor activities would provide significant endorsement to their partner governments of the importance of development

inclusive of gender equity concerns.

The issues covered in this brief and somewhat impressionistic paper touch upon many complex constraints on the process of change - within vulnerable societies and groups, within beleaguered and resource poor governments such as the GOB, and within donor agencies conscious of shrinking budgets and the drive to demonstrate short term results from investments. There are no easy solutions to these problems, they are challenges that must be faced in a strategic manner.

The exchange of tools, methodologies and techniques that have been more effective in implementing gender sensitive change that not only resolves immediate practical problems for women, but can lead to their increased empowerment, is most important. This exchange, however, should not only go on at workshops and seminars in the north, but should be explicitly aimed to include women's networks in the south. The validation of these discussions, and the demonstration of positive impacts on recalcitrant government institutions engaged in and hopefully committed to this process of change, in the north as well as the south, is also a responsibility we must all accept.



**SELECTED BIBLIOGRAPHY - WOMEN AND GENDER  
ISSUES IN THE WATER SECTOR, BANGLADESH**

- Ahmed, Iftikhar (1989) "Technology, Production Linkages and Women's Employment in South Asia", from International Labour Review, Vol. 126, No. 1. page 21-40.
- Amin-Hocque, B. (1991) "Maintaining Village Water Pumps by Women Volunteers in Bangladesh", Health Policy and Planning, vol.6, #2, pp 176-184
- Aziz, KMA, UNDP-WB (1991) Water Supply, Sanitation and Hygiene Education Report of a Health Impact Study in Mirzapur Bangladesh
- Bangladesh Agriculture Sector Review (1989) Women's Roles in Agriculture Present Trends and Potential for Growth (UNDP)
- Beck, Tony ( ) "Survival Strategies and Power Amongst the Poorest in a West Bengal Village" (IDS Bulletin)
- Black, M. (1990) From Handpumps to Health: The Evaluation of Water and Sanitation Programme in Bangladesh, India and Nigeria UNICEF.
- CIDA (1991) Gender Issues in Crop Diversification
- CIDA (1992) Working with Women: Bangladesh Program Gender Strategy
- CIDA (1992) Women in Development, A Policy Statement
- CIDA (1992) Women, Water and Sanitation: A Guide to the Main Issues and Existing Resources
- Gower (1983) IRRI Women in Rice Farming chapters on Bangladesh  
Abdullah, T. "Women in Rice Farming Systems in Bangladesh and How Technology Programmes Can Reach Them"
- Greenberg, C (1989) "Adjustment of Riverbank Erosion Displaces in Squatter Settlements: A Case of Serajganj in Bangladesh", from Shaping Bengali Worlds, Public and Private, Asian Studies Centre, Michigan State University, South Asia Series # 37
- Haque, C.E. (1989) "Human Strategies for Coping with the Riverbank Erosion Hazard in the Jamuna Floodplain of Bangladesh", from Shaping Bengali Worlds, Public and Private, Asian Studies Centre, Michigan State University, South Asia Series # 37
- Hoque, K. S. "The Mode of Production Debate in Bangladesh Agriculture: Evidence from Village Studies, from Shaping Bengali Worlds, Public and Private, Asian Studies Centre, Michigan State University, South Asia Series # 37

- Islam, Sanjeeda (1992) Women Impact Assessment: Grameen Bank Tube Well Irrigation Project Report to DGISI, The Netherlands
- Jahan, Rounaq (1992) Mainstreaming Women in Development in Different Settings (OECD\DAC\WID Expert Group)
- Jansen, Eirik (1989) The Country Boats of Bangladesh (University Press Limited)
- Kabir, N. (1989) "Poverty, Purdah and Women's Survival Strategies in Rural Bangladesh", The Food Question, ed. H. Bernstein, (Earthscan Press)
- Kabir, Kushi (1986) "Bangladesh: Women and Food Production" Papers from the Interagency Working Group on Women and Development
- MacIntosh, I. The Family Hand Pump: Theme Paper (Asian Development Bank)
- Matin, N. (1992) Women in Agriculture: A Strategy Paper for the Netherlands Development Policy in Bangladesh
- Miranda, A. 1990 "Women's Roles in Agriculture: Present trends and Potential for Growth: A comment and rejoinder", Bangladesh Development Studies Vol XVlll, December no. 4 pp 91-99
- Moser, Caroline O.N. (1993) Gender Planning and Development, Theory, Practice and Training, (Routledge)
- Safilios-Rothchild, C. 1991, "Gender and rural poverty in Asia: implications for agricultural project design and implementation", Asia-Pacific Journal of Rural Development 1(1) pp 41-61
- Shaw, Rosiland "Gender, Danger and Floods in Bangladesh" University of Edinburgh
- The Treadle Pump: Economic Power to the Landless (International Development Enterprises)
- UNDP (1989) Banqladesh Flood Policy Study: Final Report
- Wilson-Moore, M. 1991, "Women's work on homestead gardens: subsistence, patriarchy and status in Northwest Bangladesh". Urban Anthropology, 18(3-4) pp 281-297
- Zaman, Shamina (1992) AST Addressing Women's Issues (CIDA)
- Zaman, M.Q. (1989) "Rural Bastees: A Socioeconomic Profile of Squatters on the Brahmaputra Right Bank Flood Embankment" in Shaping Bengali Worlds, Public and Private, Asian Studies Centre, Michigan State University, South Asia Series # 37

# **Gender Aspects of Sanitation, the Missing Slipper of Cinderella?**

**by**

**Christine van Wijk**



# GENDER ASPECTS OF SANITATION, THE MISSING SLIPPER OF CINDERELLA?

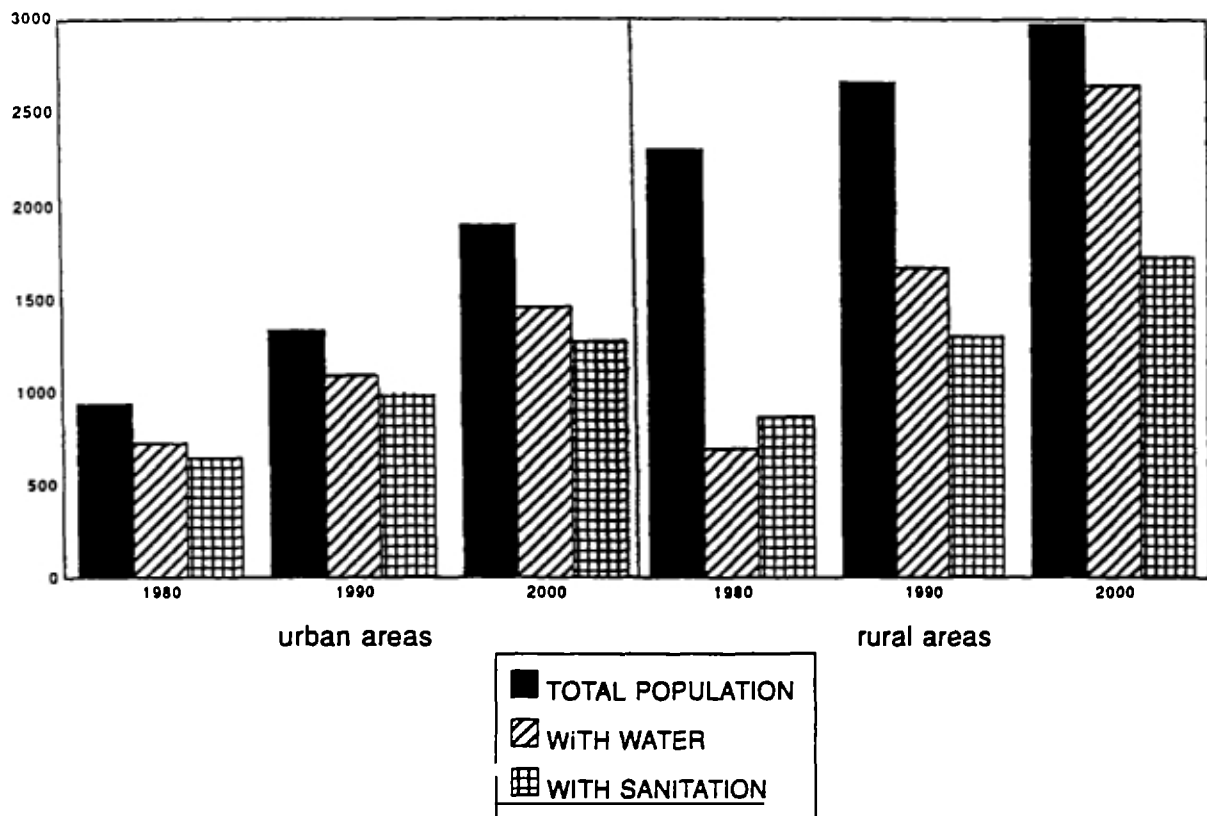
Christine van Wijk, IRC

## 1. Introduction

In the drinking water supply and sanitation sector, sanitation is also known as Cinderella, the poor relative who had to stay home to scrub the floors and clean out the fireplaces while her rich sisters and stepmother went to the ball in the palace. The 1980-1990 Decade results which were presented at the international closing meeting in New Delhi give some confirmation for this comparison.

Figure 1 shows that at the beginning of the IDWSSD, population coverage for sanitation was worse than for water supply, except for the rural areas.

Size of world population and number of people served with water and sanitation by year and areas



*Adapted from United Nations (1990) Achievements of the International Drinking Water Supply and Sanitation Decade, report of the Economic and Social Council, p. 20*

During the Decade, water supply conditions improved quite significantly, especially in rural areas, although it is not certain that these facilities also function and serve whole communities. The sanitation gap has however increased as shown by the increasing distances between water and sanitation in Figure 1). Because of the ongoing population growth it is further expected that by 2000, % sanitation coverage will actually be worse than at the start of the Decade.

Regionwise, the picture is quite similar. Between 1980 and 1990, improvements in water supply scored higher than in sanitation, with the exception of urban sanitation in Africa and Western Asia. In rural areas in Latin America water supply and sanitation improved at an equal pace. Everywhere else, sanitation lagged behind. Between 1990 and 2000 sanitation coverage is expected to grow only faster in rural Asia. In all other regions, growth is expected to be equal or less, while in some a decrease in actual coverage of 6-11% is expected (Table 1).

Table 1 Percentage recorded and expected change in water supply and sanitation coverage, by region and period

		Water Supply 1980 - 1990	Sanitation 1980 - 1990	Sanitation 1990 - 20000
AFRICA	Urban	+ 4	+14	-11
	Rural	+ 9	+ 8	+ 5
LATIN AMERICA & CARIBBEAN	Urban	+ 5	+ 1	+ 2
	Rural	+15	+15	+15
ASIA & PACIFIC	Urban	+ 4	+ 0	- 6
	Rural	+35	+12	+32
WESTERN ASIA	Urban	+ 5	+21	+ 0
	Rural	+ 5	+ 0	+ 1

Based on: United Nations (1990). *Achievements of the International Drinking Water Supply and Sanitation Decade 1981-1990*, p. 20.

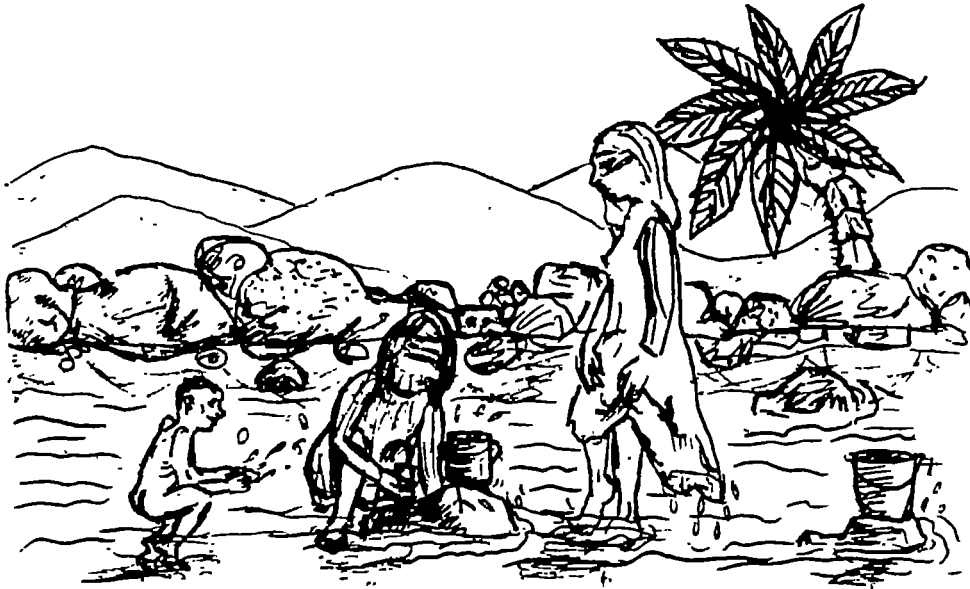
## 2. Sanitation and water resources

The lack of sanitation is a great inconvenience, especially for women and girls, who manage general household hygiene and often face problems of personal safety and lack of privacy when finding a place for human waste disposal (Elmendorf, 1980).

It is also a great public health risk and threat to the quality of water resources used for the supply of drinking water. Lack of proper sanitation and drainage has led to high loads of bacteriological pollution in surface water resources. In India, 70% of the total surface water is estimated to be polluted. In China, water monitoring showed that 54 of 78 rivers are seriously polluted by human and industrial waste (UN, 1990b). Such contamination of

water sources is one reason why diarrhoea and various types of worm infections are spread widely and are a major cause of morbidity and mortality in developing countries.

Public health risks from lack of sanitation are particularly high in densely populated areas and at the onset of the rainy season. At this time, human excreta are washed indiscriminately into water sources, which are also used for drinking, mouth rinsing and washing foodstuffs and utensils (Figure 2).

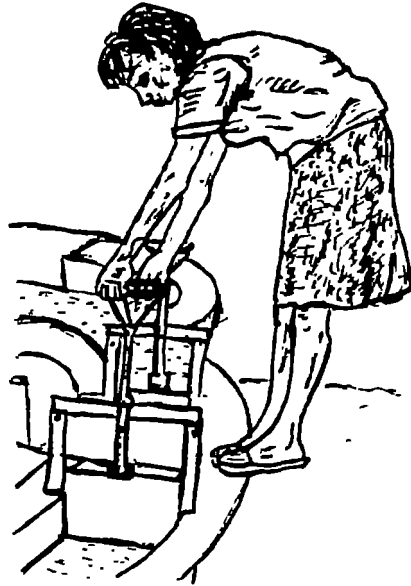


*Figure 2: Women washing utensils in river Nile, Egypt.*

Groundwater is free from such contamination, when taken from a sufficient depth, but the aquifers are vulnerable to pollution from man's waste, since they are recharged from the surface. And since groundwater is slow to accumulate, contaminants will also be slow to move out. Moreover, groundwater is not available everywhere, and its high extraction for irrigated agriculture and for urban water supply has depleted aquifers and caused cities such as Bangkok and Jakarta to sink and their sewerage pipes to burst (UNEP/UNESCO, 1990: 21).

Hence, water agencies must turn increasingly to surface water as the main source for drinking water supply. This water then has to be treated to make it safe for human consumption. For the treatment of bacteriological pollution, low-cost technologies such as slow sand filtration and pre-treatment are available. The first mention of the use of slow sand filters stems from Parsley, Scotland, in 1804. Since then, this type of filters has been introduced in many water works in Europe, and plants in London and Amsterdam still contribute very much to the quality improvement of river water.

The use of slow sand filters has also spread to tropical countries, as they are relatively simple to operate and do not require a continued use of chemicals. This makes them quite suitable for installation in community-managed water supply systems in rural and (peri)urban areas, because O&M costs are low and the plant can be operated by a trained community member on a part-time basis (Figure 3).



*Figure 3: Woman operating SSF filter in la Sirena, Colombia*

When bacteriological pollution is high, e.g. because of high pathogen run-off, SSF treatment alone is not sufficient and more treatment barriers have to be added to ensure safe drinking water, which adds to the costs. Providing better sanitation can thus be an important and cost-efficient strategy to preserve surface water sources for human consumption.

### **3. Gender and the water and sanitation sector**

If sanitation is the Cinderella of the sector, then gender may well be the slipper which helps to put sanitation on the map and make sanitation projects more effective. Gender refers to the socio-culturally defined roles of men and women in their particular society, to the ways men and women interact in these roles and to the changes occurring in roles and interactions (Wakeman, 1993).

In the water and sanitation sector it is often taken for granted that men have the public roles in this sector, such as managing and repairing facilities and making public decisions, while women hold domestic roles, such as collecting and using water, disposing waste and educating children. As a result, projects which improve water supply and sanitation conditions on a participatory basis often involve the men in technical and managerial tasks and the women in caretaking, cleaning and hygiene education (Doucet, 1987, Groot, 1990)

Research has shown that in reality this situation is not general and that adherence to such superficial concepts has negative implications for sanitation programmes as well as for the people in the areas. In this respect much can be learned from the way communities have managed water and sanitation before the introduction of alternative systems. Public level



management of such existing systems was in many societies a shared responsibility between men and women, in which each group had its own tasks and authority (van Wijk, 1985: 27). Roark describes how in southern Burkina Faso women not only deal with water at home, but also manage the use and protection of the dug wells (Roark, 1984). White, Bradley and White do the same for Lango women in Uganda, Kelles (1983) for women in Sri Lanka and Bennett (1973) for women in Nepal. 'Even Muslim societies, which practice the seclusion of women and appear to lend themselves most readily to Western notions of public and private, challenge our understanding of these concepts' (Stamp, 1990: 114).

