The Extended Participation of Low-income Women in a Rainwater Harvesting Program in Brazil

By

Andrea F J Moraes
Ryerson University
E-mail: amoraes@ryerson.ca

CERLAC Working Paper Series

August 2012

CERLAC WORKING PAPER SERIES

The CERLAC Working Paper Series includes pre-publication versions of papers prepared by CERLAC associates or resulting from CERLAC projects and colloquia, and which are slated for publication elsewhere. All responsibility for views and analysis lies with the author(s). Authors welcome feedback and comments.

Ordering Information: Papers can be ordered from CERLAC. Cost per single paper is $4.00 to cover shipping and handling. For orders of 10 papers or more there is a 50% discount. Please see the order form attached. Send cheque or money order (no credit cards, please) to:

CERLAC
240 York Lanes
York University
Toronto, Ontario
Canada M3J 1P3

Phone: (416) 736-5237
Fax: (416) 736-5737
E-mail: cerlac@yorku.ca

CERLAC WORKING PAPER SERIES

August 2012

The Extended Participation of Low-income Women in a Rainwater Harvesting Program in Brazil

By

Andrea Moraes
Ryerson University
E-mail: amoraes@ryerson.ca

Introduction

Especially in poor areas in developing countries, women are often responsible for managing water at the household level, which is considered part of their domestic role. However, they are rarely members of water management agencies, and they are hardly ever paid productive[1] participants in projects to increase water access. While the need for enhanced gender equity in water management is recognized in the international development discourse, the complexities of its implementation are poorly understood.

This paper looks at an unusual case where poor rural women are active participants in the implementation of a program (the One Million Cisterns Program, P1MC) concerned with the provision of household water access through the construction of rainwater cisterns in Brazil. It focuses on understanding how women started to participate in the program, beyond fulfilling their traditional domestic roles as water caretakers, and the challenges to and facilitating conditions for their participation. It is important to understand this case because "successes are few and failures depressingly common" (UNRIS, 2005 cited by Parpart, 2009:6) in projects mainstreaming gender in development. If the norm consists of failed policies and limited achievements, it is worth looking at successful experiences to identify the conditions that enable more successful outcomes.

Toward this end, qualitative empirical work was done in Northeast Brazil in three localities of the semi-arid region where the P1MC was being implemented, mostly using semi-structured interviews with women cistern builders and commission members, as well as with NGO members working with them. The research provided elements for a historical reconstruction of how the extended participation of women emerged in this program, contributing to the understanding of the challenges and successes of gender equity implementation in water development.

This paper concludes that, despite the fact that women clearly and directly benefited from access to water and were the main managers of the water from the program's cisterns, their extended (political and economic) participation in the program did not come easily or naturally. Where their participation grew, it emerged not from the core of the program but from its borders, mostly where ASA (the Articulation of the Semi-Arid, the umbrella organization coordinating the program) and the feminist movement met. That is, although gender was included in the program's agenda in theory, in practice the traditional sexual division of labour prevailed. Innovative experiences promoting gender equity – such as the participation of women as cistern builders and commission members – appeared and gained strength mostly in places where there were women and/or feminist leadership figures with links to ASA organizations.

This paper is divided into four sections: section 1 discusses gender inequalities related to water, and why it is important for water development efforts to include women beyond their prescribed gender roles; section 2 briefly describes the

1 "Productive" meaning income-earning activities, in contrast to reproductive activities (child caring/domestic) and community management. According to Moser (1989), low-income women concentrate on the last two roles. For more on household division of labour and triple role formation see Kabeer, 2003: p.275.

case of women in the Brazilian semi-arid region and the principles and goals of the P1MC program, especially with respect to the participation of poor rural women. Section 3 presents a historical reconstruction of the participation of women (beyond their traditional roles) in the program, and also considers the gains, supports and challenges described by women who participated as cistern builders and commission members. The last section outlines the conclusions of this paper.

