

# RESEARCH REPORT



## CONTRIBUTION OF WOMEN TO THE PLANNING AND MANAGEMENT OF WATER RESOURCES IN LATIN AMERICA

Cecilia Tortajada

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## RESEARCH REPORTS

The **Third World Centre for Water Management** was established in Mexico in 1999. The Centre is an unique institution in the water sector, in terms of its philosophy, its inter-sectoral and multidisciplinary approach to problems solving and its modus operandi. These are based on the following assumptions:

- The water management processes will become increasingly more and more complex in the coming years.
- Tomorrow's water problems cannot be solved on the basis of analyses of yesterday's problems and using day before yesterday's solutions.
- Increasingly many of the emerging water problems and their solutions will come from outside the water sector and the water profession.
- Implementable solutions have to be case specific. For example, solutions that are feasible in France, Germany, UK or USA may not be applicable in China, India, Egypt or Mexico, because of differing climatic, physical, economic, social, environmental, legal and/or institutional conditions.
- A single paradigm may not be equally valid, or operationally applicable, for all countries of a non-homogenous world, which are at different stages of socio-economic development, irrespective of its conceptual attractiveness.

One of the main objectives of the Centre is to disseminate water-related information covering all aspects of water development and management, in both industrialized and developing countries. Towards this end, the Centre has published many books by major international publishers, some of which have been translated into several languages. The **Research Reports** and the **International Journal of Water Resources Development**, which is one of the leading journals on water-related issues in the world, help to achieve this objective. It is hoped that these information would be useful to decision-makers, scientists, government, research institutions, non-government organizations, media, and other people interested in water resources management anywhere in the world

The Centre welcomes comments on its activities, outputs and publications.

**Asit K. Biswas  
President**

## **ABOUT THE AUTHOR**

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# **CONTRIBUTION OF WOMEN TO THE PLANNING AND MANAGEMENT OF WATER RESOURCES IN LATIN AMERICA\***

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*Cecilia Tortajada*

## **ABSTRACT**

*Much has been said about women's participation in the different fields of development, water resources being one of them. Both water resources management and gender issues are complex, and their analyses and solutions would necessarily reflect regional conditions, institutional views, societal practices, and cultural backgrounds. Historically women have been primarily responsible for the provision and management of water at the household and community levels. However, their presence at the managerial and decision-making levels has been comparatively more recent. This paper summarizes the main findings and results of a workshop convened in Mexico City to analyse the contributions of women at the planning, management and decision-making levels.*

The Committee on International Collaboration of the International Water Resources Association (IWRA), Inter-American Institute for Cooperation on Agriculture (IICA) in Brazil, Swedish International Development Agency (SIDA), Global Water Partnership (GWP) and the International Water Management Institute (IWMI), convened jointly the Latin American Workshop on the 'Contribution of Women to the Planning and Management of Water Resources', in Mexico City, 21-22 May 1998.

The main objective of the Workshop was to analyse the roles women play, and could play, in sustainable water resources management, not as an end, but as a means to an end, the end being efficient and integrated water management, which could improve the quality of life of people and simultaneously protect the environment. Another important objective was to provide a forum wherein experiences of senior women decision makers and professionals from the various Latin American countries could be objectively reviewed in order to draw practical and operational lessons from this collective knowledge. The Workshop was also expected to contribute to the development of an informal network of senior water professionals (both women and men) who are working on, or interested in, water and gender issues in rural and urban areas in different countries of Latin America, specifically in terms of macro policy and management issues.

The two-day workshop analysed 12 specially commissioned background papers on the noteworthy contributions women are making, and can make, in the overall area of water resources planning, management and decision making in Latin America. Some of the issues analysed were the roles women have played so far in different parts of Latin America, and the roles they should and could play in the future in the management, planning and use of water resources under different conditions, cultures, institutions and legal systems.