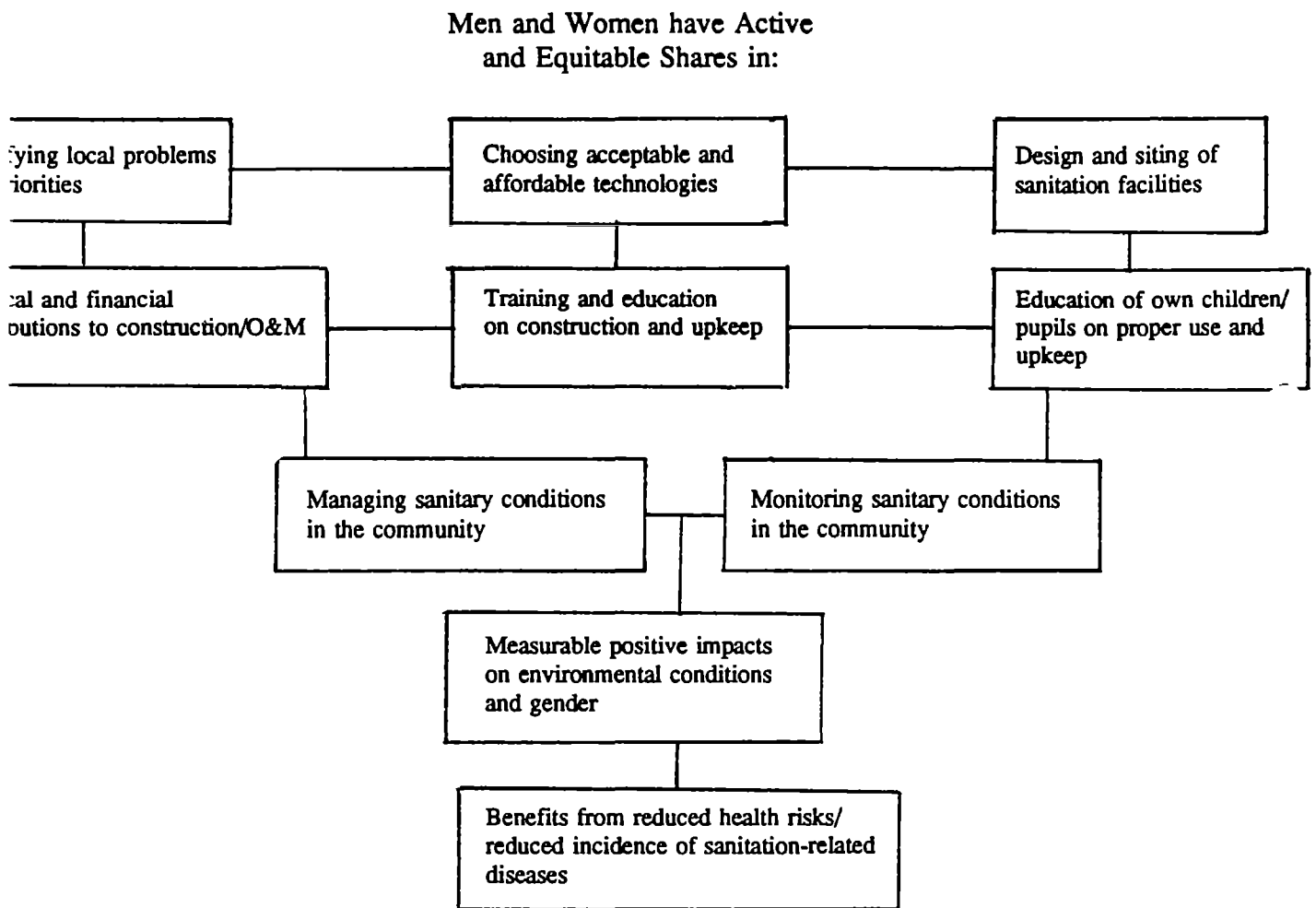
Communal management seems to occur particularly in areas with an outspoken water or waste disposal problem, sharing of provisions among women and religious connotations on water and waste (van Wijk, op. cit.: 25). Neglect of women's public management roles in such areas has been a main reason for the initial failure of intervention projects, e.g. in Tonga (Fanamanu and Vaipulu 1966), Western Samoa (Schoeffel, 1982), Zimbabwe (du Toit, 1980) and Nepal (Saubolle, 1980).

Gender-specific research proves that claims to exclude women from the public sphere on grounds of tradition are often based on fallacies. It also provides evidence that in *private* decisions and tasks *men* must not be bypassed. Giving hygiene education only to women puts the burden of change only on them. These projects have neglected that men also take certain decisions on health and hygiene, e.g. on financial investments, and also perform certain tasks, e.g. in the construction of facilities. They also forget that women cannot always influence the behaviour of male relatives (Burgers et al., 1988: 17; van Wijk, op. cit.: 94). Thus, it is becoming clear that projects need to involve *women and men* in a gender approach to water, sanitation and hygiene.

#### **4. A gender approach to sustainable sanitation**

Experience with environmental sanitation learns that a gender approach is required especially in the following aspects: preparation of projects and programmes; contributions to construction and O&M; education and training; management; monitoring and evaluation of environmental conditions and practices, and impact measurement (Figure 4). Reasons for a gender approach in these aspects are set out in the following sections.

Figure 4: Gender approach to sustainable sanitation



***Gender-specific needs assessment***

In the preceding paragraphs it was mentioned how development organizations not always take up contacts with women when they initiate a sanitation programme. Yet it is women, more than men, who do most of the work in environmental sanitation and have to deal with lack of privacy, safety, hygiene and health. More than men they are therefore motivated to undertake and support changes in environmental sanitation. This requires that projects make conscious efforts in contacting and uniting women and finding out what problems and interests they share (van Wijk, op. cit.: 45).

Project agencies often claim that bringing women into the project process is difficult and requires more time, staff, funds, etc. Yet there are many indications that this is an easy excuse and that agencies which are more creative can overcome initial constraints, often with the advice and help of the women concerned. The checklist depicted below resulted from group work with project managers from 8 countries based on an earlier table (IRC/PROWESS, 1992) and gives their aggregated insights on how to overcome such barriers.

Ten 'womandments' for a gender-sensitive approach in drinking water supply and sanitation projects

1. Information Make sure, by using suitable communication channels and methods, that project information reaches men and women (Each group may need different channels). In data collection and analysis distinguish between information from men and women.
2. Gender division Assess with men and women what work and responsibilities they have in land and water use, care of traditional water sources, construction, care and upkeep of household/school latrines, family health and hygiene, communication with other men, women, and household finance.
3. Meetings Facilitate women's participation in meetings: time and place suitable for women, women informed and encouraged to attend, seating and language is so all can hear and react, speaking out by women is facilitated (sit together, breaks for internal discussion, choose spokeswoman, etc.). Insist that women can react in a mixed or separate meeting as a condition for project continuation.
4. Planning Give men and women a say in and achieve acceptable solutions on: design and location of the facilities, choice of local maintenance and management system, choice of committee members, mechanics, caretakers, health promoters, local financing system.
5. Committees Determine [by law] that a minimal proportion of members is female. Enable men and women to choose their own representatives on trust and suitability for tasks. Encourage that women are chosen as treasurers (have proved to be most trustworthy). Committees should account for their proper management to male and female users. Higher level committees should include men as well as women.
6. Hygiene education Involve women as planners and change agents, not as passive audiences. Involve also men.
7. Training Make sure that men and women are trained for technical as well as managerial tasks. Adapt training provisions to the requirements of women (place, methods, literacy level). Train and reward women for new functions: waterpoint repair (they visit daily), latrine masons (they can work in homes), treasurers (trustworthy & home visits), monitoring (idem).
8. Means Ensure that credit, materials and skills are available to men and women to make their own improvements in water supply, sanitation and hygiene. Where feasible and relevant, undertake or link up with income generation projects.
9. Gender-sensitiveness Make project staff and management aware why gender is important and how a gender-sensitive approach is applied.
10. Staffing Employ female staff and equip them, as well as male staff, for dealing with gender issues. Work in case of shortage of female staff with gender-sensitive male staff and female intermediaries from the communities.

As improved sanitation has a higher priority for women than men, bringing women into project identification puts sanitation on the map. This happened for example in Bangladesh, where sanitation was the second priority need expressed by women, while for men the priority was much lower (Laubjerg, 1984). Higher felt needs for sanitation among women were also found in other studies (Sundararaman, 1986, Kishwar and Barq, 1990)

For involving men, other arguments and channels are needed than for women. For example, men have been motivated to install latrines for reasons of status and because of greater privacy and safety for their wives and daughters. Projects have also used different channels to reach men and women: public meetings and demonstrations for men and radio programmes and home visits for women (Ain and Wegelin, 1992: 14; van Wijk, op. cit., 1988).

Which area of sanitation (waste water disposal, drainage, human excreta disposal, solid waste disposal, housing) has the highest priority differs with the particular circumstances. In the above mentioned programmes the felt priority was latrines, but in other cases it has been waste water disposal and drainage, or the disposal of solid waste, e.g. in Mexico (Schmink, 1984).

This diversification of programme contents to local conditions and needs is often not made. In many sanitation programmes, including those depicted in the IDWSSD statistics given above, sanitation is synonymous with sewerage and latrines. However, these facilities are not the first priority and most efficient sanitation investment in all areas. For example, in dry, thinly settled areas, both environmental health risks and felt needs for excreta disposal facilities are usually lower than in densely populated areas with lack of open spaces and privacy. As programme and community resources are scarce, it would be more cost-efficient to select the type of sanitary improvement that constitutes a high environmental risk and is a highly felt priority of men and women in the area, than to use a blanket approach of promoting latrines in every region.

#### ***Technology choice, design and contributions***

The fate of programmes which construct and finance improved sanitary facilities with no or only marginal user involvement is well documented: facilities are not accepted, used and maintained. As a result, investments are lost, credibility is lowered and potential benefit not realized (Figure 5).

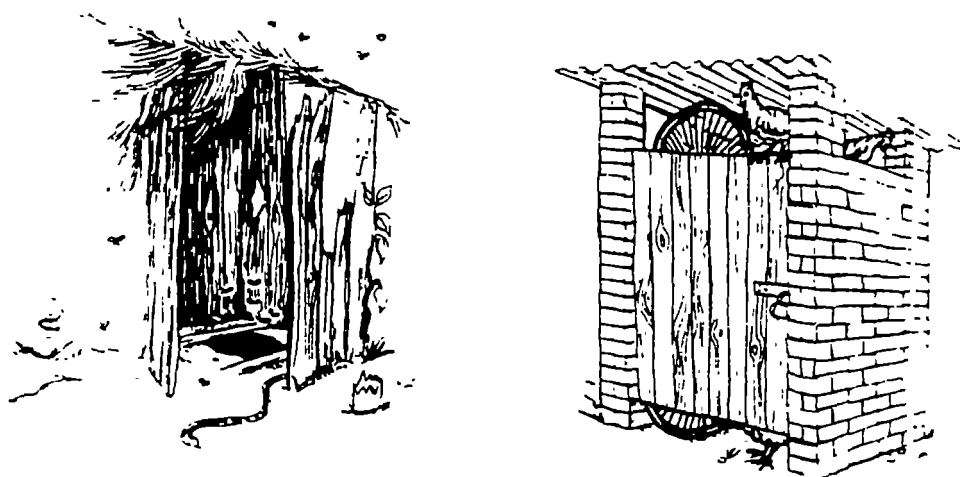


Figure 5: Example of unused and "used" latrines (source: Feuerstein, 1987: 6).

From the start, sanitation programmes should therefore not make choices and build facilities *for* the users, but enable communities and households to install the type of facilities and services they want, will use and maintain, and can afford and continue to install, also after external interventions are over. This means creating a greater and informed community choice in the types of improvements and the financial and managerial implications and benefits of each option.

As areas of authority and expertise differ with gender, both men and women will have to be involved in the decision process, with regard to the type of problems to be addressed, the type of technologies, the designs and location of facilities and the local contribution and financing systems.

Consultations of men and women on design have for example revealed the existence of cultural restrictions: avoiding that outsiders can see a person entering or using a latrine; no sharing of latrines by male and female relatives, or no entries of facilities facing Mecca. In planning and design, women have looked especially at ease and safety of use, also for children, and at the use of materials that are easy to keep clean. Often they have suggested design improvements in latrines, drains, solid waste bins, to meet their needs better and reduce misuse and safety hazards (van Wijk, op.cit.: 16,52).

When looking at financing, care has to be taken to see who in the household is responsible for financing and what this means for the programme. In many cultures, husbands decide on major financial investments, so involvement of men in the programme and taking their perceived benefits into account is essential for realizing sanitation and hygiene improvements. However, there is also a growing number of single, female headed households, and special measures are usually needed to ensure that they, too, are contacted and can join the scheme. There are further cultures where men and women each have their own sources of income and take part in any financing arrangements as individuals. In such cases programmes should avoid that the same contribution is asked from men and women, because the amount involved usually constitutes a much larger share of the total income of the women than of that of the men.

### ***Construction and upkeep***

Where more costly designs and construction by paid masons are not generally affordable and sustainable, projects often assist communities and households to make their own sanitation improvements, using local materials and family labour. In such cases, gender aspects will also play a role, both in choice and design of the facilities (they should be chosen, designed and located in such a way that they will be used by men and women, boys and girls), and in the division of tasks for construction. Many cultures have a division between work that is done by women, such as plastering, and work that is done by men, such as roofing. Projects should address men on these responsibilities and tasks, as pointed out by women in several project areas. But neither should they exclude women from construction tasks previously executed by women and give training and paid jobs only to men (van Wijk, op. cit: 110).

Questions on the division of contributions also apply to the operation and maintenance of sanitary facilities. When not discussed in gender terms, the extra work of cleaning drains, transporting and disposing waste and providing water for water-sealed latrines often falls

automatically on women and girls, without addressing the questions of division and increase of physical workload.

That internal awareness and redressing of inequalities are possible is illustrated by Brain (1972). He described how 11 villages in Ruvuma Region, Tanzania took the decision that while men would work in the fields from 7 a.m. to 3 or 4 p.m., women would work from 8 to 12, to leave them time for their other tasks. The system worked for several years, but was ended by government officials because it was considered subversive. Another case illustrates the introduction of change through external action. In north Zambia, staff of the Water, Sanitation and Health Education (WASHE) project introduced a series of discussion posters. Entitled "why mama is tired", they showed the many tasks of women and served as the basis for discussions on the gender division of labour and led to community decisions that women's labour had to be reduced and redistributed if they were to have time for improved health and home care.

### ***Training and education***

For the physical works, external sanitation programmes often rely on large contractors from outside the area. This means that after completion, technical know-how for repairs and ongoing coverage is not locally available. There is therefore now a tendency to train and involve more local craftsmen for work in sanitation.

Usually these craftsmen are male. Where also females are working in paid construction work, as in South Asia, they are unskilled helpers and therefore not selected for training. There is however much to say for extending training in skilled sanitation work to women. A first reason is that in unpaid sanitation work both men and women are involved. It is only when the work becomes formal and paid that sanitation becomes a men's job. Second, many improvements in environmental sanitation involve work in homes and compounds or at water points used mainly by women. From a cultural point of view, both men and women prefer that strange men do not work in and around these places. The same work done by women masons would culturally be more acceptable.

There is some evidence that women are indeed accepted and effective as sanitation masons. Female masons have been trained and employed by at least two latrine projects in India, in Kampur and Mirzapur (urban sanitation project) and in Kerala (rural latrine project). And in Lesotho half of those trained as self-employed latrine masons are women (World Bank, 1990). Whether they can make a self-reliant living out of their job varies. In Lesotho, there seems to be a large enough demand for mason-built latrines, a sufficient access to materials, a not too fierce competition and a training which has given the women masons enough confidence and skills to make a living, although they produce and earn less than their male colleagues (World Bank, op. cit.). In the two Indian projects, the women masons function under the protection of the project, although the women in Kerala are considering to establish a cooperative and start building on their own.

The more general education activities also have strong gender connotations. If included, such education is usually given at the beginning of a sanitation project, to make users more aware of the need for sanitary improvements, and at the end, to motivate correct behaviour in use and upkeep. It has already been mentioned that in such education programmes, both men and women have to be reached and that both categories need

gender adapted messages and channels. Projects often assume that information given to men or women will reach the other gender through natural processes, but research has shown that this is not what happens, and that each group has its own areas of interests, relevant messages and communication channels. Moreover, one-way didactic teaching and mass information has not been effective for behaviour change of either men or women (Burgers et al, 1987: 35).

### ***Sanitation management by communities***

Water supply systems are usually designed and built to cope with natural population growth during their planned life. But sanitation improvements, especially when on-site, cater only for the current number of households. As soon as a sanitation project ends, household coverage in the community will start to go down, unless it is kept up by the people themselves. Hence it is essential that from the start sanitation interventions are designed and implemented to be as self-sustainable as possible, because governments and ESAs cannot be expected to give permanent support to the same communities. This means that in principle low-cost sanitation improvements should be decided on, implemented and its direct costs financed by the people themselves. Organizations in the communities and neighbourhoods should be assisted to develop capacities and skills to implement, manage and support sanitation improvements.

So far, sanitation projects have focused more on creating facilities than capacities. Most sanitation projects introduce pre-decided sanitation interventions with set targets and heavy subsidies. There is an urgent need to learn more about how to combine sufficient coverage with continued upkeep and use as well as preservation of coverage figures in initial project areas.

The task of external agencies in such a self-reliant approach to sanitation is not less comprehensive, but different. Assisting communities to define their problems gender-specifically, to identify improvements and review advantages, limitations and costs of various solutions, helping communities or neighbourhoods to plan and implement local improvement projects, training local men and women in technical and managerial skills and develop suitable financing systems all equip local men and women to be in charge of their own environment and manage their own improvement of local conditions and practices.

### ***Measuring change***

Local management of sanitation improvements also means that the measurement of change is done by the communities themselves. At the initiation of the process, participatory inventories of local conditions and practices help men and women become more conscious of local conditions and stimulate planning for change. During the process, participatory measurement allows communities to note progress and provides information for local management. Several methods and tools have become available for such participatory assessments of conditions, practices and change, e.g. as documented by Feuerstein (1987), Narayan (1993) and Srinivasan (1990).

Attention to and knowledge on measuring behaviour change, including in sanitation, has increased because the measurement of impact on health is complex and costly (Boot and Cairncross, 1993). Defining objectives of sanitation change in measurable terms (Table 2)

and establishing a good measurement system can help sanitation programmes to show how effective their work is and with what inputs, costs and approaches the measured results have been achieved.

Table 2: Possible objectives and indicators in sanitation projects

<i>Objective</i>	<i>Objectively verifiable indicators</i>
Surface sources for drinking water safe from bacteriological contamination	Physical barrier to protect source from surface drainage present and intact; no open human excreta disposal in source or area above and around source;
Good sanitary conditions around water collection points	No standing water, garbage, sediment, mud, animal excreta around water point; fence present and intact; drain swept;
Adequate waste water disposal at homes	Proportion of houses with working soakpits/drains into gardens; no standing water in yards;
Improved school sanitation	Number of male, female pupils per sanitation facility; no smears/excreta/soiled cleansing materials in pan/on floors; waterseal intact/ long handled flycover present and over hole; no flies in outhouses; presence of water and cleaning agent (soap, ashes) for handwashing; absence of human excreta in environment;
All households have and use latrine	Number of latrines present and in sign of use; absence of human excreta around house/on waste heap; no smears in pan/on floor/walls; waterseal filled/long-handled fly cover present and over hole; no flies in latrine.

When measuring sanitation results, care has to be taken that the measurement methods used are valid and reliable and are collected and presented in a gender-specific manner. Defining a particular condition as 'clean' or 'dirty' for example, is open to interpretation and individual observers may change their definition of cleanliness over time. This phenomenon may for example be the reason why in a community managed water and sanitation project in Indonesia, only hygiene behaviour did not improve. Perhaps it did, but was not registered because the local observers became more critical as they learned more on health and hygiene. Nor should local monitoring be gender neutral and place unrealistic burdens on men and women in a community. It is better to collect a few key data from men on male issues and behaviour and from women on issues and practices of which they are in charge and use these for gender specific planning and evaluations, than to collect masses of general and gender-neutral statistics which are not used.