1. Gender Inequalities in Water

Although the natural distribution of water in the world is uneven, this does not explain the global human inequality of water access. While the wealthiest nations, cities and people enjoy cheap abundant public piped water, a great number of the rural and urban poor in developing countries have to struggle to access even limited amounts of water (Crow, 2001). Inadequate access to water is a cause and a consequence of poverty, and the majority of the work related to finding and collecting water is done by women and girls (Crow, 2001; UN, 2005). The domestic management of water demands time and energy, but also knowledge and decision-making ability. Women decide where to collect water for each use, and how to store, recycle, and use it efficiently (Wijk-Sijbesma, 1998). The water collected is managed by women for drinking, cooking, washing, and the hygiene and sanitation of the family, as well as for productive activities including food production and processing, and the care of animals and gardens.

However, women's work is less visible and less valued than men's, and women have access to fewer resources and opportunities, including political participation. Although rural women contribute crucially to water and food security they are still underrepresented in decision-making bodies concerned with irrigation and water management (Moraes & Perkins, 2007; Zwarteveen and Bennett, 2005). At the same time, gender discrepancies in access to resources are high: women have less access to land, credit, agricultural input and technical assistance, training and extension, research and technology, sources of income, and documentation. Policies often do not consider the different needs and interests of rural men and women, and reinforce existing gender inequalities by considering men as heads of households. It is not surprising that women still constitute the majority of the poor (UN Women, 2011), although they represent about 50% of the world's population and are the major food producers and caretakers of drinking water. This paradox is acknowledged in international agreements that recognize the need to include women in water management, but the implementation of gender equity strategies on the ground still represents a challenge.

Even when women are included in policies and programs related to water development, their participation is often limited to traditional domestic roles as water caretakers. For instance, they are trained to take care of water more efficiently, but not to participate in decisions about water management programs. What is left out is "the analysis of their social and cultural roles, their subordination and barriers for participation in decision making levels" (Wallace and Coles, 2005:8), as well as their differential access to education, and to economic and political opportunities related to water development.

The appearance of women cistern builders and commission members at the P1MC suggests a type of participation deserving investigation because it goes beyond the traditional division of labor in respect to water, exemplifying greater gender equity and women's empowerment. This paper will examine the extent to which and how this happened, and what difference it made to the rural women who are subject of this study.

2. Research Methods

This paper is a brief summary of the author's dissertation research in Rural Sociology. It focuses on the following questions: How did women participate in the P1MC program? Did they participate in non-traditional spaces? How did this happen? What were the facilitating conditions for such participation? And, finally, for the women involved, what were the challenges to and the benefits of participation?

To respond to these questions, a qualitative case-study analysis (Creswell, 1994; Luck et al. 2006) was conducted with the aim of understanding the extended participation of women in P1MC. "Extended participation" was defined as participation beyond traditional women's roles, not associated with reproduction and domestic care.

This research adopted a feminist perspective, concerned with giving visibility to the voices and lives of women (Hesse-Biber & Levy, 2006:25). It also acknowledged the diversity of feminists (Marchand, 1995:70), assuming that women occupy different social positions and hence have different standpoints (Hesse-Biber & Levy, 2006:29). By recognizing the diversity of social positions and standpoints, this research sought to give exposure to those non-dominant voices in development and to show how they conceptualize change on the ground (Marchand, 1995:70).

Field work and selection of cases

Fieldwork was conducted in two stages. The first occurred in April 2008, when the researcher went to Recife and collected documentation and conducted interviews with key participants from ASA and feminist organizations involved in the P1MC program, with the goals of reconstructing the program's history and of understanding the structure of the program (and of women's participation within it).

The second stage took place in June and July 2008 when the researcher travelled to the selected regions to collect material, to conduct participant observation, and to interview rural women participating in the program in non-traditional roles as well as their allies. The first two sites were selected because these were where the first and the second group of women cistern builders emerged: Afogados da Ingazeira and Mossoro, respectively. Later, women cistern builders appeared in other municipalities and states of the semi-arid region. Because this study was concerned with the conditions of emergence, it was considered most important to understand the first and second cases.