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The invited speakers represented 16 national and international organisations, with case studies from diverse countries such as Argentina, Bolivia, Brasil, Costa Rica, Ecuador, El Salvador, Mexico, Panama, and Peru. Participation at the Workshop was by invitation only. It was restricted to around 40 carefully selected senior professionals from federal and state governments, private sectors, universities, research institutions, and NGOs from different countries of Latin America, as well as some national and international organisations such as the IICA, Global Water Partnership (GWP), International Water Management Institute (IWMI), OEA, UNDP, IDB, CEPAL, British Council, International Water and Sanitation Centre (IRC), in The Netherlands and Mexican Agricultural Trust Fund (FIRCO). All the participants were invited in their personal capacity to ensure free and frank discussions.

All the 12 commissioned papers were application-oriented and well-documented studies, based on years of management and research investigations. General and dogmatic papers were discouraged right from the initial planning stages of the Workshop. It was truly an enlightening experience to listen to the participants from several disciplines, who shared their views on the current contributions of women in the field of water, and on how women currently influence water resources management at national levels. Most of the participants who were invited to the Workshop were senior women decision makers, who generally had not participated in such meetings earlier. While there were agreements on many issues, there were some disagreements as well.

Probably one of the most notable findings was the difference in the mind-sets of the senior women professionals working in the water sector compared with the women professionals who are active on the gender issues. Everyone agreed on the importance of increasing the participation of women, not just in the water sector but also in all the other development sectors as well. Senior women professionals working in the water sector emphasised the achievement of women, whereas those working on gender issues focused primarily on the discrimination faced by women, both real and imaginary. Even though development of concrete proposals for research and study were an integral part of the Workshop, the professionals working on the gender issues, while basically arguing for a much higher level of participation of women in the ‘corridors of power’, were unable to make any concrete proposals on how this could be achieved.

It was agreed that water resources management is not only a technical issue, but also includes political and social issues. In order to improve the overall water management process, the participation and the contributions of all the relevant actors should be analysed objectively. Women clearly comprise one of the main actors in this field. Their presence has been fundamental historically in the provision and management of water at household and community levels. Women have been increasingly occupying management and decision-making roles only more recently.

Different issues were discussed during the Workshop. For example, the principle of increasing women’s involvement at all levels has been strongly supported at many major international conferences. Even though this has created a certain momentum, it does not necessarily reflect the many existing realities. Also, statements only are by themselves unlikely to improve the situation in the foreseeable future. Thus, official statements should not reflect dogmas, but should provide platforms from which it should be possible to analyse objectively their implementation at periodic intervals in terms of achievements and failures, as well as the reasons thereof.

It was also noted that women alone cannot play a pivotal role in properly managing water resources; it is the society as a whole that must be concerned with it. Similarly, to consider women as only providers and users of water is to stress the fact that women are solely responsible for the

domestic work. This is unlikely to contribute to significant long-term benefits for the society. Society has to be better equipped to deal efficiently with the various water problems and has to be empowered to influence the decision-making processes. Water should be supplied in adequate quantity and quality, and it is the society as a whole that needs to be educated on how best to conserve and manage this critical resource.

During the Workshop, the importance of water resources and gender issues for social, economic and environmental development was analysed objectively. One issue that came out strongly was the cultural viewpoints which determine planning and management of this fundamental natural resource. Communication, training, formal and non-formal education, transfer of information and interdisciplinary teams were considered to be fundamental issues which could contribute to integrated water resources development, and also increase the participation of women. The importance of the role of NGOs was also stressed in order to ensure the participation of the entire population in water resources development programmes.

Her Excellency, Karin Ehngom de Palmquist, Ambassador of Sweden in Mexico and a keynote speaker, mentioned two increasingly important issues of the present era: the complexity of water resources management and the relevance and importance of women's roles to ensure its integrated management. She pointed out the implications of water planning and management in terms of health, food production, industrial development and energy production, mainly for developing countries. The participation of decision makers, politician and researchers, both women and men, is essential for better implementation of legal and institutional frameworks.