Particular areas for data collection are whether the projects have measurably reduced existing insanitary conditions and practices for men and women in the project areas and how these changes and the process of change have benefited men and women. For example, have both men and women become aware of undesirable environmental sanitation conditions and practices in their households and neighbourhoods and have both supported actions for change? Are new sanitary practices taken up by men and women, or only women? Has the project brought new skills and control over their environmental conditions for women and men? Or has it increased physical work and financial burdens for women, e.g. because they have to finance items like soap and sanitation implements from their own budget? Is sustaining and continuing of the achieved changes by men and women likely? Formulating and answering questions on measurable change together with the men and women concerned will give more useful information for increasing the effectiveness of sanitation programmes than trying to establish any impacts on health before knowing that improved conditions and practices have actually materialized and are sustained over time.

## 5. Implications for programmes and policies

What can national governments in the North and South do to free sanitation from its Cinderella position and give it a gender basis? Table 3 gives some suggestions for programmes and policies which result directly from the discussions in the preceding sections.

Table 3: Actions to make sanitation programmes more gender specific

<i>Level</i>	<i>Action</i>	<i>Reason(s)</i>
Programme	Selection of geographic areas	Gender relevance; efficiency; effectiveness
Programme	Setting of gender-specific behavioural objectives	Go beyond physical outputs to adequate maintenance and use by men, women, boys, girls
Programme	Greater and informed user choice to men and women in focus of improvements, type(s) of technology, design and contributions, incl. division within households	Sustainability of programmes
Programme	Formulate gender-specific strategies to plan and implement sanitation projects. Revise hygiene education and training strategies to include new gender insights	Effectiveness, socio-economic benefits, redressing of gender imbalance
Policy	Make capacity building of men and women a programme aim besides physical outputs and sustained behaviour change	Sustainability of programmes

<i>Level</i>	<i>Action</i>	<i>Reason(s)</i>
Policy	More gender-specific research and documentation of sanitation programmes with emphasis on whether conditions and practices continue to be improved	Insight development
Policy	Support to capacity building of agencies involved in sanitation for gender-specific and sustained programmes which improve community conditions and practices in cooperation with local men and women	Shift from short term "building" to long term "enabling"
Policy	Aim at a better gender balance, increased professionalization and inter-disciplinary staff in sanitation	Current sanitation has low status and specialization; staff is mainly male

A first suggestion is to reduce the gap in sanitation by a more efficient and gender-sensitive use of the limited means. This could imply that rather than going for a blanket approach, geographic areas and towns are selected where improvement of sanitation is most urgent. Factors in the selection could be pollution of water sources, risks to environmental health and gender-specific felt sanitation problems of the population.

Experience with sanitation programmes further learns that objectives and targets should go beyond construction of physical works to the measurable reduction of risky sanitation conditions and practices by men, women and children. Control over and benefits from these improvements should not be limited to either men or women, but be shared in an equitable manner, since sanitation improvements are a responsibility and concern for both categories.

To avoid that households and communities become permanently dependent on external support, programmes should pay more attention to the potentials, responsibilities and resources of local men, women and organizations. This implies that implementation programmes are adapted to varying means and capabilities of communities and offer local authorities and male and female heads of households a range of options from which they can choose the ones which are the best compromise between what they would like and can manage and afford. Each option itself should also be flexible enough to allow for further adaptations to local needs and conditions.

Proposals of new sanitation projects and programmes should always contain a strategy for gender-specific local planning, implementation and follow-up. To develop such strategies, sanitation agencies may need more financial and technical support to form the mixed and multidisciplinary teams for the preparatory fieldwork and formulate a suitable programme strategy.

In sanitation policy, the emphasis is still very much on coverage targets, supplemented with goals of sustained hygienic use and proper maintenance of the facilities.

Far less attention is paid to the development of capabilities of local men, women and communities to make their own improvements, and to the development in sanitation agencies of the attitudes, skills and knowledge to provide the assistance for such an approach. Policy decisions are needed on whether external sanitation programmes should continue to build facilities, or whether these programmes should focus on gender specified capacity building. Policies and support are also needed to adapt current training programmes and to encourage the organization of short courses on new insights in sanitation approaches together with mixed and multidisciplinary groups from various professions dealing with sanitation and sanitation behaviour.

Furthermore, more gender-specific research should be carried out on the long-term sustainability and impacts of sanitation programmes, and innovative programmes should be documented, including on their gender aspects.

A last point concerns staff and staff development. Sanitation is not only a Cinderella subject, but the people working in sanitation also have a Cinderella position. Work in sanitation has a low status and specialization and multidisciplinary staffing are rare. So are conferences on sanitation where different aspects and approaches are discussed and staff from various disciplines meet. And compared with the importance of women's involvement, the number of women staff working in sanitation programmes and cooperation with women's training colleges which could provide this staff is low.

During the IDWSSD, clear policies and strategies have been formulated for water supply, e.g. concerning community management, institutional development and gender. 'En passant' they have included 'and sanitation'. What is now needed is much more specific policies and strategies for sanitation, not in the least because lack of sanitation contributes substantially to the increased pollution of drinking water sources.

## References

- Ain, Q., Wegelin, M. (1992). From sanitation to development, the case of the Baldia soakpit project. (Technical paper no. 31). The Hague, The Netherlands, IRC.
- Bennett, L. (1973). Two water case studies. (Research and action project paper no. 5). Kathmandu, Nepal, Department of Local Government and UNICEF.
- Boot, M. T, Cairncross, S. eds. (1993). Actions speak: the study of hygiene behaviour in water and sanitation projects. The Hague, The Netherlands, IRC and London School of Hygiene and Tropical Medicine.
- Brain, J.L. (1976). Less than second class. Women in rural settlement schemes in Tanzania. In: Hafkin, N.J. and Bay, E. G. eds., Women in Africa: studies in social and economic change. Stanford University Press.
- Burgers, L. et al. (1988). Hygiene education in water supply and sanitation programmes. (Technical paper no. 27). The Hague, The Netherlands, IRC.
- Doucet, A. (1987). Women and water: case studies from Latin America and the Caribbean. in Zandstra, I., ed. Seminar on the participation of women in water supply and sanitation programs. (IDRC manuscript report no. 150). Ottawa, Canada, IDRC.
- Elmendorf, M. (1980). Women, water and waste: beyond access. Arlington, U.S.A., WASH.
- Fanamanu, J., Vaipulu, T. (1966). Working through the community leaders: an experience in Tonga. International Journal of Health Education, 9,3: 130-137.
- Feuerstein, T. (1986). Partners in evaluation: evaluating development and community programmes with participants. London, U.K., McMillan Publishers.
- Groote, S. de (1990). Evaluation thématique de l'intégration des femmes dans le développement. Rapport de mission concernant le Project Hydraulique Villageoise dans le Département de Zinder, Niger. Tilburg, The Netherlands, BMB.
- IRC/PROWWESS (1992). State of the art review. in Woman, water, sanitation, annual abstract journal, no.2. The Hague, The Netherlands, IRC.
- Kelles-Viitanen, A. (1983). Water and wells, symbols of prestige, power and prosperity in a Sinhalese village. Helsinki, Finland, Institute of Development Studies.
- Kishwar, I., Barq, S.A. (1990). Country paper Pakistan. In: Women and water. Manila, The Philippines, Asian Development Bank, Water Supply Division: 117-140.
- Laubjerg, K. (1984). Bangladesh rural water supply and environmental sanitation programme: socioeconomic studies. (Report no. 2.) Dhaka, Bangladesh, Department of Public Health Engineering, DANIDA and UNICEF.
- Narayan, D. (1993). Participatory evaluation: tools for managing change in water and sanitation. (Technical paper no. 207). Washington, DC, USA, World Bank.
- Roark, P. (1984). Women and water. In Bourne, P. ed. Water and sanitation: economic and sociological perspectives. Orlando, USA, Academic Press: 49-68.
- Saubolle, B.R. (1980). A woman's toilet, Nepal. in Mitchell, R., ed. Experiences in appropriate technology. Ottawa, Canada, Canadian Hunger Foundation.

Schmink, M. (1984). Community management of waste recycling: the Sirdo. (Seeds publication). New York, USA, Population Council.

Schoeffel, P. (1982). Dilemmas of modernization in primary health care in Western Samoa. Paper presented at the American Anthropological Society meeting on anthropology and the delivery of primary health care. Washington, DC, USA.

Srinivasan, L. (1990). Tools for community participation. New York, USA, PROWWESS/UNDP.

Stamp, P. (1990). Technology, gender and power in Africa. (Technical study no. 63). Ottawa, IDRC.

Sundararaman, V. (1986). Social feasibility study on the roles of women in rural sanitation: report of the study in four villages of Maharashtra state. Bombay, India, Research Centre for Women's Studies.

Toit, F.P. du (1980). A design for rural village waterpoints in Zimbabwe. in Proceedings of the seminar on water supply and drainage services in developing countries, CSIR.

UNEP/UNESCO (1990). Water-related issues and problems of the humid tropics and other warm humid regions. Report of the International Colloquium on the Development of Hydrologic and Water Management Strategies in the Humid Tropics. Nairobi, Kenya, UNEP and Paris, France, UNESCO.

United Nations (1990). Achievements of the International Drinking Water Supply and Sanitation Decade 1981-1990, New York, United Nations.

Wakeman, W. (1993). Gender issues sourcebook for the water and sanitation sector. Washington, DC, USA, UNDP/World Bank and PROWWESS.

World Bank (1990). Rural Sanitation in Lesotho: from pilot project to national Program. (Water and Sanitation Discussion Paper Series no. 3). Washington DC, USA, UNDP, World Bank and PROWWESS.

Wijk, C. van (1985). Participation of women in water supply and sanitation: roles and realities. (Technical paper no. 22). The Hague, The Netherlands, IRC and PROWWESS.



# **Gender Perspectives in River Basin Planning**

**by**

**Linden Vincent**





## **GENDER PERSPECTIVES IN RIVER BASIN PLANNING**

### **WATER RIGHTS AND LEGAL CONTEXTS**

*What are the gender implications of current legislation and legal practice? Under river basin planning institutions, will men and women have equal individual opportunity to maintain their existing rights and negotiate for new ones?*

*Where water use is managed within a group (as in many small-scale irrigation systems), are their gender implications in the registration requirements and procedures of river basin agencies? Will women be disadvantaged by the requirements of new administrative structures or forms of representation?*

### **THE NATURE OF CATCHMENTS**

*Are there gender issues in the nature of population structure and water use in different areas of a catchment? Does this have implications for the institutions and technologies promoted being promoted?*

*Where water control and mobilisation is required in the interests of particular regions, will a gender perspective better illustrate impacts of groups who are displaced, or lose livelihoods and political power?*

*If there is diversity of agrarian conditions and ethnic groups across a catchment, are institutions flexible to adapt to these differences, including their different gender arrangements?*

*Are there implications to existing gender practices in the way catchments are divided into environmental units for planning?*

### **WATER SOURCES, WATER USERS AND WATER USES**

*Is there a gender perspective in the use of particular types of source? Will changing institutional controls on water sources have differential effects on water supply, landuse and economic benefits for different groups?*

*Is there a gender perspective in how we can obtain information about sources, and hence on overall water availability and access in an area?*

*Is there a gender perspective in the sectoral uses of water, which may influence collation of accurate information on which projections will be based?*

*Is there a gender perspective in the uses and sources of water that are often ignored or considered 'disposable' under new development needs?*

*Will changing water technologies for water mobilisation, conveyance and delivery have differential effects on the livelihoods of different groups?*

### **THE PLANNING AND ALLOCATION PROCESS**

*What are the implications of poor considerations of gender issues in current spatial planning methodologies? Would planners get better plans, and people get better services, if they looked more closely at gender dimensions in water use patterns and institutional arrangements in different parts of the water sector?*

*Are there particular structural and spatial aspects of the planning process that reduce awareness and ability to appreciate gender arrangements, and that create imbalance of opportunity for groups to participate?*

*Is there a gender perspective in the sectoral uses given priority in catchment planning, or in the restriction of activities in parts of a catchment?*

*Where changes are wanted in water use practices, is there a gender perspective in who will manage these changes?*

### **RIVER BASIN PLANNING UNDER PUBLIC SECTOR FINANCIAL REFORM**

*Would a changed gender perspective improve cost effectiveness as well as performance in river basin planning? Can we do better for less through greater involvement of local representatives, or can we at least ensure achievements of basics with available resources?*

### **CONCLUSIONS: SHOULD WE PRESENT WOMEN - WATER RELATIONSHIPS AS GENERIC, OR AS REGIONAL ISSUES?**

# GENDER PERSPECTIVES IN RIVER BASIN PLANNING

Linden Vincent<sup>1</sup>

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Knowledge about the quantity, quality, timeliness and reliability of water is fundamental to human existence. Planning and management of water resources is basic to stability, economic growth and improved welfare in all countries. However, river basin planning means different things to different people. To some authorities, river basin planning is simply about the generation of data on water resource and water uses to ensure availability of water for felt needs. However, the planning process almost always involves issues of allocation of water, and the rights of people to use and dispose of water. This paper examines river basin planning as an activity concerned with water resources assessment and management, not simply the generalised modelling of resources and sectoral uses.

There are a number of examples documenting indigenous regional water management, especially the rules governing water rights and forums for their resolution (Lansing, 1991; Maktari, 1971). However, river basin planning is now almost exclusively the preserve of public agencies. This is a response to the strategic importance of water in economic growth and nation-building, and the perceived need for public institutions to administer (or take over) allocation and legislative arrangements for water. These public agencies have often taken a technocratic approach to monitoring and planning. Failure to appreciate diversity in water uses, users and institutions in the water sector, and the non-consultative determination of new land and water allocations, has often led to divergence of plans from reality, under-performance of agencies and conflict over water (Gelles, 1988; Horowitz, 1989; Lansing, 1991). Misunderstanding of the gender arrangements often found in water management and water use practices is one of these sources of underperformance and disruption.

This paper examines how greater understanding of gender roles would give better information about water uses, and about institutions for water management. The paper looks at five issues in river basin planning, and the associated concern of integrated water management, where gender differences may be present in water practices. These are:

- water rights and legal contexts
- the nature of catchments
- sources, users and uses
- the planning and allocation process
- river basin planning under public sector reforms

Under each of these points, there is a brief summary of general issues, some case studies illustrating gender divisions, and some key questions for discussion. These questions could form the basis of operational action, and part of gender awareness training for river basin planners. This paper also focuses on river basin studies in agriculturally based or industrialising countries, rather than the industrialised countries.

This paper takes the position is that there are no gender perspectives in the decision to undertake basin planning. Instead, this paper asks what increased performance may come in river basin planning if we ask more questions about gender concerns, and build such appraisal more clearly into planning activities. This paper is thus foremost a request about increased understanding about people and their use of water resources in river basin planning, which still has many weaknesses. It is this poor

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This paper is not only concerned with shifts in the activities and roles between men and women that may change the status or opportunities of the sexes. There remain many situations where gender arrangements are a means to survival of a household, and may be reflected in activities, roles, rules and forums. Disturbance of these arrangements can thus also affect the position of whole groups. In catchments, these changes have to be understood in regional space and not only in the household or group.

## **WATER RIGHTS AND LEGAL CONTEXTS**

The practice of river basin planning raises fundamental questions about ownership of water, and how water rights can be obtained, maintained and actually used. In introducing catchment management systems, the state is generally assuming that it has rights to control water sources and water uses, even if it initially attains legitimacy by confirming existing 'customary' rights. The regulation of many rivers to improve water supplies may also require the state to renegotiate existing water rights. Generally, new legislation is concerned with promoting 'access rights' only, such that water rights can be granted (or taken away) in relation to the registration of user or uses, with the erosion of rights in perpetuity under private ownership. Increasingly, water rights are disassociated from land rights, despite their strong association in the past (Knell and Whiteford, 1989). The view is growing that you do not have access to water by right, but by what you are prepared to pay, or by the degree of 'value-added' economic benefit under that particular water usage.

Much has been written about the difficulties of codifying laws, and introducing new laws and legal forums, which cannot be debated here. However, two specific gender dimensions of legal practice are raised here, where evidence suggests legislation may have differential impacts on men and women, and the roles they can play in water management.

*What are the gender implications of current legislation and legal practice. Under river basin planning institutions, will men and women have equal individual opportunity to maintain their existing rights and negotiate for new ones?*

*Where water use is managed by a group (as in many small-scale irrigation systems), are there gender implications in the registration requirements and procedures of river basin agencies? Will women be disadvantaged by the requirements of new administrative structures or forms of representation*

Water rights often exist within a tangled mixture of new secular civil law generated by representative bodies, older family law that determines rights of inheritance and marriage and

customary group rights. Even where countries have reformed both law and judiciary bodies, new arrangements may coexist with older forums for settling disputes, as people find new systems too expensive, too impersonal or too complicated for use. At issue for women is whether their rights and entitlements under new civil water law are at least equal to prior conditions, and whether they are in any way dis-advantaged by their legal status and rights in other domains. Also at issue is how their prospects for representation may change in the legal forum in which they put their case, and under which body of law their case is raised.

Examples of the legal complexity that women (and men) often face in bringing cases concerning individual water rights against water agencies (as well as against each other) can be found in studies from the Oaxacan highlands of Mexico by Parnell (1988) and Enge and Whiteford (1989).

The confirmation, negotiation or granting of rights is one fundamental aspect of river basin planning. Where group action like irrigation is involved, public agencies have great influence over the kinds of groups they will recognise, the administrative structures they may impose on these groups, and the range of responsibilities they will grant at the group level.

Group formation has been a fertile area of political interference for nation-building, with both village organisations, and water user groups in particular, coming under a great deal of regulation and change. Doubtless this meeting may have many examples of what has happened to women and their changing legal status and representation in particular projects and villages (see also the work by Carney (1992) on the Gambia, Casey (1991) in Indonesia, Hulsebolsch and van Koppen (1993) in Kenya and Pradhan, 1989 in Nepal). The standardised committee structures and rules used to create associations to transfer technical assistance are another area that can affect women's representation.

Some fundamental differences in water rights emerge depending on whether people have rights and obligations because of who they are (as under kinship or affinity) or because they have shares in water purely as a result of their investment in infrastructure. Under the former, all people living in an area or using land may have certain rights to water. Under the latter, investments nearly always become early always become associated with households and inheritance. The latter has increasingly become the model for the transfer of state assistance. Procedures tend to evolve around definition of membership (usually by household) as well as action necessary to retain membership rights (usually finance or labour or both). In some locations, for women, this can mean a shift from being a direct user with rights to a household member without direct rights.

Water rights and water management practices can be considered as 'rule sets' for which local people may select a variety of roles and forums to ensure their execution. However, greater state involvement has often led to introduction of standardised organisations for the administration of water activities and rules. These are often created for specific purposive action, to ensure generation of funds, to improve performance in production or water use efficiency. Yet earlier institutional arrangements may simply have existed to ensure opportunities for production. Typically new kinds of committee structures are introduced, with particular kinds of representative and 'democratic' representation, with a range of new financial and disciplinary rules about operations. These may often make assumptions that men control tenure and arrangements and decisions about cropping, and procedures that will

improve institutional and technical performance. For example, in Bhutan, new irrigation organisations were initially developed in ignorance of the matrilineal tenure arrangements operating in several areas, the position of women as key decision-makers in what crops were grown, and their preferred forms of participation in forums for collective decision-making (Tjerkstra, 1990a,b).