The third locality, Fortaleza in the Sertao Central region, was chosen for different reasons. In the first place, Fortaleza was chosen because there were prior reports (Interview with Joao Amorim from ASA, 2008) of the existence of women cistern builders and a strong presence of women in the program's municipal commissions. However, Fortaleza was also attractive as a field site because it is a big metropolis and the capital of a different state in the Northeast, Ceara, located at the centre of a micro-region. The municipality of Fortaleza has close to 2.5 million inhabitants while Mossoro has 260,000 and Afogados da Ingazeira has 36,000. Although the focus of the research was on rural women living in rural areas, those rural areas and the micro-regions to which they belonged were close to municipalities of different sizes. A case study in a much larger municipality offered the possibility of a comparative perspective.

In addition to participant observation conducted at events, training sessions, and meetings (Geertz, 1989:281), and document selection (reports, presentations, evaluations, manuals & thesis), semi-structured interviews

were conducted with five groups of people: (a) staff from ASA; (b) staff from NGO members of ASA; (c) staff from feminist organizations involved with rural women who participated in the P1MC; (d) women cistern builders, and (e) women participating as commission members. A total of 36 individuals (31 women, 5 men) were interviewed.

Data Analysis

The data analysis proceeded in two phases. The first consisted of a detailed description of the cases (the three sites) and the individual rural women's biographies. This is not included in this paper. A second level of analysis consisted of grouping responses under themes (Attride-Stirling, 2001) that aided in highlighting responses to the research questions. A very brief summary of this analysis is presented here. This analysis seeks to identify core elements involved in the complexity of women's participation in development.

3. Women in the One Million Cisterns Program

Although Brazil is rich in water resources (UNESCO, 2003 cited by Moraes & Perkins, 2007), these resources are unevenly distributed and regional discrepancies exist. Of the one billion people in the world living in areas susceptible to desertification, 25 million are in the Brazilian Northeast semi-arid region[2] where in 1999 it was estimated that 2 million families lived without adequate access to clean drinking water (ASA, 1999). In fact, this region historically has been subject to droughts, floods, and poverty as well as emergency welfare policies concerned only with fighting droughts. Even though droughts are a natural phenomenon, their consequences are not. They affect the most vulnerable rural populations of the semi-arid region, such as the landless and small landowners, who either depend on assistance through the government Emergency Work Front program (*Frente de Trabalho de Emergencia*) or migrate to the South or to the Northeast's larger cities. The vulnerability of the semi-arid region's rural poor can be explained partly by conditions of ownership and land use, as well as the instability of temporary work predominant in the region (Duarte, 2001:426). In addition, crops planted in the region for subsistence, mostly corn and beans, are originally from the humid tropics, and therefore are ecologically unsuited to the area, because they depend on regular rains to grow (Garcia: 1999:54)[3].

In response to this scenario, and in tandem with the democratization of Brazil, over recent decades more than 750 civil society organizations, making up the 'Forum on the Semi-Arid" or simply *ASA – Articulação no Semiárido*[4] proposed a paradigm

2 The Brazilian Northeast semi-arid region extends over an area of more than 900 thousand square kilometers, comprised of 1,133 municipalities from the states of Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia and north of Minas Gerais. Its population is over 20,858,264 inhabitants, 44% of whom live in rural areas (MIN, 2007). The semi-arid region has two distinct seasons: a dry season that lasts from 6 to 11 months; and a humid season, with irregular rainfall ranging from 300 to 800 mm on annual average (MDS n.d.). The region suffers from an accentuated water deficiency due to the effect of three main elements: the limited, irregular and uneven distribution of rain during the rainy season; intense evaporation during the dry season; and high rates of surface runoff (MDS, n.d.). The rural poor suffer from limited access to good water in sufficient and regular quantities and the region has already experienced many droughts.

3 The region, however, is the site of a number of endemic species of plants and animals that have adapted to the region's climate and land, such as caju, umbu, mamona and other xerophytes and cactuses.

4 The Articulation of the Semi-Arid, ASA, is a forum of more than 750 civil society organizations fighting for the social, economic, political, and cultural development of the semi-arid region. Members of ASA are organizations such as: Catholic and Evangelical churches, development and environmental NGOs, rural and urban workers' associations,

shift for the region in the form of "coexistence with the semi-arid region and fight against desertification" (ASA, 1999). They argued that existing policies would not guarantee the sustainability of the region's people and environment because they did not consider the great diversity within the region nor its natural resources, such as rain water (ASA, 1999). Moreover, they added that a break in the monopoly[5] on access to land, water and other means of production was also needed (ASA, 1999). In a major 1999 document, the Declaration of the Semi-Arid, the forum identified six main strategic actions:

(1) co-existing with droughts; (2) orienting investments towards sustainability, (3) strengthening civil society; *(4) inclusion of women and youth in the development process*[6]; (5) maintaining, rehabilitating and managing natural resources; and (6) financing the program for coexistence with the semi-arid region (ASA, 1999).