In his keynote presentation, Gertjan Beekman, from IICA-Brasil, analysed the perspectives on water from different civilisations throughout the history of mankind. Because of its fundamental importance for human survival, water has played an important role in all religions and cultures. Such analyses enable us to better understand the importance and relevance of water in different cultures, and thus its management processes. He stressed the fact that women play a central role in the distribution, administration and management of water, as well as in protecting the environment, which has mostly not been reflected in the various institutional arrangements for the development and management of water resources. Women's role should be viewed within an integrated sociocultural context, where roles of individuals need to be considered for developing better alternatives.

Gender issues in water management have become a priority consideration for several organisations, GWP and IWMI being two of the most important ones. GWP has supported many fora on dissemination of information in the field of water resources and women, and for sharing of experiences between men and women working in different sectors in the water field. IWMI, on the other hand, has its international office for gender issues in Mexico, and has been working on this issue for several years. IWMI has also attempted to analyse the linkages between gender and water resources, especially in terms of irrigation management at the field level. During the present Workshop, Jorge Rogat from GWP, and Carlos Garcés-Restrepo, Head of the National Office of IWMI in Mexico, expressed their institutional as well as personal interest in water resources management and gender issues, as a means to further enhance sustainable water resources development.

The case study from Costa Rica was noteworthy not only because of the improvements the country has achieved in the water sector in terms of women's participation at different levels, but also due to the fact that the author, Anna Gabriela Ross, was until very recently the Executive President of the Costa Rican Institute for Aqueducts and Sewage Systems. Being the only female senior-most

decision maker of any water ministry in Latin America, her visions and views were critical to the success of the workshop. She pointed out that some 96% of the rural and urban population has access to drinking water in Costa Rica. This was possible primarily because of the extensive participation of civil society, represented mainly by women. The Costa Rican Institute for Aqueducts and Sewage Systems has developed different programmes in rural and urban schools at different levels, in terms of sanitation, health, water conservation and awareness. Young people, mostly women, have been trained as plumbers. This has given them an opportunity to have an income-generating activity, and to improve the lifestyle of themselves and their families.

She pointed out that women, with proper training and experience, could be excellent administrators and are often better and more practical than men. For example, women in managerial positions in Costa Rica have eliminated many unnecessary bureaucratic procedures, thus streamlining processes and resulting in more efficient procedures. Women, from her experience, often analyse the problems from a more integral perspective than men. Women consider not only the problem, but also the implications of the different alternative solutions. She concluded that more women are needed in the water sector because of their integrative approaches, and stressed the fact that women should participate in senior levels of water planning and management only if they are properly trained, and not simply because of the fact that they are women.

Lilian del Castillo de Laborde, from the Ministry of Foreign Affairs of Argentina, noted that both water resources management and gender issues are complex, and their analyses and solutions would necessarily reflect regional conditions, societal practices, cultural backgrounds and institutional views. It is a fact that women have a fundamental role in society as the backbone of the family, a role that demands more responsibilities than being only professionals. Because of the importance of these responsibilities, women should not accept 'the rules of the game' as established by the institutions for workers in general, but strive for rules which specifically consider their roles as mothers and their family responsibilities. In addition, women should not engage in fierce competition with men, and should not try to mimic them. Women could contribute their own unique viewpoints, which could complement the views of men.

A very important issue that deserves further analysis was also mentioned: whether women are excluded, or self-excluded, from the decision-making process in the political, economic and social spheres at the macro level.