In her study of highland Peru, Lynch (1991) suggested that women were given more of a voice within local organisations only after the key areas of new political struggle, power and prestige had shifted to the supra-group level in negotiating water rights. Men still took the role in these negotiations with the state, making the granting of better representation to women cosmetic rather than real.

Land and water management institutions have often included roles for 'episodic negotiators', who are available to deal with various conflicts, crises and advisory needs, and who exist independent of a particular activity. They often also have important roles in maintaining local institutional memory about events and responses. Often these have been accorded status through some cosmological or religious position, Isbell (1978) noted that there were records of male and female representatives in Chuschi (Ayacucho) in Peru, who acted as a voice for male and female concerns and interactions between them, although specifically female roles in agricultural institutions have now disappeared. The secularisation of roles and forums, and shifts in the ways 'sacred' values are manipulated for political reasons, has had a number of implications for women's rights and representation.

Bureaucratisation of water activities often removes much decision-making outside the locality, removing the institutional memory from a location. The past is not always a helpful model for the future, but if there are gender divisions in livelihood activities then women should be asked about the form of representation they want at the local and regional level.

Some water agencies may simply declare public control of water and simply insist on registration of water rights if users want water. Often, however, groups may be encouraged to participate in registration with offers of rehabilitation or improvement of their water supplies. Sometimes the difficulties presented may differ depending on who is asked. Ahlers (pers.comm) found that migration had left women as the main irrigators in Mulalillo, Ecuador. However, it was still the male representatives who were asked what they thought could be technological solutions to water scarcity in the scheme, giving a very different perspective from those women actually using water. Pradhan notes how in one Nepalese assistance project, women were studiously consulted in the first stage of project negotiation, but less frequently consulted thereafter. Clearly the lesson is not only to talk to the water users as well as the representatives, but to keep talking to them as assistance continues.

## **THE NATURE OF CATCHMENTS**

Some parts of the world are fortunate in having relatively small river basins, with a drainage system which is easily modelled, and water which moves rapidly through the catchment to flush out water pollutants. In many parts of the world, river basins are far less easy to define. Their size makes them difficult to manage and their complex water regimes make it difficult to predict water quantity and quality. Poor inventory and poor control of abstraction and

pollution can present water planners in such catchments with major headaches. Equally, the very rapid patterns of change in settlement and economic activity in some catchment areas, and shifts in users and uses makes sensitive research and development essential to good planning (Biggs, 1981). River basin planning may be as vital as many people say, but it is rarely as easy as it is often represented.

Catchments can be identified in terms of socio-economic conditions (especially water scarcity or urbanisation levels) as well as environmental types. This section raises three themes where gender issues may be important.

*Are there gender issues in the nature of population structure and water use in different areas of a catchment? Does this have implications for the institutions and technologies promoted being promoted?*

*Where water control and mobilisation is required in the interests of particular regions, will a gender perspective better illustrate impacts of groups who are displaced, or lose livelihoods and political power?*

*If there is diversity of agrarian conditions and ethnic groups across a catchment, are institutions flexible to adapt to these differences, including their different gender arrangements?*

*Are there implications for existing gender practices in the way catchments are divided into environmental units for planning?*

Patterns of migration often account for a high proportion of female-headed households in rural areas, leaving women as both users and managers of water. River basin planning officials should be prepared to discuss issues and build institutions with the women who are taking responsibility in such regions. In rural areas, water practices are often distinguished by planners into the domestic, subsistence agriculture and commercial agriculture spheres. Not only are there often sweeping assumptions about how men and women are present or absent in these sectors. Development interventions have also led to the promotion of commercial opportunities for men in areas at the expense of interests held by women. Sometimes conservation policies in particular areas (especially forests, wetlands and reservoir catchments) restrict access to land and water, with little attention to the impacts on users, especially if they are seen to have no 'legitimate status'. Finally, in regions of competition for water, commercial opportunities are often given priority over subsistence.

There are many examples of new water developments that have either displaced people, or had major impacts that reduce the economic options and political power of local groups. These can also have differential effects on men and women. A few countries do include impact on women as a criteria in their feasibility studies (e.g. India), but even this concern is rarely translated into special arrangements for compensation or assistance subsequently.

Some of the best known examples of poor intervention in river basin development come in African rice farming (Carney, 1992; Dey, 1985). An example of widespread regional disruption by refugees from water development was the displacement of subsistence farmers in the Senegal valley by the Mauritanian government in the interests of commercial farmers

(Horowitz, 1989). However, it is dam developments which probably have the greatest reputation for differential effects on local people, not least because of difficulties in getting compensation.

For example, in the Sardar Sarovar (Narmada) project in India, the compensation arrangements were initially proposed in relation to the land ownership of households and sons in the household: arrangements for other types of tenant were not made (Morse and Berger, 1992). With development of the Seguling reservoir in Indonesia, displaced agriculturalists apparently moved successfully into fishing as a substitute livelihood activity, but this also had differential effects on the budgets and duties of different household members (Cernea, 1990). The Itaparica dam in Brazil has involved large-scale planned resettlement. This has had major implications for those displaced and those living in areas to be resettled and differential implications for men and women with changing livelihood strategies and institutions.

In her study of the Vilacanote valley in Peru, Bolin (1990) noted how river regulation reduced the power and status of Indian communities at higher altitudes, who previously gained economic and political benefits from their ability to control (or cut off) water supplies. In Vilacanota, the fact that most highland residents only spoke Quechua, while most documentation and public debate was in Spanish, also weakened their ability to participate and negotiate. The competition for highland water resources has been severe throughout the central Andean region, having particular impacts on some of the high altitude lands in use for grazing. In turn, there has been some resistance to new organisational arrangements proposed by the state, seen as making resources more vulnerable to control by local and lowland elites (Gelles, 1988). While some highland communities have been able to 'play the state' to get more resources locally in exchange for collaboration, many find their resources increasingly under threat. There can be multiple problems in more 'marginal' catchment areas in that land use/settlement patterns do not give rise to the formal registered 'communities' with which the state can negotiate. Also some settlements may never have been given specific water rights, while migration and labour patterns also leave larger numbers of women in these areas.

## **WATER SOURCES, THEIR USES AND USERS**

River basin planning has assessments of water quantity, quality and timeliness and reliability at the core of its activities. Nevertheless the limits to hydrological monitoring and modelling are considerable, even where agencies are well-financed and highly-trained. Hydrological measurement and forecasting techniques are only really accurate in quite a narrow range of river flow regimes, and for particular kinds of sedimentary aquifer formations. Public works have focused heavily on surface flow regulation, well developments and soil conservation works. There are some particular weaknesses in understanding the behaviour of springs, ephemeral streams, wetlands, hand-dug wells, and small ponds and lakes. These can be vital to livelihoods in a particular area, and often have complex water rights associated with them in relation to users and uses.

Equally, river basin planning is quite poor in inventorying the use of sources. Sengupta (1993) has commented on the uncertainty of estimates of minor irrigation schemes in India. There is a particular problem in that often only tanks and diversion systems are documented. A range of specialised water-harvesting techniques are often ignored simply because they do not

fit the conventional technical description used by agencies. However, there is also a likelihood of underestimate of numbers of small schemes. Some similar issues arise in domestic water supply. Another issue in domestic water supply may be the multiplicity of water sources in use which often remain invisible because they are not considered acceptable sources for water by agencies. While we should not downplay the existence of regions without adequate sources of water, we should also not underestimate the various interests in declaring areas short of water and deserving of particular technological solutions. Sources can often be strongly differentiated in terms of their users and uses, so we can ask:

*Is there a gender perspective in the use of particular types of source? Will changing institutional controls on water sources have differential effects on water supply, landuse and economic benefits for different groups?*

*Is there a gender perspective in how we can obtain information about sources, and hence on overall water availability and access in an area?*

*Is there a gender perspective in the sectoral uses of water, which may influence collation of accurate information on which projections will be based?*

*Is there a gender perspective in the uses and sources of water that are often ignored or considered 'disposable' under new development needs?*

*Will changing water technologies for water mobilisation, conveyance and delivery have differential effects on the livelihoods of different groups?*

In any locality, there is often differentiation between the water sources used for different activities, and by different users. This differentiation in users and uses can reflect both the characteristics of water supply at that sources, and whether it is under communal or private usage, as well as social differentiation locally. The specialised use of certain wells or springs for domestic water supply is probably the best example of this. If women are the main carriers or users of water, then they will have the knowledge of the hydrological behaviour of the source. In domestic water supply, it is well-known that men may often be the point of contact in developing agreements about water supply projects, or for information about health problems in an area. However, they often know relatively little about the reliability of water supply. The provision of hydrological information by women is less discussed in irrigation. However, women have been key informants where they are primary users in sites, as for example in the dambo areas in East/Central Africa.

We also find situations where local mobilisation of water creates new 'water use catchments' units quite distinct from the natural catchment. For example in the dissected highlands of northern Ecuador, water for irrigation is combined from a number of sources. The catchment of the irrigation systems are quite different from the natural catchments, creating severe challenges in the allocation of water rights. While we know little of any gender perspectives in these contexts, these systems act as a reminder that the local constructs of territory of water resource management can be quite different from those adopted by hydrology departments or by the public administration.



Different local groups may share resources in lakes and wetlands by different local groups, so that these cannot be seen as simple hydrological units. The actual 'water resource domain' of a settlement may be quite different from the land formally assigned to the jurisdiction of that settlement. There may be gender patterns in land use, as in several African farming systems (Carney, 1992; Dey, 1985).

Looking at impacts of technology choices, the best known examples probably stem from domestic water supply. The choice of particular technology policies (for example a focus on handpumps and shallow wells) will have very specific impacts on groundwater. However, the design of the handpump and pump site needs special consideration if its primary users are women. If water is supplied through a reticulated system with standpipes, in a system where local storage tanks only fill once a day, the time of filling should consider timetables of domestic work, to ensure the system will be operation when people have time to collect water. Consultation is thus important in setting up the schedule of water abstraction at a site.

Soil and water conservation initiatives have also had to improve their understanding of gender issues, both in land tenure and in anticipation of individual and collective work arrangements. For example the terracing arrangements that have proved so successful in Machakos district, Kenya were particularly easily adopted by groups of women who were frequently the cultivators on these slopes (Critchley and Graham, 1990).

In water resources, gender differences tend to be perceived most clearly in spheres of domestic and agricultural use, and in environmental health and pollution control, where both legal and representative issues often experience gender differences. Industrial water use is usually discussed as gender neutral. Nevertheless, it may be important to examine women's participation in the industrial water sector and see if there are any imbalances in the interests served by permitted patterns of water development and water use, or existing industrial legislation. Women can be heavily involved as owners as well as the workforce in many of these industries, from agro-processing to textile manufacture. One issue may be the position of enterprises dependent on public water supplies, their treatment by the water agencies, their ability to arrange private water sources and rights in industrial law. Preferential attitudes on what constitutes an enterprise or industry, and thus has rights, may also be important. Planners can find it particularly difficult to distinguish the diversity of small-scale industries in an urban and peri-urban areas, and their consumption and pollution regimes. In turn, small enterprises are remarkably vulnerable to the vagaries of water quality and quantity fluctuations either from agency performance, or discharges permitted by other establishments. Fair access to resources, fair legal redress and equitable treatment under law is of concern to all small businesses, and female-headed enterprises within them.

Planners in industrialised catchments, where water is virtually entirely commodotised, under quite strict legislation and general welfare provisions ensuring minimum services, probably see few, if any gender issues in their service provision, data sets or employment structures. We should accept that there can be situations where there are no gender differences in law, representation or access, but realise they are probably quite rare.

## THE PLANNING AND ALLOCATION PROCESS

Many countries have active policies for river basin development, At issue is whether they have programmes only for the general mobilisation of water, or broader policies that look in more detail at social development needs of settlements and agricultural projects. Also how well they juxtapose environmental issues with hydrological potential and different uses and users. A large number of countries would claim that they do have procedures for spatial planning, even though these may not be specifically associated with river basin agencies. Very few countries, however, have 'bitten the bullet' to introduce formal water control and allocation procedures. Nor are control and allocation procedures always transparent and accountable. Naturally, the process of decision-making and consultation can make a great a great difference in the delivery of services to different groups.

*What are the implications of poor considerations of gender issues in current spatial planning methodologies? Would planners get better plans, and people get better services, if they looked more closely at gender dimensions in water use patterns and institutional arrangements in different parts of the water sector?*

*Are there particular structural and spatial aspects of the planning process that reduce awareness and ability to appreciate gender arrangements, and that create imbalance of opportunity for groups to participate?*

*Is there a gender perspective in the sectoral uses given priority in catchment planning, or in the restriction of activities in parts of a catchment?*

*Where changes are wanted in water use practices, is there a gender perspective in who will manage these changes?.*

Several of these questions have already been answered by previous sections. There very often are important gender dimensions (and gender assumptions by agencies) in the extrapolation of domestic, subsistence and commercial demands, and development of institutions to service these demands.

River basin planning methodologies can be highly empirical and reductionist in their treatment of agricultural, industrial and population growth (Rondinelli, 1981). Estimated needs are often assessed without attention to actual needs and patterns of water use, with very empirical rules on how water is to be supplied. Centres of population, industrial and agricultural change are rarely studied in terms of changing service needs, and the technological and institutional implications of these changes. Regional water planning structures are usually also usually set up for information flows at the national or regional level, between sectoral bureaucracies. They rarely have the sharing of public information with 'grass-root' representatives as a major objective (although many local agency staff would like more time to work with the public).

There has always been a tension in river basin planning in the subdivisions of territory and local organisation of planning information. Even though water information is assessed in local catchments, information can be organised on local administrative units. Where information is generated by public agencies, the level to which it is dis-aggregated and disseminated, has considerable influence on the relative access of different groups to information.

As discussed later, there is a tension between greater interest in data generation and modelling for river basin planning, and financial reforms that squeeze resource for hydrological information. The common solution is to centralise planning in a special research wing, which also tends increasingly to take on functions once held by local hydrologists or district officials. While these centres are important in more sophisticated modelling, they often lack the local knowledge in interpreting data. Their data is also much more accessible to powerful individuals who often consult officials in such units directly for advice. This effectively disempowers local technical representatives and representatives who are the main contact point for poorer, less mobile people, who are often also women. River basin planning needs good information, but it should also have effective dissemination of information (Vincent, 1991).

## **RIVER BASIN PLANNING UNDER PUBLIC SECTOR FINANCIAL REFORM**

There is a large literature on ideal arrangements for river basin planning and integrated water management. Sadly, many of these look increasingly unaffordable as governments implement financial reforms, putting even existing procedures in river basin planning under duress. The question for many governments is not what more can we do, but how can we use what we have more innovatively?

*Would an improved gender perspective improve cost effectiveness as well as performance in river basin planning? Can we do better for less through greater involvement of local representatives, or can we at least ensure achievements of basics with available resources?*

Governments and donors pay lip-service to the role that women can play in local resource management, and recognise the improved performance that can come from consultation in many programmes. Practice is more variable, but is improving (it seems to be much better in bi-lateral programmes than in the multi-lateral programmes, and the commitments of some country policies are stronger than commitments to female participation in many funding agencies and donor countries<sup>2</sup>). However, women are only likely to maintain or improve these roles when there is effective consultation that recognises these positions, and addresses felt needs more effectively. This commitment starts locally, and until women can obtain or maintain roles at this level, there is little point about expressing concern about their lack of participation in more senior or powerful roles. Women do play significant roles, and not just different roles, from men, in many local activities. They can be just as competent in some roles as men if given the chance. What is needed is greater attention to promoting choice and options in the long-term.

There are difficulties in this encouragement, even for committed donors. Institutional development to empower more women usually depends on commitments to 'process projects', where local people control the institutional arrangements and activities that evolve. They take a lot of time, and usually a lot of resources, and their benefits are not easily quantified.

<sup>2</sup> for example the Government of India requirements of women representatives in village water committees including representation from scheduled castes and tribes, and non-educated women

Nevertheless, the real issue is a wider blindness about how women are already involved in their local societies.

There is certainly a need for planning and management at the supra-community level, and there remains great uncertainty about what activities will remain as states withdraw from public sector activities. However, to help new options evolve, we could simply ask what people still want from the state (and what they feel they can manage themselves), rather than hypothesise on abstract arrangements. What is likely is that if arrangements were evolved in relation to felt needs and local actors, women who were already involved at local levels would certainly become more involved at a higher level. Sadly, obtaining a fair voice for different users and users is about power relations in general and it is the representatives of poorer groups - male or female, who can find it difficult to find a voice. River basin management has always been more about supporting regional development than ensuring individual equity. It is likely that reduced expenditure on planning will exist more than ever to inform the state rather than protect the community.

Finally, we need to recognise that, while river basin planning is extremely important in a number of areas, it also remains very inadequate in those areas. Emerging problem areas include the regional sharing and pollution control of water sources in water-scarce areas and in the water management of cities and large towns. We need some practical administrative arrangements in these areas, that encourage individual and grassroot trust and participation, before making assumptions on how women could or could not be involved.

## **CONCLUSIONS: SHOULD WE PRESENT WOMEN - WATER RELATIONSHIPS AS GENERIC, OR AS REGIONAL ISSUES?**

How we promote gender as a policy issue in water resources management will have ramifications for the results of the promotion. Rogers (1992) has noted the number of 'sanctified' associations or objectives that exist in the field of water. These include, for example, the association assumed between water and health, or water mobilisation and economic growth. Common sanctified objectives include increasing efficiency in water use, or the subject of this paper - river basin planning. While a few voices question these generic associations and needs, there are also strong vested interests in promoting and retaining them. Women also tend to be given either sanctified roles, or no roles, in these different sanctified policy concerns.

My own feeling is to avoid sweeping generic claims about what women do in water resources, about the existence of gender roles and biases in river basin planning, or where these lie. Such claims can polarise views about the roles women can and should play, and may inadvertently allow governments and donors to narrow the field in which they direct special initiatives to involve women. What we can say with certainty is that river basin planning can be improved by attention and action on gender issues in different parts of the water sector, but that these will vary regionally.

In conclusion, the returns in river basin planning from the specific targeting of women are unpredictable in the short-term, although more appreciable in the longer term. This greater involvement would not only give improvements in their personal status. It would also give

better representation and communications in water management in general and women's interests in particular. It will take time for more women to move into new areas of responsibility, and to establish what is right for them rather than the priorities of agencies.

However, it is certain that much more effective planning would materialise immediately if gender dimensions of water resource use and resource management were better understood, and the existing roles and activities already played by women received continued and improved support.