The first program developed by ASA under these principles[7] was called *Programa de Formação e Mobilização Social para a Convivência com o Semi-Árido: Um Milhão de Cisternas Rurais* (Program of Education and Mobilization for Coexistence with the Semi-Arid: One Million Rural Cisterns) – or simply P1MC (ASA, n.d.). The main goal of the program was to mobilize and build plaque cisterns for one million families, which corresponds to half of the estimated 2 million people living without adequate access to clean drinking water in the semi-arid region of Brazil.

Plaque cisterns[8] are built by

community associations, unions and federations of rural workers. This forum was first created in July 1999, during the preparation for the Forum of NGOs that was to happen in November 15-26, 1999, parallel to the Third United Nations Convention to Combat Desertification COP-Conference of the Parties 3, in Recife.

5 In Brazil the first centuries of colonization created conditions of land concentration and relationships of dependency between landowners and rural workers that have remained fairly unchanged all over Brazil, and especially in the Northeast. It was only in the second half of the 19th century that the industrialization process in the Northeast started, linked to sugar cane and cotton production. Despite industrialization, this process promoted what Andrade (1988:25) defined as "growth without development". More recently, an increase in land concentration was observed in Brazil associated with the growth in agribusiness. For more, see Frayssinet, 2009.

6 When including women in the development process, the document recognizes that women are 40% of the labor force in rural areas; that they work on average 18 hours per day; that more than 50% of girls start working at the age of 10; and that the majority of women are responsible for the water for the household and small animals. At the same time, it denounces the fact that rural women remain invisible as citizens, often having no documents and being under-represented in unions and councils (ASA, 1999).

7 Although the program One Million Cisterns, as it is, was officially created in 2003, prior phases of the program did exist. After the Forum of NGOs in Olinda in 1999, an agreement between ASA and the Brazilian Ministry of the Environment (MMA – Ministerio do Meio Ambiente) resulted in the construction of 500 cisterns. In 2001, thanks to a new agreement with ANA, the National Water Agency, 12,400 new cisterns were built. During this period, there was a major improvement in both the process of construction of the cistern itself, as well as the training process for technicians, construction workers, instructors, institutions and families, and of administrators in resource management. This stage was called the Transition phase since the goal was always to build One Million Cisterns. It also helped to strengthen several civil society organization members of ASA in different states (ASA, 2002: 8).

After that, the P1MC started a new phase in 2003, shortly after the launching of the Zero Hunger Strategy at the Ministry of Social Development and Fight Against Hunger (MDS), after the election of Lula as president of Brazil. Until 2007, of a total of 221,000 cisterns built in the semi-arid region by ASA, 167,000 were funded by the MDS (Fome Zero, 2007). Although cisterns built by ASA were also supported by other partnerships, such as with the Brazilian Federation of Banks (FEBRABAN) and OXFAM, , the MDS, through the Zero Hunger strategy, has been its main partner. In fact, it is a goal of ASA that the P1MC becomes government policy.

8 This technology was originally created in the semi-arid region by a small farmer (campone) known as Senhor Nel (nick-name for Manoel Apolônio de Carvalho). In 1955, at the age of 17 and escaping from

construction workers who are trained and paid by the program to follow specific guidelines, who count upon the assistance of members of the receiving household as helpers (with voluntary work, such as bringing water and sand to prepare the cement). First, the house owner has to dig a hole for the cistern, which is half buried. Then, cement plaques are prepared in wood frames on the site. When they are dry, the walls of the cistern are erected over a cement floor. After that, a galvanized steel wire covers the wall from the outside, and finally the cistern is plastered. Some cisterns (depending on the region) have also pumps to pull the water and diminish the risk of contamination. (Gnadlinger, 1999)