Monica Porto, from the University of Sao Paulo, Brazil, in an excellent and well-researched presentation, stressed the fact that it is not the lack of women that should be viewed as an important issue in water resources, but the absence of an interdisciplinary approach. The water sector is currently dominated by engineers, and at present there are not many female engineers. However, if the process becomes interdisciplinary, as it should be, the participation of women would increase automatically since there are many women professionals from the biological and social sciences. Thus, the shortage of women as water professionals should be viewed as a matter of choice made by the women themselves, and not as a matter of discrimination. She analysed the current status from five main universities of Brazil, which showed that the number of women studying water resources engineering has increased by 40% during the last decade, and by 30% at the doctoral level. Women are now entering water-related careers mainly because of their own personal choices, and not because of any familial or societal coercion. The situation in Brazil in the water sector is very likely to change in 10 years' time, when women studying at present would be in the job market, and thus significantly increase the number of women water managers.

Dr. Porto analysed the third Dublin Principle and the recommendations for action, which states that "Women play a central part in the provision, management and safeguarding of water." The recommendation for action stipulated that:

...the pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.

She forcefully pointed out that women alone cannot play a pivotal role in guarding the environment, since the society as a whole must be concerned with it. Similarly, to consider women as only providers and users of water is to stress the fact that women are solely responsible for the domestic work. Such a restricted mind-set is unlikely to contribute to significant long-term benefits to the society as a whole, or advancements of women professionals to senior levels of management. Society has to be better equipped to deal efficiently with the various water problems and has to be empowered to influence the decision-making processes. Water should be supplied in adequate quantity and quality, and the entire society, not only women, should be educated on how best to conserve and manage water.

Maritza Troetsch from the Water Centre for the Humid Tropics of Latin America and the Caribbean (CATHALAC), presented a well-documented analysis of the presence of women in the water sector in different countries of the humid tropics. Panama is an interesting case to consider, as are Brazil and Costa Rica. The participation of women in the water sector in Panama has increased steadily during recent years. Currently, in Panama, 37% of the Ministers, Vice-Ministers and Head of Agencies related to water issues are women, 43% of the academic staff in water sciences of the major universities are female, and a somewhat similar percentage of women work as technicians and engineers in the public and private sectors in the water field. Accordingly, it is highly likely that the total number of senior women water managers will increase radically within a decade or so, since the women who are studying at present will become the water managers of the future. It is not possible to increase the participation of women in water resources management until and unless women themselves decide to be educated and trained in that field, and decide to pursue careers in the water area.

Maria-Lúcia Borba, from the International Water and Sanitation Centre (IRC) in The Netherlands, reviewed capacity building for women in Latin America in the water supply and (environmental) sanitation sector. Using case studies from all over the world, including many different countries of Latin America, she noted that since women are responsible for managing water at the household level, they should also be included in the transmission of information and knowledge regarding water supply and sanitation. At the household level, formal and non-formal education, as well as training of women, is specially important because of its direct impacts on family health and welfare.

She noted an analysis of 121 World Bank rural water supply projects, which indicated clear evidence that the participation of women increases the effectiveness of projects, in terms of better design, implementation, operation and maintenance; transfer of operation and maintenance to local user groups; maintenance after one year; and the reliability of the water supply systems. Thus, when an external project comes to a community, which could provide clean water and/or improved sanitation, women should be included in the appropriate management tasks. She pointed

out that, practically and strategically, women may face a number of constraints to take part in training, but that experience show that such constraints can be overcome, once they are recognised.

Gilma de Calvío and Rita de Parker, representing Fundasal, one of the main NGOs of El Salvador, presented a case study, which analysed both the role of Fundasal's women engineers working in a local project and the role of the women users in that project. The 'Las Palmas' community has a population of more than 5000 inhabitants, representing more than 1300 families. Most of the heads of the families are women, with triple roles: reproductive, productive and managers of the community. The role of women was considered so important that in order to develop the project, it was necessary to analyse the social structure of the settlement; the influence of women in the internal organisations; the economic activities of women at home as well as outside home; hygiene deficiencies; and cultural restrictions in participating in the project. Nearly 54% of the local body responsible for implementing the project were women. Women were very much aware that any improvement in the settlement would be beneficial to them and their children in terms of health and access to education. Thus, women, as the heads of most of the families, supported the project and worked on it. They were looking for a better lifestyle for themselves and their children.