## References

- Biggs, S. (1981) 'Monitoring for Replanning Purposes: the Role of Research and Development in River Basin Development', p. 325-341 in Saha, S.K. and Barrow, C.J. (eds) op. cit.
- Bolin, I. (1990) Upsetting the Power Balance: Cooperation, Competition and Conflict in an Andean Irrigation System. *Human Organisation* 49(2): 140-148
- Carney, J. (1992) Contract Farming and Rice Growers in the Gambia. *Irrigation Management Network paper 15*. July 1992 (Africa Edition). London: ODI
- Casey, M. (1991) Groundwater Development on Madura, Indonesia: Gender Issues in an Irrigation Project. *Irrigation Management Network paper 1*. October 1991. London: ODI
- Cernca, M. (1990) 'Poverty Risks from Population Displacement in Water Resources Development'. Development Discussion Paper 355, Harvard Institute for International Development.
- Critchley, W. and Graham, O. (1990) Looking After Our Land: Soil and Water Conservation in Dryland Africa. London: International Institute of Environment and Development.
- Dey, J. (1985) 'Women in African Farming Systems', in IRRI, *Proceedings of a Conference held on Women in Rice Farming*. Los Banos, Laguna, Manila, the Philippines.
- Enge, K.I. and Whiteford, S. (1989) *The Keepers of Water and Earth: Mexican Rural Social Organisation and Irrigation*. Austin, Texas, USA: University of Texas Press.
- Gelles, P.H. (1988) Irrigation, Community and the Agrarian Frontier in Cabanaconde (Caylloma, Arequipa), Peru. Americanists Congress, Symposium on Canal Irrigation and Water Control Systems in the Andes, Amsterdam.
- Horowitz, M. (1989) 'Victims of Development'. Bulletin of the Institute of Development Anthropology 7(2): 1-8. Binghampton, NY.
- Hulsebosch, J. and van Koppen, B. (1993) Increasing Women's Benefits for Irrigation Development: Smallholder Irrigation in the Kano Plains, Kenya. *Irrigation Management Network paper 23*. June 1993. London: ODI.
- Isbell, B.J. (1978) *To Defend Ourselves: Ecology and Ritual in an Andean Village*. Austin, TX, USA: Institute of Latin American Studies, University of Texas.
- Lansing, J.S. (1991) *Priests and Programmers: Technologies of Power in the Engineered Landscapes of Bali*. USA: Princeton University Press.
- Lynch, B.D. (1991) Women and Irrigation in Highland Peru. *Society and Natural Resources* 1991 Vol. 4: 37-52.
- Maktari, A.M.A. (1971) *Water Rights and Irrigation Practices in Lahj. A study of the Application of Customary and Shari'uh Law in South-west Arabia*. Cambridge, UK: Cambridge University Press.
- Morse, B. & Berger, T. (1992) *Sardar Sarovar. Report of the Independent Review*. Canada: Resources for the Future Inc
- Punell, P.C. (1988) *Escalating Disputes: Social Participation and Change in the Oaxacan Highlands*. Tucson, USA: University of Arizona Press.
- Pereira, H.C. (1989) *Policy and Practice in the Management of Tropical Watersheds*. San Francisco: Westview Press.
- Pradhan, N.C. (1989) 'Gender Participation in Irrigation System Activities in the Hills of Nepal' Proceedings of the Second Annual Workshop on Women in Farming Systems: September 27-29, Institute of Agriculture and Animal Science, Chitwan/ USAID
- Rogers, P. (1992) 'Comprehensive Water Resource Development: A Concept Paper'. World Bank Policy Research (Water and Sanitation) Working Paper 879
- Rondinelli, D.A. (1981) 'Applied Policy Analysis for Integrated River Basin Development Programmes: a Philippines Case Study', p. 285-323 in Saha, S.K. and Barrow, C.J. (eds) op. cit.
- Sengupta, N. (1993) *User-Friendly Irrigation Designs*. London, New Delhi: Sage Publications.
- Saha, S.K. and Barrow, C.J. (1981) *River Basin Planning: Theory and Practice*. Chichester: Wiley.
- Ijerkstra, E. (1991) Rural Women in Bhutan. Mimeo by author at Irrigation Division, Ministry of Agriculture. Bhutan

- Rogers, P. (1992) 'Comprehensive Water Resource Development: A Concept Paper'. World Bank Policy Research (Water and Sanitation) Working Paper 879
- Rondinelli, D.A. (1981) 'Applied Policy Analysis for Integrated River Basin Development Programmes. a Philippines Case Study', p. 285-323 in Saha, S.K. and Barrow, C.J. (eds) *op. cit.*
- Sengupta, N. (1993) *User-Friendly Irrigation Designs*. London, New Delhi. Sage Publications.
- Saha, S.K. and Barrow, C.J. (1981) *River Basin Planning: Theory and Practice*. Chichester. Wiley.
- Tjerkstra, E. (1991) Rural Women in Bhutan. Mimeo by author at Irrigation Division, Ministry of Agriculture, Bhutan.
- Tjerkstra, E. (1991) Land Tenure and Irrigation in Bhutan. Mimeo by author at Irrigation Division, Ministry of Agriculture, Bhutan.
- Vincent, L. (1991) Enhancement of Groundwater Data Analysis and Dissemination in Tamil Nadu State, India. A Report for the Ford Foundation.





**Against the Current: Women, Mainstreaming  
and Water in UNICEF**

**by**

**Beth Woroniuk**



**AGAINST THE CURRENT:  
WOMEN, MAINSTREAMING AND WATER IN UNICEF**

**GENDER AND WATER RESOURCES MANAGEMENT  
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## I. INTRODUCTION

"Barnacle projects." That is how women's components in larger projects have been characterized: they are stuck on the outside and have little impact on the overall goals or direction of the project.<sup>1</sup> In the case of the water and sanitation sector, it is an apt metaphor. Women are often seen as a potential target group, both as users of a water supply or as volunteers to maintain the water system, yet how often do women participate as principle decision-makers and play a meaningful role in the overall direction of development plans? The design and implementation of development plans that move in this direction is as difficult as swimming against the current.

In 1991, four donor agencies -- the Australian International Development Assistance Bureau (AIDAB), the Canadian International Development Agency (CIDA), the Danish International Development Agency (DANIDA) and the Swiss Development Cooperation (SDC) -- commissioned an extensive evaluation of UNICEF. The Evaluation looked at UNICEF's performance in six countries (Mali, Mozambique, Bolivia, Nicaragua, Bangladesh and Indonesia) and in four sectors: health and nutrition, water and environmental sanitation (WES), women in development (WID)<sup>2</sup> and emergency response. The evaluation teams were coordinated by Goss, Gilroy, Inc of Canada and COWIconsult of Denmark (independent consulting firms). Field visits were conducted in 1992 and the consultants submitted the final reports in early 1993. This paper draws on the material gathered and the work conducted during that evaluation.<sup>3</sup>

This paper looks at UNICEF's WID/gender policy and practices and their implications for the water and sanitation sector. We will argue that although UNICEF has a well-developed WID policy and has attempted to implement a "mainstreaming" strategy, the implementation in the WES sector has been very uneven. There have been some successes (and, some could argue that UNICEF is ahead of many other major donors in this area), yet compared to the objectives set by UNICEF itself there is still a long way to go. Work to ensure that gender considerations influence WES project design and

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<sup>1</sup>Many thanks to Patricia Keays for this image.

<sup>2</sup>In both the evaluation reports and this paper "women in development" refers to the general field of WID or gender and is not meant to be limited to a specific approach, such as defined by Rathgeber (1990) and others.

<sup>3</sup>The author would like to thank the donor agencies for allowing the material from the evaluation study to be used in this paper. The author would also like to thank UNICEF once again, whose staff were generous in their time and open in their discussions throughout the evaluation process. The views expressed in this paper are those of the author and do not necessarily represent those of either the donor agencies or UNICEF. See Engberg-Pedersen et al (1992) for the overall conclusions of the evaluation.

implementation, and to ensure that WES programmes work towards women's empowerment still faces many challenges. In addition, UNICEF's primary focus to date on the technical sides of water programming has not facilitated overcoming these challenges.

Two notes regarding the methodology of the evaluation: first, UNICEF is a large and complicated organization working in many countries. The six countries were selected with a view to providing a cross-section and a general overview of UNICEF's approaches, activities, successes and weaknesses. It is true that other countries may have programmes with elements that are not discussed in the study – but the evaluation aimed to capture major trends rather than highlight exceptional programmes in specific countries. During the discussions with UNICEF on the sector reports, the evaluation team was told "if you had visited country x you would have seen programme y which contradicts the statement you are making." That could very well be true, but the evaluation methodology was aimed at researching general trends in UNICEF's work and impact on the ground.

Second, WID and WES are often seen as separate "sectors" – as was the case in the evaluation design! The cross-cutting nature of gender analysis is very difficult to incorporate in practice. The evaluation process itself was not always successful at "mainstreaming" gender concerns and WID was often treated as a separate sector or an "add-on" to the other sector reports. Implicitly, water and sanitation consultants were often asked to use the "barnacle approach" to their own analysis.

## II. UNICEF's WID/GENDER POLICY<sup>4</sup>

### A. General Policy

In general, UNICEF at the central, institutional level, has a clear policy regarding women in development that is based on a gender framework. In its 1987 **Implementation Strategy for UNICEF Policy on Women in Development**, UNICEF outlined two "comprehensive objectives":

- 1) UNICEF needs to strengthen, within the framework of its core country programme development, activities that improve the knowledge, empowerment, health, social and economic situation of women in poverty households, both in

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<sup>4</sup>For a full discussion of UNICEF's WID policy and approach see Woroniuk & Freeman (1992).

their own right and because they are the key resource for the success of the UNICEF priority programme for infant and child survival.

2) UNICEF needs to interpose (interject) women-specific concerns into the CSD [child survival and development] strategy which has generally been approached as gender neutral and child-centred.(pp. 3-4)

In implementing this new policy, UNICEF set out to adopt a multi-pronged strategy that included both the integration of women's concerns within regular programming and the development of initiatives specifically aimed at women. The integration of women and their concerns into all programming sectors (mainstreaming) is an approach that many international organizations have attempted to employ. Since 1987, UNICEF has worked to refine its understanding of these objectives and to implement the policy in its entirety.

In the 1992 progress report on the implementation of its WID policy, UNICEF outlined a series of specific measures that should be taken to address women's status and development. These measures demonstrate the mix of mainstreaming and women-focused initiatives which the UNICEF New York Headquarters is urging country programmes to pursue:

- (a) Advocacy and social mobilization nationally and internationally to promote the adoption and implementation of policies and legislation to ensure women equal status and access to resources and opportunities, with particular attention to poor women and those heading households;
- (b) Provision of information, education and training to women on their rights, on legislation and on how to utilize them to their greatest advantage;
- (c) Promotion of specific laws to ensure women's equitable rights in inheritance, marriage and divorce;
- (d) Strengthening of women's income and employment opportunities to assure economic independence, a critical factor in status and personal development;
- (e) Capacity-building to empower women's groups, organizations and national machineries to be fully involved in the economic, social and political decision-making processes, especially in democratization and other changes affecting their societies;
- (f) Involvement of men and women in training programmes in gender awareness, analysis and planning to encourage positive attitudes regarding their relationships and responsibilities in society and development;
- (g) Awareness of possible gender disparity in all the programmes developed and implemented, taking necessary corrective measures;

- (h) Ensuring that the goals for children and human development in the 1990s respond to the needs of women in a synergistic manner. (paragraph 97)

Strengths of UNICEF's WID policy have included a strong advocacy element and the broadening of the analysis to include girls and young women. UNICEF documentation has often included strong statements - for example its *State of the World's Children 1992* argued that "a new world order should oppose the apartheid of gender as vigorously as the apartheid of race" (UNICEF, 1992b). UNICEF's focus on the "girl child" has broken new ground and brought attention to a group that is often overlooked and neglected.<sup>5</sup>

## B. Mainstreaming Strategy

Despite this clearly articulated policy, the evaluation found a significant gap between policy definition and implementation. This "implementation gap" is, by no means, unique to UNICEF. Many other organizations have had difficulties making this crucial step.

The primary strategy used by UNICEF in implementing the policy has been "mainstreaming." Mainstreaming, or fully integrating women in all sector and development programmes, has become a popular approach with international development agencies. One impetus behind this strategy is the concern that despite WID efforts and WID-specific projects throughout the 1980s, women's concerns and participation were still marginal in development plans and development activities: isolated projects appeared to be having limited impact, resource allocations were still small fractions of overall project and institutional budgets, and WID units usually played marginal roles. Thus, it was argued, the solution lay in the integration of women's issues and the adoption of gender sensitivity in all activities.

In a 1992 paper presented to the OECD/DAC/WID Expert Group, Rounaq Jahan argued that mainstreaming has been conceptualized in two distinct ways:

- Mainstreaming as an Agenda Setting Strategy: This implies transforming the existing development agenda with a gender perspective. Women's participation as decision-makers in determining development priorities is the key under this concept. Women participate in all development decisions, and set goals and objectives which fundamentally change the nature of the existing mechanisms.
- Mainstreaming as an Integrationist Strategy: This implies addressing gender issues within existing development strategies and priorities. Widening WID concerns across a broad spectrum of sectors is the key under this concept. The overall development agenda does not get transformed but each issue is adapted to take into account women and gender concerns. (p. 5)

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<sup>5</sup>One issue that prompted considerable discussion during the evaluation was: should UNICEF programme for women "in their own right" or for women as mothers? Although UNICEF's policy opts clearly for the first option, this focus provoked a great deal of discomfort on the part of some commentators and staff.

Jahan argued that although the majority of the strategies pursued by development agencies and national governments are "integrationist" rather than "agenda-setting", these two strategies are not necessarily mutually exclusive and both can be pursued simultaneously. UNICEF's strategy does attempt to combine these aspects – at the level of advocacy, UNICEF has tried to change the development agenda, while at the programme level, concerns have focused on integration.

Jahan also distinguished between two types of specific strategies pursued by donor agencies when attempting to implement a mainstreaming approach - institutional and programming:

Institutional strategies include instruments and procedures relating to responsibility, accountability, co-ordination, monitoring, evaluation, and personnel policy. Programming strategies include instruments such as guidelines, training, resources, research, country programming, policy dialogue and project formulation. (p. 9)

Building on Jahan's list of strategies, the evaluation developed a longer list of both strategies and prerequisites for a successful mainstreaming strategy.

#### 1. Institutional Elements

These elements relate to the institutional or organizational capacity of an organization to develop and implement a mainstreaming approach.

- i) *Clear definition of organizational policy and goals:* An essential element for a successful mainstreaming approach is a clarity of vision.
- ii) *Dissemination of policy and institutional goals throughout the organization:* Even though organizational policy may be clearly defined at the central level, it is still important to ensure that the policy is publicized and understood throughout the organization.
- iii) *Improved institutional capacity:* New skills and abilities are required for the implementation of a mainstreaming strategy. Individual staff members will have to master the general concepts and then see how they can be applied in their day-to-day work. Institutional structures and practices will have to change in order to incorporate the expanded expectations surrounding initiatives in all fields.
- iv) *Demonstrated commitment from senior management:* Clear, unequivocal support for the mainstreaming strategy and WID objectives should come from senior management.
- v) *Organizational strategy:* Recent WID history has demonstrated over and over that it is not enough to develop a policy and then urge staff to comply with that policy. Policies are not "self-implementing." This is particularly important in the case of WID policies where resistance and inertia are encountered at many different levels. Officials invested with the responsibility to implement the policy must develop a plan on how progress is to be made. Such a plan would include the consideration of all the elements listed in this section and others (such as ways of recognizing and



overcoming resistance, and building alliances). One or two staff members at the national level cannot "mainstream women." Rather than implementing the policy themselves, they should seek ways of making others responsible for its implementation.

- vi) *Institutional location or structure*: The location of WID staff or the WID unit within the structure of an organization is an important indicator of the power or importance granted the issue.
- vii) *Accountability mechanisms*: The organization must develop mechanisms to monitor the implementation of the policy and ensure that its goals are translated into programming options.
- viii) *Evaluation*: Evaluations at the institutional level play an important role in the successful implementation of a mainstreaming strategy. An organization should have concrete, short-term, organizational goals for strategy implementation (what will the organization look like when the policy is implemented?), indicators to measure progress in policy implementation (is the organization on the right track?) and regular evaluations to determine progress and obstacles (is progress being made toward the established goals? why or why not?).
- ix) *Training*: In the last decade, most development agencies interested in WID have pursued training strategies. Several training models have been developed for use in different contexts and by organizations with different mandates, programming specialties and programming methodologies.<sup>6</sup>
- x) *Dialogue with women's organizations and networks*: Contact with, support for and learning from women's groups are important elements in a mainstreaming strategy. These groups can provide input, support, inspiration, research and contacts for the UNICEF staff and the country programming process.
- xi) *Dialogue with other donors*: Exchanging experiences, networking, sharing resources, avoiding duplication of resources, and developing joint advocacy strategies are all possible benefits of ongoing dialogue with other donors in support of a mainstreaming strategy.
- xii) *Institutional flexibility and willingness to take risks*: The path to implement a mainstreaming strategy is fraught with uncertainties and difficulties. There is no recipe to follow or proven set of steps to take. Thus institutional risk-taking and inventiveness are highly desirable characteristics.
- xiii) *Resource commitment*: The commitment of both human and financial resources is an essential prerequisite for a successful mainstreaming strategy -- especially in the early stages when the organization is attempting to build its internal capacity (ie. funds

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<sup>6</sup>See Rao *et al.* (1991) for an overview of training experiences and some of the major lessons learned.

will be required for research, training, consultants, networking, sharing experiences, and documentation).

In examining UNICEF's work in the six country programmes studied, the evaluation found very few of these elements. Programmes did vary from country to country with some programmes strong in some areas, others strong in other areas, but on the whole, the overall effort did not measure up to the goals that UNICEF itself had established.<sup>7</sup>

UNICEF's policy is clear at the institutional level. The application of this policy at the country level, however, was often uneven and confused. In Indonesia for example, there was confusion around the policy and several staff members felt that gender sensitive programming involved the imposition of "western feminist values."

There were few examples of institutional strategies for the implementation of the WID policy. In other words, there were few, if any, institutional plans to measure the progress in the implementation of the policy. WID staff (present in four of the six country programmes studied) were often the only ones tasked with the implementation of the policy. Yet they were also responsible for WID-specific projects and had few levers to use to influence other programmes. There were no accountability mechanisms to ensure that all staff accepted their responsibility for WID policy implementation.

As well, there was little demonstrated commitment from senior management at the country level. UNICEF's evaluations generally failed to take gender considerations into account and training efforts had been sporadic (although it is important to note that a training programme was under development by UNICEF-New York during the time the evaluation was being carried out).

It was very difficult to measure the resource commitment as funds to integrate gender concerns into larger projects rarely had a specific budget line. Specific budgets for WID activities ranged from non-existent (in Nicaragua) to 6-7% of programme expenditures (in Indonesia). Staff allocations were also varied across the six countries, from no staff in Nicaragua, through a part-time staff person in Mali to two full-time WID specialists in Bolivia.<sup>8</sup>

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<sup>7</sup>Once again, I would like to stress that this is the general trend in the six countries studies. Despite this observation, there may be UNICEF programmes and projects that do demonstrate specific elements described here. Furthermore, it is important to point out that relative to other agencies, UNICEF does have many strengths in the area of WID/gender programming. The evaluation, however, sought to measure UNICEF's performance relative to its own policy goals, rather than the specific performance of other multilateral or bilateral agencies.

<sup>8</sup>In several of the countries studied, the pursuit of a mainstreaming strategy was used to justify the fact that there were few resources invested in women-specific programming. "We don't have a WID programme; women are integrated into everything that we do," was an oft-heard refrain. This statement represents a fundamental misunderstanding of mainstreaming, which is not meant to replace women-specific programming. Mainstreaming is most effective when it complements women-focused programming (and

UNICEF did rate highly in terms of dialogue with other donors and dialogue with women's organizations. It had been active in donor efforts in Bangladesh, Indonesia and Nicaragua. In all countries, UNICEF had strong relationships with women's organizations or with the national women's machinery.

UNICEF has demonstrated its risk-taking ability in other fields (advocacy for street child, for example), yet this institutional strength has yet to be applied in full force to gender issues.

## 2. Programming Elements

Programming elements relate directly to programme design and implementation. They are specifically related to the day-to-day work of programme officials on the ground. These elements were rarely present in the six countries visited.

- i) *Programming tools:* Programming tools are aids that assist programme staff in developing gender-sensitive programmes. They can include checklists, lists of questions to be asked at various stages of programme development, sample terms of reference, summaries of projects where gender interests have been successfully implemented, and background papers outlining key issues in specific sectors – to name a few. Ideally, these tools are organizationally specific and reflect the programming cycle and institutional culture of the specific organization.
- ii) *Policy dialogue:* Gender issues should be fully integrated into policy discussions and not just seen as a marginal women-specific item. Thus gender issues could enter into discussions on macro issues and sector-specific discussions such as water and sanitation.
- iii) *Documentation of successes:* Staff members are often in favour of improving their programming, but are unsure of how to do it. The documentation of successful projects can serve as an incentive and provide models. As well, drawing attention to a successful project can provide recognition to the staff and organizations responsible for this initiative.
- iv) *Programme evaluation:* One measure of the degree to which a mainstreaming strategy has been implemented is the existence of gender concerns in programme evaluations: do evaluations regularly consider: the differential impact of the project on men and women? the differential access to and control of resources and benefits? whether, at a minimum, the project ensures that women are not made worse off? whether women's practical needs or strategic gender interests are considered?
- v) *Availability of research and other documentation:* In order to mainstream women's issues, it is important to understand the specific situation of women in each sector and in different settings. Local research plays an important role in this aspect. The last twenty years have seen an explosion of research on women's work, attitudes,

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vice versa).

time allocations, challenges and lives. This research could provide a fertile field for staff members interested in working in this area. Given the importance of adapting global policy to each specific situation, local research and documentation is essential.

- vi) *Time and other resources:* Just as resources (including time) are required at an institutional level if a mainstreaming strategy is to be successful, so too are they required at a programming level.

At the programme level few of these mainstreaming elements were present in the countries studied. For example there were few programming tools to assist WES programme officials in integrating gender concerns into the programme designs or in going beyond the involvement of women as mere recipients of project benefits. Other than evaluations of women-specific projects, evaluations rarely examined the impact of the project on women and girls.

UNICEF did exhibit a strength in the area of policy dialogue. Given UNICEF's ongoing discussions with governments, it was often both experienced and positioned to play a strong advocacy role. Yet this potential was not always brought into discussions on sector areas, such as health or WES.

In conclusion, the evaluation found that at the institutional level UNICEF has been attempting to implement a mainstreaming strategy, yet has found it difficult to move beyond the rhetorical commitment to this goal. Few of the prerequisites of this approach were visible in the six countries studied. The strategy has been somewhat vague and, in most cases, it appears to be assumed that implementation will happen more or less automatically. There are few incentives to pursue inventive programming initiatives and only limited resources have been invested in this area.

### **III. Gender and WES Programming**

UNICEF's difficulty in implementing its WID policy and mainstreaming strategy was evident in WES sector programming. Few of the mainstreaming elements outlined above were present in the six country programmes reviewed at the level of WES programming. The broad institutional strengths and weakness are carried through to the sector level. Thus the organization's general approach (including policy and implementation strategy) is an important determinant of an organization's ability to implement a gender approach at the project level.

This section looks at some of the general characteristics of UNICEF's WES programming and then specifically outlines some of the gender implications of programming in this sector.

## A. UNICEF's WES Programming<sup>9</sup>

In general, the evaluation highlighted UNICEF's contribution to WES thinking and programmes around the world. UNICEF has been a leader and a promoter of low-cost, appropriate technologies for rural water supply and sanitation. UNICEF has also had success in achieving targets measured in technical terms (ie. number of wells dug). UNICEF WES efforts often centre on hardware aspects such as procurement and delivery of drilling rigs and equipment for the construction of boreholes.

According to the evaluation, UNICEF's WES programmes at the country level generally share a number of characteristics (Vesth-Hansen & Engberg-Pedersen, 1992, pp. ii ff):

- programmes are usually implemented in conjunction with one partner institution (a central government institution);
- programmes are guided by "global goals" as established at international meetings, such as the achievement of universal access to safe drinking water and sanitary means of excreta disposal by the year 2000;
- programme goals are usually formulated as physical targets (the number of boreholes drilled, handpumps installed, latrines constructed...); and
- although community participation is seen as a key issue in most WES programme designs, in implementation, community participation typically consists of community mobilization and establishment of village level maintenance committees.<sup>10</sup>

The WES evaluation report also identified a number of "gaps" or shortfalls between design and implementation. In other words, although these elements might have been present at the project design stage, they were either not followed up on during implementation or represented weaker aspects of the programme. (Vesth-Hansen & Engberg-Pedersen, 1992, pp 21 ff):

- sanitation;
- hygiene education and links with health programmes;
- capacity-building (as opposed to training to secure programme operations and facility maintenance);

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<sup>9</sup>This section draws heavily on the WES Sector Report (Vesth-Hansen & Engberg-Pedersen, 1992) from the evaluation and the author's participation in the field visits to Nicaragua and Bolivia.

<sup>10</sup>There were exceptions to these trends. For example, in the Indonesia programme the community participation aspect was highly developed. In Bolivia UNICEF worked through national NGOs (rather than a central government agency).

- involvement of the private sector;
- beneficiary empowerment, in particular women; and
- monitoring and evaluation.

The primary area of concern for this report is the "non-technical" or social aspect of the programme. UNICEF's technical success has not been equalled on the "soft" side of the WES programme: primarily sanitation, health, and community involvement. As a result, while physical targets may be achieved, overall social and health objectives may not be met. For example, the Evaluation noted that in the Mali programme "boreholes have been drilled in villages prior to any visit by the mobilization teams; such boreholes are sometimes not used, e.g. because they are located near cemeteries, or because the population does not like the taste of the water." (Vesth-Hansen & Engberg-Pedersen, 1992, pp 4 of Annex 3) This "technical/soft" imbalance has implications for ensuring gender considerations influence programme design and implementation.

There are a number of inter-related aspects to this "technical/soft" imbalance of WES programming. First, even though health-related objectives are usually present in the programme design, immediate programme objectives are still primarily formulated as physical targets: numbers of boreholes, handpumps, latrines, etc. Rarely is the link between physical targets and health objectives explicitly drawn out. Sanitation objectives are often vague with little clear description on how they will be followed through and measured. The importance of sanitation programming is still relatively new and there is much to be learned. The evaluation report stated:

The main reason is probably that sanitation is seldom the top priority of the government departments responsible for water supply, nor even of the intended beneficiaries. Sanitation is lagging behind the water supply component when it comes to coverage, and the sanitation implementation rates on the UNICEF-support WES programmes are generally not as impressive as the water supply implementation rates. (Vesth-Hansen & Engberg-Pedersen, 1992, p. 21)

Second, although there was a diverse picture of community participation strategies across the six country programmes studied, in general community participation strategies focused on limited objectives such as the establishment of village-level maintenance committees. Communities were often seen more as operators than as owners, managers and users of water resources and WES facilities. Efforts usually focused on recruiting volunteers to manage the water systems or on getting people to use the new water supply.

Third, UNICEF staff working in the water sector are generally engineers with little social science training or experience. Thus it is understandable that they would see WES problems as technical issues to be solved rather than a series of complex social relationships. This skills profile is usually shared by the government ministry responsible for water programmes.

## B. Implementing the WID Policy in the Water and Sanitation Sector

The Evaluation was generally critical of the WID element in UNICEF's WES programming: women were generally not taken into account in the design or implementation of water and sanitation projects. When women were mentioned in the project proposal or design, this element was often not implemented. Rarely were there special measures to encourage women's participation.

In looking generally at the question of women's involvement in water and sanitation programmes, the focus can be directed in two ways: (1) was an integrationist strategy used? did women participate in the programme? were women beneficiaries (did they have access to a better water supply? were they involved on maintenance committees?) or (2) was an agenda setting strategy adopted? did women's concerns (practical needs and strategic interests) influence the project design, objectives and goals?<sup>11</sup> Were women active participants (actors, not just beneficiaries) in the project?

More often than not, UNICEF's efforts around women and water centred on an integrationist strategy: involving women as participants in water and sanitation projects. Women were seen as users of water and, to a lesser extent, as a pool of volunteers. It was generally assumed that women would benefit just as the community as a whole would benefit. However, experience has shown that given women's different position within communities, the gender division of labour and women's differential access to and control of benefits and resources, women do not "automatically" benefit. Projects rarely began by using women's interests or perspectives as a guiding principle in either design or implementation.

### a. Weaknesses of a Mainstreaming Strategy

In looking specifically at the water and sanitation sector, some weaknesses of a mainstreaming strategy become apparent. Few of the "mainstreaming elements" outlined above were present in the WES sector. Generally there was no institutional strategy and little support for the integration of gender concerns. Thus it is not surprising that the organization encountered difficulties in this area.

A major obstacle was the assigning of responsibility for WID policy implementation. WES staff rarely saw the WID policy as their responsibility or area of work. For example, in the case of Bolivia, the WID staff was the only staff seen as responsible for the WID policy. The UNICEF programme did boast two very capable WID staff, however their presence was seen as justification for other people not to become involved in WID aspects of their sector programming. The water staff were never held accountable for progress achieved or not achieved in their sector.

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<sup>11</sup>Moser (1989) provides a concise definition of practical needs and strategic interests. These terms have also been used by UNICEF in its documentation.

#### b. Weakness of the "soft" side of WES projects

Given the inherent relationship between involving people in development projects, and involving women, the weakness of the "soft" side of WES programmes is a major contributing factor to the problems of implementation of the WID policy in this sector. If the issues that the project is dealing with are seen as technical or physical issues, then social considerations will be secondary. If sanitation and health elements are weak, there are few openings for women's participation. If the staff working on the project are primarily engineers, they most likely do not have the skills or experience to bring the gender dimension to the project. As is so often the case in development practice, women have not been taken into account partly because people -- real human beings -- have not been taken into account, marginalized by an approach that is all too comfortable with questions of technique and all-too-uncomfortable with everything else.

#### c. Gaps Between Design and Implementation

The WES evaluation consultants argued that the lack of documentation on the role of women in WES projects often made it difficult to discover whether or not the good intentions of programme design had actually been followed up in project implementation. The conclusion of the team was that, in most cases, they had not been.

One example comes from the Indonesia programme. WES programme design included several ways to involve women:

- as volunteers to strengthen community involvement, recruited through a large national non-governmental organization (the Family Welfare Movement);
- as a target for communication, information and education efforts to increase their awareness and knowledge about safe water use and sanitation;
- as 50% of the village caretakers to be trained in maintenance of handpumps;
- as participants in community "user groups" who plan, implement, operate and maintain water supplies and sanitation facilities in the villages, with their participation motivated by female village volunteers.

However the Evaluation Team found that these objectives were not followed up with systematic monitoring and little was known about whether or not these objectives were met. Furthermore the anecdotal information gathered during the evaluation did not bode well: during the field visits, the Evaluation Team did not meet a single woman who had been trained as a caretaker (Vesth-Hansen & Engberg-Pedersen, 1992, p.23).

#### IV. Conclusion

Although the evaluation focused on UNICEF's experience, there are a number of important lessons that can be drawn from the evaluation findings. Moving against the current is difficult, but it can be less so if tools are constructed from past experiences.



It is clear that UNICEF itself is in a process of learning and moving ahead. A document prepared by UNICEF's Water and Sanitation Section, Programme Division, New York outlines the new issues introduced in water supply and sanitation programmes during the International Drinking Water Supply and Sanitation Decade, the key lessons learned and the broad requirements for water supply and sanitation for the 1990s. Institutional development, community awareness, the increased involvement of women, and linkages to other sectors such as health, education, women, communications and nutrition are all themes identified as important.<sup>12</sup>

a. Institutional conception of development

Successful integration of gender concerns is related to the overall view of development of an agency or institution. In the case of UNICEF, although the broad developmental aims of the organization would appear to facilitate the implementation of the WID policy, there were institutional factors that hampered that implementation – for example the definition of objectives in terms of global goals and physical targets.

b. Agency view and practice of community participation

As was seen above, the overall institutional approach to community participation will influence the approach to gender issues. If the target group is seen merely as beneficiaries or a pool of potential volunteers, then it is unlikely that a gender approach and sensitivity will meet with much success.<sup>13</sup> If meaningful community participation is not at the heart of development plans, then programmes will have little long-term, positive impact on the lives of women, nor on the lives of men.

c. WID policy articulation and implementation

One of the first steps in the successful development of gender-sensitive water projects is the articulation and implementation of a clear policy at the agency or institutional level. We have reiterated the well-known argument that the mere existence of a policy, however well argued and based on the latest theoretical understandings, is insufficient. The policy must have the support of senior management and a realistic implementation strategy.

Although a mainstreaming strategy can be very attractive, relying on this type of approach does imply a significant risk, that of having WID-specific objectives (and funds for WID-specific programmes) disappear from the institutional agenda. Given the relative inequality between men and women, women-specific projects and measures are still

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<sup>12</sup>Joseph Christmas and Carel de Rooy. "The Decade and Beyond: At a Glance," Water and Sanitation Section, Programme Division, UNICEF New York, August 1990, quoted in Vesth-Hansen & Engberg-Pedersen, pp. 5-7.

<sup>13</sup>CIDA, in an attempt to bring together participatory development issues and gender concerns, has developed a training module and handbook entitled "Social Gender Analysis."

generally required in order to support a mainstreaming strategy. Women may benefit from specific training programmes or advocacy measures that support their participation in broader programmes and their ability to influence the broad objectives and definition of that larger project. Sadly, the claim that "women are integrated into all our programmes" can be a justification for the absence of women-centred projects. The danger is that if "women's interests are everyone's responsibility", but no accountability mechanisms are developed, they quickly become no one's responsibility.

It is also important to understand the differences between an integrationist mainstreaming strategy and an agenda-setting strategy. Some may argue that if women are merely integrated into current programming thrusts, it is doubtful that women's subordination will be overcome. Yet these two propositions are probably not "either/or". Change happens gradually and movement toward an agenda-setting strategy can only happen once progress is made on an integration strategy. (In other words, maybe if we get enough barnacles stuck on the ship, we can pull it against the current.)

#### d. Interpretation and application of the policy in the WES sector

The implications of a WID policy and a gender analysis for water and sanitation programming should also be thought through. This is often difficult. First professional staff with WID/gender training and expertise are generally lacking. Even if water and sanitation staff participate in training, it is often difficult to master the concepts and see how they influence their sector-specific work. The evaluation mentions that there is little documentation of successes or planning tools that could assist staff. As well, in several of the country programmes studied for the evaluation, there was no full-time WID staff who could potentially assist in this task.

Second, the advocates of the gender policy and the water and sanitation programmers generally do not share a professional background: WES staff are generally engineers, while WID staff usually have a social science background. They have difficulty speaking "the same language."

Third, even when there are WID staff, they are usually poorly positioned within a country programme office to have influence over the water sector staff. For example in the UNICEF Bolivia office, there were two WID staff, articulate and committed women, yet they were positioned under the Education Programme and had little "weight" or institutional clout when speaking to the staff in the water programme.

#### e. Choice of partner institutions

The most favoured partner for UNICEF water projects was a central government agency. This selection did not bode well for the successful integration of gender considerations as this agency rarely had expertise or interest in gender issues. If this government agency is the best organization to undertake the overall programme, an agency may wish to seek out additional partners to introduce gender considerations: the government women's bureau, national or international NGOs, or a women's group (local or national). The strengths and weakness of each potential new partner will influence the selection in a specific context.

f. Dealing with "cultural barriers"

The Water and Environmental Sanitation Report mentions cultural barriers as an often cited justification for the failure to implement WID concerns. One of the challenges facing institutions in the implementation of a gender policy and analysis is the adaption of that policy to a specific situation. Furthermore, officials should recognize in advance that there will be resistance and strategies should be developed in advance to deal with it. Local NGOs and women's organizations may be of assistance in working through the local implications of a gender approach.

## REFERENCES

- CIDA (nd). *A Handbook for Social/Gender Analysis*. (prepared by the Coady International Institute for CIDA's Social and Human Development Division).
- Engberg-Pedersen, Poul (COWIconsult); Sheila Dohoo Faure & Ted Freeman (Goss Gilroy Inc) (1992). *Strategic Choices for UNICEF: Service Delivery, Capacity Building & Empowerment*. Synthesis Report, Multi-Donor Evaluation. Ottawa
- Jahan, Rounaq (1992). *Mainstreaming Women in Development in Different Settings*. (A paper present at a seminar on Mainstreaming Women in Development organized by the OECD/DAC/WID Expert Group, Paris, May 19-20, 1992)
- Moser, Caroline O. N. (1989) "Gender Planning in the Third World: Meeting Practical and Strategic Gender Needs, " *World Development* Vol.17, No. 11, pp. 1799-1825.
- Rao, Aruna *et al.* (1991). *Gender Training and Development Planning: Learning from Experience* (Conference Report, May 1991, Bergen, Norway. Co-hosted by the Population Council and the Chr. Michelsen Institute).
- Rathgeber, Eva M. (1990). "WID, WAD, GAD: Trends in Research and Practice," *The Journal of Developing Areas* Vol. 24, pp. 489-502
- UNICEF (1990). *Progress Report on Achievements Made in the Implementation of UNICEF Policy on Women in Development*. E/ICEF/1990/L.1
- \_\_\_\_\_ (1991). *Progress Report on Achievements Made in the Implementation of UNICEF Policy on Women in Development*. E/ICEF/1990/L.1
- \_\_\_\_\_ (1992a). *Achievements Made in the Implementation of the UNICEF Policy on Women in Development, Including the Situation of the Girl Child, Progress Report*, E/ICEF/1992/L.5.
- \_\_\_\_\_ (1992b). *The State of the World's Children - 1992*. Oxford: Oxford University Press for UNICEF.
- Vesth-Hansen, Karsten & Poul Engberg-Pedersen (COWIconsult) (1992). *Water and Environmental Sanitation, Sector Report, Evaluation of UNICEF*. Copenhagen.
- Woroniuk, Beth & Ted Freeman (Goss, Gilroy Inc) (1992). *Women in Development and Community Participation, Sector Report, Evaluation of UNICEF*. Ottawa.