Vivienne Bennett, from California State University, USA, analysed the impacts of protests by women on federal water policy and investments for the city of Monterrey, Mexico. Her analysis was based on several years of research in Monterrey. The main problem in Monterrey was that owing to a long-standing rift between the local private sector elite and the federal government, the City's water supply system was massively under funded by the federal government and thus inadequately developed from 1940 to 1980, despite record-breaking population, industrial and commercial growth. In fact, in the 1980s, across the entire city, water was supplied only limited hours daily. It was the low-income and lower-middle income women who, through their massive public protests, forced the government planners to consider how the crisis could be solved over the long run. The lack of major infrastructure in an industrial city as large and as important as Monterrey was partially solved only in 1985, when a major dam for urban water use was constructed, and the water distribution system was extended to all the houses in poor neighbourhoods, which did not have access to direct water service earlier. After women tried to negotiate with the authorities, and initiate a media campaign on the water scarcities, both unsuccessfully, they finally decided to block roads, and "kidnap" vehicles and personnel associated with water services. Because of the female protesters, Monterrey's water problems became a political concern and a national priority. Additional investments were allocated to construct new infrastructure. The entire population benefited because of the protests.

Patricia Avila, from the University of Morelia, Mexico, provided a case study of women and social management of water for Morelia, a medium-sized Mexican city. It is a good example of how a poor urban society has changed its approach towards water use in recent years. This sector of the population, primarily women, is aware that water is a scarce resource, and is not only willing to take the responsibility of getting water physically to their homes, but also is demanding its own participation in the legal decision-making processes for the management and administration of this resource. Construction of water projects is not enough: the social control of water is viewed as fundamental to assure a reliable supply to their community, not simply to themselves. She stressed the fact that water represents, for disadvantaged urban societies, a common good under social regulations, and thus should be managed by common consensus. The participation of women in the water distribution process has proved to be of fundamental importance, since they, as users, are present at all the meetings, and even during construction of new water supply projects. Even though the presence of women in decision making is still limited, they are continuing to get important positions within their neighbourhoods and social organisations. The real cost to them of

getting involved is high, since their workload increases significantly as a result of domestic, labour and community tasks. In some cases, even their marriages have deteriorated. She concluded that the increasing participation of women in water managements demonstrated the cultural changes that are taking place in the present-day Mexican society.

Maria José Cantalice de Freitas and Olivia de Faria Salviano, from the Ministry of Power, Brazil and the Inter-American Institute for Cooperation of Agriculture-Brazil (IICA-Brazil), respectively presented their experiences in irrigation projects in rural areas in Brazil. These projects are managed by local families, mainly women, and backstopped by certain institutions such as IICA in terms of technical, administrative, financial and operational support. In general, the approach has been to produce agricultural goods, and to promote agroindustries with an established market, rather than the traditional approach of trying to sell whatever could be produced, which often is not successful. The participation of women in these projects has increased with time, representing 22% of the users in one of the projects, and more than 50% in the other. The approach of women towards water planning and management in such projects has been very positive. They are actively searching for alternatives which could benefit them. The success of the project so far can be seen in terms of a new culture that is being progressively developed in terms of water use and conservation.

Rhodante Alhers, from IWMI in Mexico, presented an overview of women active in the irrigation sector in the different countries of Latin America. She noted that in general the presence of women in irrigated agriculture is determined mainly by emigration of men. In Ecuador and Peru, women have a more visible role as title-holders and irrigators compared with Mexico, where women are primarily involved in providing farm labour and only a minority are involved in overall management. In Mexico, women have access to land titles and water rights, primarily through their male relatives, and are very much dependent on the decisions of the community. However, changes in the government policies on property rights may give women an opportunity to participate, and even influence the normative framework in the future. At present, they are trying to adapt to the changing situation for which they are not prepared.