# **Gender and Irrigation Management: Issues and Challenges**

**by**

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**Gender and Irrigation Management:  
Issues and Challenges.**

Paper presented for SIDA Workshop on

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## 1. Introduction

Irrigation projects provide some of the most striking examples of the failure to recognize and accommodate prevailing gender based patterns of agricultural production. This failure has negatively affected the overall success of projects, and has led to a deterioration in the position of women.

Examples show how women lost access to land and to the proceeds of harvests in favor of their husbands and male relatives. While women were expected to contribute labor to the newly irrigated crops controlled by their husbands, they often did not equally and fully share in the benefits. In some cases this led women to reduce their labor contributions to irrigated agriculture and irrigation in order to search for income generating avenues of which they were sure to control the benefits. In examples from Africa, the lower than anticipated availability of female family labor depressed overall yields and the size of the area cultivated. In places where alternative income generating avenues were not available to women, women's lack of control over income reduced their capacity to feed their families (see for example: Hanger and Moris, 1973; Dey, 1990; Carney, 1988; Jones, 1986 and Schrijvers, 1985).

While irrigation projects have gained a reputation for poorly conceiving gender relations, and while most gender professionals are quite familiar with irrigation examples, still very few successful gender sensitive alternatives to irrigation planning, design and management have so far been developed. Nor have any meaningful attempts been devised to redress inefficiencies and inequities caused by gender biases in existing irrigation schemes.

Efforts to address gender questions in irrigation systems remain limited and marginal. Many focus on small scale income generation projects for women outside of the irrigation domain. A typical example is that of an envelope making project for women in the Mahaweli Irrigation System in Sri Lanka. When buyers for the envelopes manufactured by women did not immediately show up, a director of the irrigation agency involved generously decided to buy all the envelopes himself (Sumanasekera, 1993).

The attribution of a very small plot within the irrigation system to groups of women, where they can collectively grow vegetables, is another well-known and widely adopted strategy of irrigation planners to comply with donor requirements to pay attention to gender. In a Burkina Faso irrigation project, all the newly irrigated land was allocated to men, while their wives performed at least half of the agricultural tasks in addition to working on their individually owned rainfed plots. Despite of their labor contributions, women were not formally involved in the cooperative organization of the irrigation system. Rather than addressing women as co-farmers and direct stakeholders of the project, a separate project for women was envisaged. Three thousand women were organized in groups of around forty. The women received as little land as 12 ha, or 1% of the total command area, to be used for the cultivation of vegetables (van Koppen, 1990).



A striking feature of most of the WID (Women in Development) or gender strategies in irrigation contexts is that women are merely addressed as housewives, who have to be assisted to be gainfully employed. Projects are often very small and receive minimal financial and institutional support in the form of planning, technical assistance, supervision and monitoring. While the little these projects achieve might be positive in itself, little is done to remedy gender distortions in irrigation planning, design and management. Solutions to gender biases in irrigation planning, design and management are sought outside the irrigation domain, while the biases themselves remain uncriticized.

The easiest explanation for the little success of attempts to incorporate gender into irrigation planning, design and management is male resistance. Most irrigation professionals are male and it is certainly true that many suffer from gender blindness. However, while it is true that irrigation planners and engineers seem to make few real efforts to address and accommodate gender, gender professionals have also done a poor job in making themselves understood by irrigation professionals. Irrigation professionals and professionals dealing with gender related issues speak completely different languages, they have different objectives and they have entirely different conceptions of the reality of the irrigation world.

The objective of this paper is to identify the intersections between irrigation approaches and gender approaches. It will be argued that attempts to make irrigation engineers and managers (and consequently their policies, programs and projects) more gender sensitive are deemed to fail when gender interests and needs are not translated into water terms. The task of gender specialists is not limited to pointing out how and where irrigation projects have (negatively) affected women; they also have to provide creative and workable solutions and alternatives that can be easily understood and adopted by irrigation planners and managers. At the same time, a gender perspective to irrigation management may lead to a reassessment of irrigation goals and objectives, as well as of the strategies to reach these objectives.

## **2. Irrigation management**

### **2.1 Irrigated agriculture**

From the mid-1950s irrigation was widely perceived to be the number one solution for meeting the world's growing food demands. Huge investments in the creation of new irrigation facilities resulted in a tremendous increase in the world's stock of irrigated land. By 1989, there were some 233 million ha of irrigated land in the world; 73% is in developing countries, representing 21% of all the cropped land in these countries. It is estimated that about one third of the global harvest of food crops comes from irrigated agriculture (Samad et al, 1992).

The spread of irrigation, or the expansion of irrigated areas, has been a major contributor to the remarkable increases in agricultural output in developing countries. The rapid increase in irrigated areas is unlikely to be repeated; the best sites are exploited and the cost of new projects in poorer sites rises disproportionately.

While there is a growing need to raise food production, there is also a growing global awareness that water and land resources are finite. Currently some 70% of all water used in the world is for agriculture, but this figure is likely to decrease as demands for industrial and urban uses of water increase (Bos et al, 1993).

The pressure to produce more food with fewer resources requires that performance in terms of both water and land utilization must improve. At the same time

there is widespread dissatisfaction with the performance of irrigation projects. This is true whether performance is measured in terms of achieving planned targets, or in terms of the production potential created by physical works (Samad et al, 1992).

Irrigation efficiencies are low, more water being delivered than actually required. In many irrigation systems, the actual irrigated area is much less than the area commanded. Water deliveries rarely correspond in quantity and timing to crop requirements, resulting in low cropping intensities and low productivity. Maintenance is often poor, and problems of salinity and waterlogging are widespread in arid and semi arid areas (Ibid, 1992).

In conclusion, there is both a need as well as a potential for improving water and land use performance in irrigation systems. A substantial part of the potential for improvement lies in better management.

## 2.2 Some definitions

Irrigation management is a process by which institutions or individuals set objectives for irrigation systems, establish appropriate conditions and identify, mobilize and use resources so as to attain these objectives while ensuring that all activities are performed without causing adverse effects (IIMI, 1992).

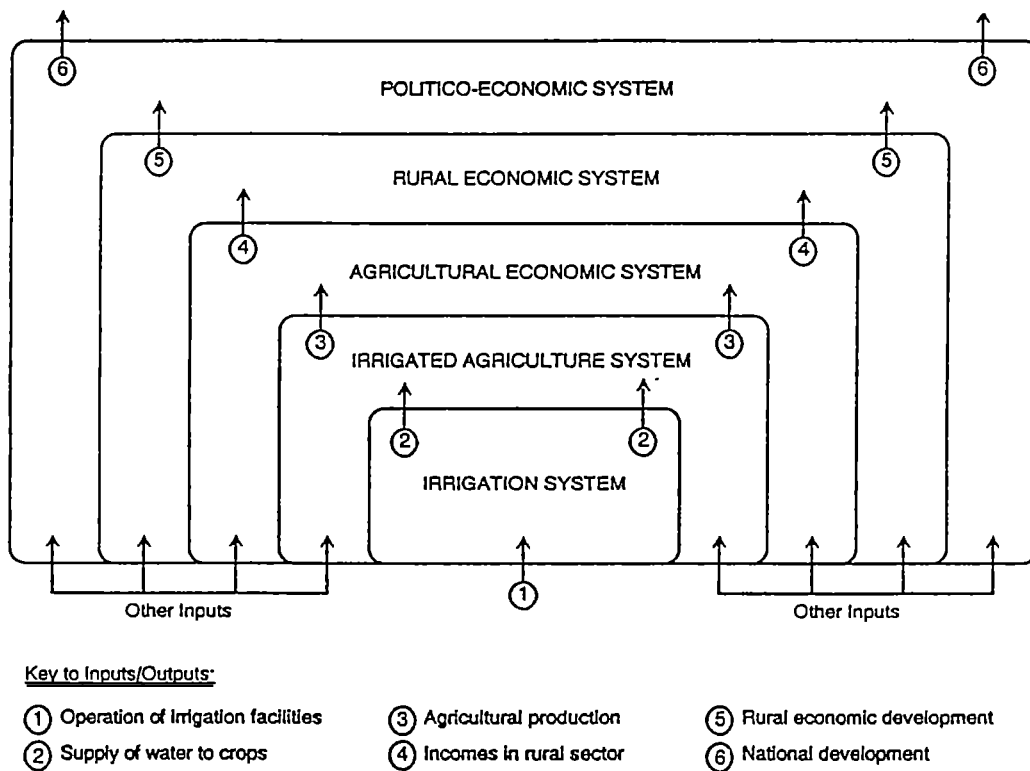
A first requirement for effective management of irrigation systems is that objectives are clearly defined and subscribed to by a majority of the different parties involved. Defining and achieving consensus on the objectives of an irrigation system in itself is a controversial and difficult matter. Different parties involved have different priorities and different interests. Among the many objectives that irrigation is expected to realize, are for example: increasing agricultural productivity; increasing political stability; decreasing poverty; achieving national food security..... WID or gender advocates may add an additional objective to this list, which is that irrigation needs to contribute to the well-being of women, or even that irrigation has to lead to the empowerment of women.

To stick to the last example, gender and WID professionals take the needs of women and men as a starting point for evaluating the performance of irrigation systems, without being hindered by too much knowledge about the technical and managerial possibilities and constraints of irrigation systems. It is true that there are many examples of irrigation projects that have not

adequately provided for gender roles (often with negative effects on women's well-being and status). However, many of the negative and unintended impacts of irrigation interventions cannot be exclusively attributed to irrigation. Nor can it be expected that gender inefficiencies and inequalities in a society can be removed by better irrigation practices, institutions and policies alone.

Some clarity is thus required in what is meant by irrigation and what irrigation can and is expected to achieve. Small and Svendsen (1990) have made an attempt to provide this clarity by developing a framework which identifies different performance and organizational levels of irrigation systems. They define an irrigation system as a set of physical and social elements employed to acquire, convey and distribute water to fields and disperse it to the root zone of crops. The output of this system (water delivered) becomes a major input into the next level, the irrigated agricultural system, the outputs of which (crops) are the input into the agricultural economic system (see figure 1).

Figure 1. Inputs and outputs in the context of nested systems



Source: Small and Svendsen, 1990

Parallel to these "levels" of performance one can distinguish organizational levels in an irrigated agricultural system. The irrigation sector consists of policy makers and planners usually located in ministries; the agency usually consists of larger institutions responsible for allocation and maintenance of goods and services in support of the farmer community; and the irrigation system level, i.e. the organization responsible for management of a physical system for allocating and distributing water. Broad objectives are set at the system level which (in principle) are turned into specific targets at regional or district levels; these in turn are the basis for specific targets at system level that presumably reflect objectives at the agency level (Bos et al., 1993).

### 2.3 The invisibility of gender

Despite the increasing international awareness of the importance of gender, and despite the fair number of studies that document the impacts of irrigation development on women, so far very little significant progress has been made in incorporating gender into irrigation planning and management approaches.

One obvious and reason is the often implicit assumption in irrigation designing, planning and management that there is just one member of every farm household engaged in and responsible for irrigation and irrigated agriculture; "the farmer". This person most often is the male "head" of the household. He is the (only) one who is consulted, addressed and whose needs are accommodated by irrigation agencies. It is simply assumed that he benevolently heads the household, controls the household resources and labor and that he is willing and able to take decisions on behalf of his 'dependent' family members.

Attempts to address women without changing this conception of the farming household<sup>1</sup> will irrevocably address women as being of only marginal significance to the performance of the irrigation system; as housewives and mothers. Such attempts often take the form of small scale token projects to satisfy donor requirements to pay attention to women.

The technical, engineering tradition in irrigation thinking may present some other obstacles to recognizing and accommodating gender differences. If figure 1 is considered a fairly adequate representation of how the reality of irrigated agriculture is conceived by irrigation professionals; by organizations and people responsible for planning and managing irrigation systems, then a closer look at this figure reveals a number of characteristics inherent to irrigation thinking that inhibit the recognition of women or gender issues:

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<sup>1</sup>. Gender issues of relevance to the performance of irrigation are not confined to intra-household gender relations. The link between irrigation and female labor opportunities and the fact that the majority of employees in irrigation organizations are male are two examples illustrating that gender norms and relations affect the performance of irrigation in various other ways.

1. In this conception of an irrigation system, farmers or water users are seen as mere instruments in achieving the objectives derived from the technical characteristics of the irrigation system. While it is often known and understood what farmers should do to make the system work, it is seldom understood why farmers and water users do not behave accordingly. It is simply assumed that the interests and needs of irrigators are compatible with those of the irrigation system and its managers.

This technical, engineering bias in irrigation management not only prevents recognizing and accommodating the roles of women, but it inhibits properly conceiving the role of farmers or users of either gender.

2. In line with the technical conception of the irrigation system, where water is the major variable, water users or irrigators are normally considered as a group which is only differentiated as far as their place, role and function in the irrigation system is concerned. "Equity" in the context of an irrigation system typically refers to the spatial distribution of water across the system. Achieving equity thus means that all irrigators receive the same amount of water, often in relation to the amount of land they have to irrigate.

In this conception there is no rationale for acknowledging social or economic differences between users. Irrigation managers supply water, irrespective of the status or wealth of the receivers and irrespective of their gender.

3. Irrigation management approaches often only consider farmers in their roles as irrigators, excluding their roles and tasks in other activities. Likewise, an analytical separation is often made between the irrigation system and the agricultural system. The agricultural system is excluded from the analysis of the performance of the irrigation system. There are many arguments against such a narrow conception of an irrigation system, but what matters here is that it implicitly helps to underestimate the roles and contributions of women<sup>2</sup>. Women, generally, are less visibly involved in activities directly related to irrigation. In many societies the processes of acquiring, allocating, distributing and draining water are considered male activities (sometimes irrespective of who actually performs those activities in the field).
4. Irrigation managers often narrowly focus on, and deliver, water to be used on plots within the command area of the irrigation system to irrigate the main crops. In reality water provided by the irrigation system is used for a variety of purposes, including for example homestead gardens, orchards, fish ponds, watering cattle etc. When men are predominantly responsible for irrigating the main crops (because they have access to irrigated plots), women may be much more involved in other activities for which they

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<sup>2</sup>. This approach obviously also tends to misconceive the roles of men.

need water.<sup>3</sup> Ignoring multiple uses of water may thus implicitly privilege men's resource needs and again render women's involvement in irrigation systems invisible.

To conclude, irrigation management approaches have tended to assume users are male recipients of water. A gender perspective on irrigation and its management calls for a recognition of the fact that male and female farm household members together determine the ultimate benefits of irrigation: they "transform" the irrigation water into agricultural products by skillfully coordinating their labor, knowledge and other resources. In many instances, farm household members are also directly (either formally or informally) involved in the allocation and distribution of water; in the operation, maintenance and construction of the irrigation system; and in the organization of and collective decisionmaking regarding these tasks. Hence, the performance of irrigation systems is not just determined by the physical characteristics of the system, but to a large extent also by the people who use the system. Since these people can be expected to have different objectives to use the system, they will also have different expectations with regard to its performance.

### **3. Gender needs with respect to irrigation**

Developing a gender perspective on irrigation management necessarily starts with the question whether women and men have different interests, needs and objectives with irrigation, and whether they have different capacities and powers to defend those interests or meet those needs.

Following the Small and Svendsen (1990) framework, potential differences will be identified for the system's impacts, its outputs and for the process of irrigation management. This distinction allows to differentiate between direct outcomes of irrigation that fall under the responsibility of irrigation system level organizations, and those effects that are farther removed causally and need to be dealt with at higher organizational levels.

#### **3.1 Gender specific needs with respect to the impacts of irrigation**

Impacts refer to the effects of the irrigation system on the wider environment. The direct impact most often attributed to (and aimed for) with irrigation is increased agricultural production. The literature on gender and agriculture provides a long list of examples of how women and men may differentially contribute to, and are differentially affected by, increases in agricultural production. In general, gender needs with respect to the agricultural production impact of irrigation will evolve around:

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<sup>3</sup>. This is not to deny that men may use irrigation water for other purposes as well.

1. The allocation of labor, land, water and other resources to the cultivation of irrigated crops; to construction and maintenance activities and to participation in users' organizations.
2. The use of the outputs of irrigated agricultural production, e.g. consumption, storage for use, exchange or sale.

The earlier referred to examples of irrigation development in Africa show that women and men may be differentially motivated to invest labor and other resources to irrigated crop production. The widely known and cited example of Christine Jones, who studied an irrigation project in Cameroon, shows for instance that women tried to minimize their labor contributions to the newly irrigated rice crop controlled by their husbands in favor of their individually controlled sorghum production. The serious intra-household conflicts over the income from rice was a significant factor in depressing the amount of labor available to rice production, which in turn negatively affected areas cultivated (Jones, 1983 and 1986).

Conflicts over the use of outputs were also described by Joke Schrijvers in her study of the Mahaweli Irrigation system in Sri Lanka. Women contribute more than half of the required labor to rice production, but it is usually men who sell the harvest and receive the money. It is difficult for women to make legitimate claims to this money, and it often occurred that very little of it was spend on household needs. In addition, traditional rain-fed cultivation of highlands, which used to provide households with an emergency food stock, was no longer possible due to the introduction of the new irrigation system. Schrijvers argues that the chronic undernutrition within the Mahaweli Scheme is one of the detrimental results of this gender biased planning (Schrijvers, 1985).

Other studies document the gender specificity of less visible and more indirect effects and impacts of irrigation development. Women in the hills of Nepal were highly positive about new irrigation facilities, since these considerably reduced the time they needed for fetching water for domestic use (Backer, 1992). In India, the unforeseen impact of canal irrigation on the growth of fodder was particularly beneficial for women, since it enabled them to increase their milk and ghee production through which they could earn some individually controlled income (Stanbury, 1981). The opposite effect may occur with groundwater irrigation, which may lower groundwater tables and thus reduce the growth of weeds used for fodder and trees used for fuel. This was documented for Bangladesh, where the consequent shortage of fodder and fuel significantly increased the time poor women had to spend gathering fuel and fodder. It gradually pushed them towards more marginal sources, such as leaves and bark of trees, which hastened deterioration of natural resources (White, 1992).

It is impossible to mention all possible gender specific impacts and effects of irrigation. The many direct and indirect linkages between gender and irrigation development are hard to foresee. They will be different in different cultural, institutional and environmental contexts and will vary with the type of irrigation technology used. However, the examples do illustrate that prevailing gender relations structure the direction and nature of irrigation related developments

and therefore the success of irrigation interventions. Gender analysis can thus help irrigation planners and policymakers to realistically set achievable objectives, and to assess potential trade-offs of achieving these objectives.

### 3.2 Gender specific needs with respect to the outputs of irrigation

Some of the differential interests and needs women and men may have with respect to the impacts of irrigation will be reflected in differential needs with respect to the irrigation system's outputs. Output measures directly assess the nature and quality of irrigation services delivered to farm households, services which will in turn be important in determining production, income and other livelihood indicators.

How do users evaluate the outputs of irrigation systems? First of all they can be expected to be concerned with the amount of water delivered, or the adequacy of water deliveries.<sup>4</sup>

Possible gender differences in judging the adequacy of water deliveries may arise because of a gender division in crops, men being responsible for other crops than women. Very often, the main irrigated crop is controlled by the male member of the farming household. Women will often contribute labor to this crop<sup>5</sup>, but very often they also grow crops of their own. Crops cultivated may be used for own consumption, or they may be sold providing women with a source of individual income. When there is an opportunity of doing so, women will make use of irrigation water in growing these crops. They may take water directly from the channels, or sometimes they use drainage water. However, these crops grown by women are often not considered the "main" crop, or sometimes it is not even realized that they are grown. As a consequence, the water requirements of these crops are seldom taken into account when devising water delivery schedules. In some cases, the use of irrigation water for growing crops other than the planned one, or for using water on plots outside the designed command area, will even be considered illegal.

Gender differences in irrigation needs with respect to adequacy may also occur as a result of a gender division in tasks. Water can substitute labor, like for example in the case of pre-season applications to soften soil for land preparation (Svendsen and Small, 1990). Land preparation is often done by men, which means that pre-season applications of water reduce the amount of male labor needed. In paddy cultivation in Asia, women may be expected to do

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<sup>4</sup>. The set of possible measures employed by users to judge the quality of irrigation services discussed here is adapted from Svendsen and Small (1990).

<sup>5</sup>. This is not always the case. A recent study in a Niger rice irrigation scheme showed that the labor contributions of women to the cultivation of rice were minimal, since the production of rice is considered a male responsibility (Schaap et al, forthcoming).



the bulk of weeding. Unless they work as paid laborers, women are thus likely to be in favor of increasing the ponding depth which reduces weed growth. In Nepal, women reported that the increased availability of irrigation water had considerably reduced the time needed for weeding (Backer, 1992).

A second measure users may use to evaluate the outputs of an irrigation system is equity. Equity refers to the spatial distribution of water across the irrigation system. When water is short, both farm households and managers will have to address the question of how to distribute the available water among plots and farm households. Equity then becomes a measure of fairness of the allocation of shortage (Bos et al, 1993). It is obvious that notions of fairness will depend very much on existing social and economic differences and power hierarchies. It may be considered fair that an influential farm leader receives a relatively larger share of water, for example. Also, farm household members may take local differences in soil moisture holding capacity or seepage and percolation rates as valid reasons for differences in water deliveries (Vermillion, 1990).

A first and very obvious gender difference with respect to equity is that, justified by existing gender ideologies, female irrigators receive less water than male irrigators. This gender discrimination in water allocation may be rather indirect, crops grown by women being considered less important or not being considered at all, and therefore receiving less priority when water is allocated.

Female farmers who grow the same crops as men do, and who are thus in principle entitled to receive an equal amount of water, often face difficulties to claim and actually receive the amount of water they are entitled to. When water is scarce, women are often in a much weaker position to obtain water than men. This is why female irrigators in Nepal, though in principle preferring an on-demand rotation system of water deliveries, nevertheless saw a clear advantage in a scheduled rotation system: the guarantee of getting water, without having to go through the hassle of negotiating for it and running the risk of not getting any water at all (Bruins and Heijmans, 1993).

Considerations regarding equity may also be valued differently by women and men because of differences in the nature and importance of social relations to men and women. Extra-household relations and networks may carry a specific significance for especially poorer women on at least two grounds. They tend to be more disadvantaged in relation to other more tangible forms of resources. Furthermore, it may offer women a measure of autonomy from male authority within the household and can help furnish them with powers of persuasion in their dealings with men (Kabeer, 1992). This may be the reason that women are sometimes reported to place a higher value on equitable water distribution than men do. An example from Nepal documents:

in Bhanyang Tar Ko Kulo (canal) the head reach people initially took much interest in the improvement of the head reach section of the canal, but they were not concerned with the improvement of the tail reach because of local politics. There was a critical

section in the canal from which most of the water leaked, requiring improvement if the tail end people were to receive reliable water. Some women from the head reach said to the head reach male farmers that "if you do not further improve the canal, we females will do the job". This embarrassed the male farmers, resulting in further improvement of the canal in the tail end (Pradhan, 1989).

Different appreciations of the timeliness of water deliveries, which relates to the distribution of water across the season relative to some utility-based standard, may again arise because of a division along gender lines between crops. It was, for instance, observed in Niger that water issues were stopped once the male controlled crop was almost ready to be harvested. The vegetables grown by women still needed additional water gifts at that time. Women experienced severe losses as a result (Dadi Massalachi, 1993). Potential gender differences in appreciating timeliness may also be due to male or female labor peaks; the availability of labor being the standard of utility used.

The convenience of patterns for timing of water deliveries may be different for men and women. Female irrigators may have specific wishes with respect to the time they would prefer to irrigate, because they have to plan their various productive and domestic activities alongside each other. Some of those activities have to be done at a more or less fixed time of the day, like preparing the meals. In Nicaragua, there was a marked difference in the time women and men were willing and able to start irrigating their field; women preferred to start later, because of the domestic duties which they had to perform early in the morning (Blaauw, 1992).

Irrigating at night may be particularly difficult for women, because of social norms which prevent women to go out at night. In Pakistan, the few women that were directly involved in irrigation would send a male relative or neighbor when their irrigation turn was at night. If there was no other possibility, they would try to be accompanied by a family member or friend (Basnet, 1992).

With regard to water quality, women are likely to place a higher value than men on having access to irrigation water which is clean enough to be used for domestic purposes. Also, the health hazard presented by the use of irrigation water for domestic purposes may be felt more by women, since they are often responsible for caring for the sick.

### 3.3 Gender specific needs with respect to the process of irrigation management

If women and men both have interests and needs with respect to irrigation (irrespective of whether these are similar, complementary or conflictual), it is clear that a viable and sustainable irrigation management process should somehow include male as well as female perspectives. The inclusion of users in operating and managing irrigation systems most often occurs through the organization of users in users' groups or associations. In most irrigation cases, women appear to be almost absent in those groups. This is partly because membership of these organizations is often confined to one member of each irrigating household, who is

either the official landholder or the "head" of households. Both criteria far more often apply to men than to women; the only women who can potentially participate in water users' groups are either widows or single mothers with no adult male living in the household.

In a way, the non-involvement of women, or of their needs and interests, in irrigation management has become a self-fulfilling prophecy. Because irrigation is commonly conceived as a male activity, and because women are not conceived as direct stakeholders of irrigation systems, women have become excluded from planned efforts to organize water users. As a consequence, many women have remained outside of formal irrigators' associations and thus lost the possibility of voicing their concerns.

If, how and where women should and can be involved and participate in the organization of and decision making with respect to irrigation will depend on the specific nature of their needs. An example from the Philippines illustrates how several irrigators' associations insisted in having both husbands and wives as members representing the household in the association.

One reason for this was that allowing both wives and husband to become members of the association allowed for more flexibility; either the woman, the man or both would then be able to attend the meetings. Another reason was that, even though agricultural decisionmaking is very much a joint affair of both husband and wife, women and men have distinct domains of influence. As most women control the cash-flow within the household, it was found that associations encountered problems when collecting irrigation fees, unless the women were involved in formulating policies regarding irrigation and membership fees collection schedules. Community organizers also learned that unless women were encouraged to participate, financial obligations of farming households could not be guaranteed (Illo, 1988).

While the nature of women's needs may make their participation in irrigation management desirable, the inclusion of women's perspectives will often not be just a matter of allowing women to become members of users' organizations. The experiences of female irrigators, who are officially entitled to join users' groups, illustrate that women often find it difficult to bring their opinions and needs forward. Women in Nepal were reluctant to attend water users' meetings, because they were sure that nobody would listen to them (Bruins and Heijmans, 1993). In Sri Lanka, female farmers often prefer to send a male relative to meetings rather than going themselves. They may also ask a male friend or neighbor to represent their interests; send a letter to the irrigation officials; or try to meet with one of the office-bearers of the water users' organization.

Attending meetings and discussing matters in public may be thought of as typical 'male' activities, associated with political gatherings which are often traditionally confined to men. Sometimes, women are not expected to speak in front of men or in public. Women may simply lack the confidence and the experience to deal with irrigation matters in public, since all interactions with outside institutions mostly take place with men, and since men often receive the bigger part of information and training.

It may also be that participation in meetings is simply not judged to be efficient and rewarding. In Peru, women stated that it was of little use going to meetings, since the most important decisions were not taken in those meetings but during informal get-togethers of men (Pol, van de, 1992). Experiences of female irrigators in a Mexican ejido document the difficulties they faced when trying to secure enough water for their sugar cane cultivation. The only possibility (which was not very effective) for women to claim their water rights is through the official way, by going to the offices of the local department of the Ministry of Irrigation. Men secure their access to water either by bribing the water guards, or by maintaining good relationships with them by offering them drinks and food, and by inviting them to 'mariscos' (seafood restaurants with the reputation of being brothels). A woman would lose her reputation if she were to follow the same course of action (Brunt, 1992).

In summary, while the differential needs and interests of women and men with respect to irrigation may call for the inclusion of both of their perspectives in planning and decisionmaking, women and men will often have different perceptions on the costs and benefits involved in participating in users' groups. The attractiveness of participation may be less for women, partly because the costs and time spend for travelling or attending meetings may be relatively higher for them, but also because social norms and values are not always supportive of women engaging in public meetings.

The inclusion of women's perspectives, their ideas, opinions, needs and interests will thus require an active and conscious effort. Women in Nepal said that they would first need to learn how to read and write, before feeling confident enough to participate in meetings. They also suggested that they should maybe get together as women, and try to organize among themselves first (Bruins and Heijmans, 1993). In an Indonesian irrigation scheme, women were first organized separately. Special training sessions were organized, both for women themselves as well as for field agents and other officials. Special female staff were also appointed and trained. This made women gain confidence and helped them to overcome some of their initial reluctance to attend 'male' meetings (van Dok et al, 1992).

#### **4. Opportunities for increasing gender sensitiveness**

It is no exaggeration to say that women are a truly forgotten group in irrigation thinking and practice. This gender blindness is partly self-sustaining; since specific women's needs and interests with respect to irrigation have never been accommodated, irrigation has come to be defined and conceived as a man's world. Women's needs and interests, irrespective of their nature, will often be automatically perceived as being of only marginal significance to achieving the 'mainstream' objectives.

WID advocates and NGOs working for and with women have since long criticized irrigation planners and irrigation institutions for their gender biased approaches by showing how these negatively affect women. Donors have been active in supporting and requesting more and better attention to gender and women while planning and implementing irrigation projects. So

far, these actions have generated very little real change. Instead of using new insights derived from gender analysis studies to improve existing planning, design and management approaches, women have been merely added on to the agenda of irrigation agencies as a separate item.

The little success achieved so far in making irrigation planning and management more gender sensitive can be partly attributed to wrong expectations about the capacity of existing irrigation management institutions to respond to new demands. Too much emphasis so far has been given to what is desirable (empowerment of women) and too little to what is possible. Irrigation management institutions whose main task is to make sure that the right amount of water is delivered at the right time and in the right place cannot only not be expected to be interested in empowerment of women, but they also often do not have a real capacity to change gender inequities. What is within their reach and mandate is the satisfaction of specific needs women may have with respect to irrigation, although even this may sometimes be conditional upon changes in other sectors.

Successful recommendations to better and more recognize and accommodate gender needs and interests within irrigation contexts should be formulated in such a way that they contribute to, or at least are compatible with the objectives of the responsible institutions. The linkages between gender issues identified at tertiary unit level and more general objectives of irrigation management should thus be clarified.

Unfortunately there is not always a direct positive correlation between greater gender awareness and a better performance of irrigated agriculture. Sustaining gender biases may in some cases even be functional for achieving some of the irrigation system's objectives. However, in most cases gender inequities will have trade-offs in terms of other objectives, such as health; environmental sustainability; the productivity of other crops; etc.

It may be that the opportunities for addressing issues that are closely related to irrigation, but which as yet remain unaddressed, will increase. The shortcomings of mono-disciplinary technical approaches to irrigated agriculture have become increasingly clear. The widespread dissatisfaction with the low performance of irrigation systems, the growing environmental awareness, and the trend in developing countries to privatize the management of irrigation systems all call for a critical reassessment of existing irrigation management concepts, practices and institutions.

This reassessment seems to offer more room for integrating gender. The trade-offs of implicit gender discrimination in terms of environment and health will become more easily recognizable and visible. The inclusion of upstream watershed management in the responsibilities of irrigation institutions will give scope for recognizing the links between water used for irrigated agricultural production and the availability of and need for water for other uses. And a focus on more users' participation in operating and managing irrigation infrastructures creates the possibility of discussing and analyzing if and where women can and should be involved.

## References

- Backer, Susanne (1992)  
Women in Development (WID) Study for the Nepal SPWP. ILO, Kathmandu. (Draft Report)
- Blaauw, Wieke (1992)  
El riesgo de riego. Het risico van irrigatie. Een onderzoek naar de invloed van irrigatietechniek op de positie van vrouwen in een landbouwkoöperatie in Nicaragua. (The risk of irrigation. A study on the impact of irrigation technology on the position of women in an agricultural cooperative in Nicaragua.) Unpublished MSc. Thesis, Wageningen Agricultural University, Department of Irrigation and Soil and Water Conservation. Wageningen, The Netherlands.
- Bos, M.G., D.H. Murray-Rust, D.J. Merrey, H.G. Johnson, W.B. Snellen (1993)  
Methodologies for assessing performance of irrigation and drainage management. Paper prepared for presentation at the 15th International Congress of the International Commission on Irrigation and Drainage (ICID) at The Hague, The Netherlands, 30 August - 11 September, 1993; forthcoming in *Irrigation and Drainage Systems*, 1994.
- Bruins, Bert and Annelies Heijmans (1993)  
Gender Biases in Irrigation Projects. Gender considerations in the rehabilitation of Bauraha Irrigation System in the District of Dang, Nepal. Kathmandu, Nepal. (Unpublished report)
- Brunt, Dorien (1992)  
Mastering the Struggle. Gender, Actors and Agrarian Change in a Mexican Ejido. CEDLA Latin American Studies 64 CEDLA, Amsterdam, The Netherlands.
- Carney, Judith, A. (1988)  
Struggles over Crop Rights and Labor Within Contract Farming Households in a Gambian Irrigated Rice Project. In: *The Journal of Peasant Studies*, 15 (1988) 3. p. 334-349
- Dadi Massalachi, Fatima (1993)  
Integration des femmes dans les aménagements hydro-agricoles. Cas de Saga. (Integration of women in irrigation management. The case of Saga.) Unpublished thesis, Faculté d'agronomie, Université Abdoumouni Dioffo de Niamey, Niger.
- Dey, Jennie (1981)  
Gambian women: unequal partners in rice development projects? In: *Journal of Development Studies* 17(1981)3, p.109-122
- Dey, Jennie (1990)  
Gender issues in irrigation project design in Sub-Saharan Africa. In: Contributions to the International Workshop "Design for Sustainable Farmer-Managed Irrigation Schemes in Sub-Saharan Africa", February 1990. Agricultural University Wageningen, The Netherlands.
- Dok van, Yvette; Kurnia Saptari Putri and Avianti Zulaicha (1992)  
Women in tertiary unit development. An experience from Indonesia. ICID Paper prepared for presentation at the 15th International Congress of the International Commission on Irrigation and Drainage (ICID) at The Hague, The Netherlands, 30 August - 11 September
- Hanger, Jane and Jon Moris (1973)  
Women and the Household Economy. In: Chambers, Robert and Jon Moris (eds.) *Mwea. An irrigated Rice Settlement in Kenya*. Weltforum verlag, München. p. 209-237
- Illo, Jean Frances I. (1988)  
Irrigation in the Philippines: Impact on Women and their Households. The Aslong Project Case. The Population Council, Bangkok, Thailand.

- IIMI (1992)  
Improving the Performance of Irrigated Agriculture: IIMI's Strategy For The 1990s. IIMI, Colombo, Sri Lanka.
- Jones, Christine, W. (1986)  
Intra-Household Bargaining in Response to the Introduction of New Crops: A Case Study from North Cameroon. In: Mook, J.L. (ed.) Understanding Africa's rural households and farming systems. Westview Press, Boulder (etc.) p. 105-123
- Jones, C.W. (1983)  
The Impact of the Semry I Irrigated Rice Production Project on the Organization of Production and Consumption at the intra-household level. Prepared for the Agency for International Development. Paper No. 83-1, September 1983.
- Koppen, Barbara van (1990)  
Women and the Design of Farmer-Managed Irrigation Schemes. Experiences provided by two projects in Burkina Faso. In: Contributions to the International Workshop "Design for Sustainable Farmer-Managed Irrigation Schemes in Sub-Saharan Africa", February 1990. Agricultural University Wageningen, The Netherlands.
- Pol, Ineke van de (1992)  
Claro, hay que pelear el agua. Roles de género en las actividades de riego. (Sure, you have to fight for water. Gender roles in irrigation activities) Draft, unpublished report prepared for SNV Peru.
- Pradhan, Naresh C. (1989)  
Gender participation in Irrigation System Activities in the Hills of Nepal. In: Proceedings of Second Annual Workshop on Women in Farming Systems, September 1989. Institute of Agriculture and Animal Science, Rampur and USAID, Kathmandu Nepal.
- Samad, Madar et al (1992)  
Irrigation Management Strategies for Improving the Performance of Irrigated Agriculture. In: Outlook on Agriculture 21 (1992) 4. p. 279-286
- Schaap, Mirjam et al (1993)  
Les relations genre et l'irrigation. Une etude de deux perimetres au Niger. (Gender relations and irrigation. A study in two irrigation systems in Niger.) Unpublished field report, IIMI Niger.
- Schrijvers, Joke (1986)  
Blueprint for undernutrition. In: Schrijvers, J. Mothers for Life. Motherhood and marginalization in the North Central Province of Sri Lanka. Eburon, Delft. p. 57-78
- Small, Leslie E. and Mark Svendsen (1990)  
A framework for assessing irrigation performance. In: Irrigation and Drainage Systems 4 (1990). p. 283-312
- Stanbury, Pamela C. (1981)  
Irrigation's Impact on the Socioeconomic Role of Women in a Haryan Village. University of Arizona, Department of Anthropology/USAID.
- Svendsen, Mark and Leslie E. Small (1990)  
Farmer's perspective on irrigation performance. In: Irrigation and Drainage Systems 4 (1990) p. 385-402
- Sumanasekera, Swarna (1992)  
Personal communication. Mahaweli Economic Agency, Colombo, Sri Lanka.
- White, Sarah C. (1992)  
Arguing with the Crocodile. Gender and Class in Bangladesh. Zed Books Ltd, London and New Jersey, University Press, Dhaka.







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Just before the end of the 19th century, the British Empire was at its peak.

It had the largest navy, the largest army, and the largest economy in the world.

It controlled more than a quarter of the world's land area.

It had the largest population in the world.