Sonia Dávila, from the Mexican Institute of Water Technology (IMTA) analysed how some of the new Mexican social policies in the agrarian reform (Article 27 of the Constitution) have impacts upon the social actions and the participation of women in the irrigated agriculture sector. Before the Mexican legislation was amended, farmers' land could not be impounded or auctioned, even when they defaulted on their loans. The new legislation stipulates that the farmers can sell or rent their land, and equally land can be impounded when are unable to repay their loans. The government has withdrawn any technical support to the farmers. The implementation of these new policies is likely to transform the social, economic and production conditions in the future, thus contributing to further social disruption. Simultaneously, they are likely to cause serious disruption in traditional and organisational patterns of the producers' families as well as the life of the *ejidatario* women (*ejidos* are holdings of land of 100 to 800 ha, depending on the type of crop and land use, and are characterized by collective farming). These changes are reflected in the diversity of organisational strategies developed by the producers and their families, all of whom live within and around the irrigation districts. Another significant change is the transformation of the usual traditional inheritance pattern at the local, regional and national levels, which affects women and small producers. Since women have to rent their land in order to survive economically by getting the income from the land itself and by carrying out any other income-generating activity (including working as share-croppers in their own land), they may end up with deteriorated land and loans to pay, and may ultimately even lose their land. Since this uncertainty means that the children may not have any land to inherit, women are increasingly not receiving the support of their children, as was

the case earlier. Thus, they face additional work in terms of administering the land and any production they get out of the land.

Myriam Fraccia, from IMTA, analysed the contributions of women in some of the irrigation districts in the northern part of Mexico, based on an investigation carried out in 1991-92. The social situation in the irrigation districts is very negative. Families are disintegrating as a result of the economic crisis that has affected the agricultural sector severely over a prolonged period. Men have to emigrate, mainly to the United States, as illegal workers, in order to support their families, for production on the land and to repay any loans. Unfortunately, farmers have become urban labourers at national and international levels. When the men leave, it is the women who are left behind; they become then producers and heads of the families. They represent the permanent element of the family who ensures the family's, and manage the money sent by the men who have emigrated. Women also maintain the cultural linkage between those who have left and those who are left behind. Finally, and most importantly, they keep the family traditions and culture alive. It is because women play such important roles that the policies and actions need to be reformulated to support them more effectively in the irrigated areas in terms of land availability, ownership, increasing agricultural credits, production, and marketing. At present, even though 16% of the women living in the irrigation districts are users, there is no female representation in the users' associations. Women's role needs to be reconsidered and accepted as an important factor for the better management of water resources.

In rural areas, both women and men carry the heavy loads that poverty and water scarcity bring. Women have to carry out two different sets of tasks: one imposed by her responsibilities at home, and the other by their responsibilities as farmers. In addition, male emigration has created new roles and responsibilities for women. Their role as decision-makers as regards the irrigated land increases significantly when men emigrate. It is because of the importance of the new role women are playing as administrators and producers of irrigated land that the managers and the users of the irrigation districts need to redefine the role of women in order to improve the efficiency of overall water resources management. Lack of training of women carrying out new activities for them results not just in further degradation of the natural resources, but to the detriment of the economic status of the women and their families. Women need the necessary technical training to plan and manage the water supplies and facilities by themselves.

## CONCLUSIONS

It is fundamental to recognize the importance of the participation of women in the management, planning, conservation and use of water resources, and also to improve the quality of life of the families and the communities of which they are part. Participation of women is essential for water management. At present, women are being increasingly recognized as important contributors to the water management sector at different levels, even though the change in the mind-set of the water professional has been rather gradual. The number of women who are senior decision makers is still low. However, there has been a remarkable increase in the number of women who are planners, supervisors, managers, researchers, operators and technicians. There was a general consensus that barriers are breaking down in many Latin American countries and that women are already taking advantage of this change. While more could be done, and should be done, the progress already made by women water professionals in certain Latin American countries needs to be properly recognized. This could serve as a model in the remaining countries of the region as well as for the rest of the developing world.