The cisterns built under the P1MC have the capacity to store 16 thousand liters of rainwater, collected during the rainy season. When rainwater falls on a house's roof, it is collected by gutters that are connected to a filtering system and a pipe that leads the clean water to the cistern. The water stored during the rainy season can last to up to 8 months for drinking and cooking. Currently the P1MC is funded mostly by government funds, but also has support from national and international agencies and associations. For instance, between 2003 and 2007, the Ministry of Social Development (MDS) invested 327 million Brazilian reais, building 250 thousand cisterns (Ananias, 2008). By February 2012, more than 376 thousand cisterns had been built.

The families who receive a cistern are required to participate in a weekend training/mobilization course on water management in their communities, organized by ASA. Women are major beneficiaries of the program, since the cistern saves water to be used in the household.

Women also benefit from the criteria for selection of households to receive cisterns. First, the localities in need are identified using existing secondary data[9]. Then, at the local level, families are selected according to the following criteria: (a) households headed by women; (b) number of children from zero to six; (c) children and adolescents at school; (d) adults with age equal or superior to 65 and (e) people with mental and physical disabilities.
Women are included in the program as beneficiaries due to their obvious connection to domestic water. However, women in the program have also received media attention because they were not only receiving cisterns but were also 'building cisterns and breaking taboos"[10]. In other words, they seem to be participating in activities not traditionally associated with women's roles, such as building cisterns and making local decisions about the program. How did this happen?

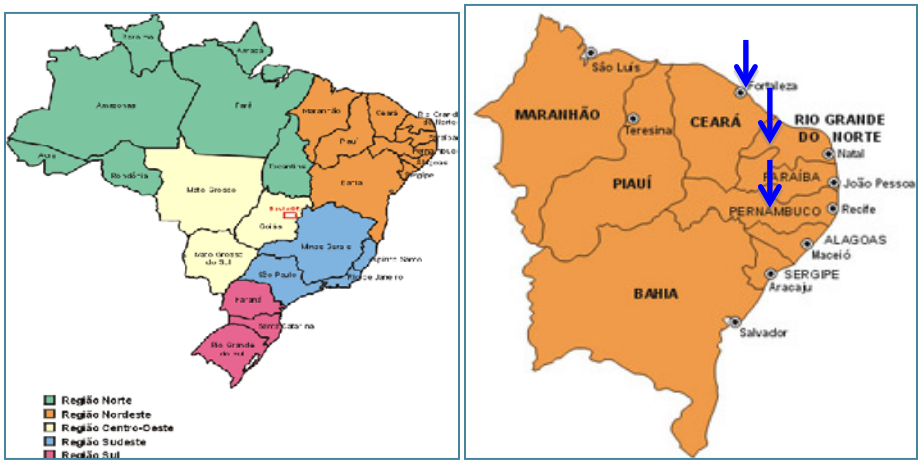
the consequences of the last drought, illiterate Nel left the interior of Bahia and found work as a construction worker. In Sao Paulo, Nel worked building swimming pools with plaques, and it was then that he had the idea of collecting rainwater and storing it in a swimming-pool-like cistern made of plaques. When he went back to his region, Nel talked about his idea and a friend of his father provided the material for him to build the first cistern. After that he built several more, and the knowledge of the cistern spread over the Northeast. Nel was honored by ASA during one of their annual meetings (ASA, 2002).
The cylindrical version currently used by the P1MC is the result of decades of experience, discussion, and research involving a number of NGOs that reached a consensus that this was the best option. They took into consideration cost (estimated US$ 333), technical issues (applicable to all types of soil), political concerns (independence from politicians and large landowners), social concerns (the participation of families), and environmental aspects (no negative effects) (ASA, 2002).

9 Such as from the IBGE – Instituto Brasileiro de Geografia e Estatistica (Brazilian Institute for Geography and Statistics), SUS – Sistema Unificado de Saude (Unified Health System), and HDI (Human Development Index), to identify needs.
10 In Portuguese, "Construindo Cisternas, Desconstruindo Tabus" is a publication of the Feminist Center March 8 (CF8) about the mobilization process that led to the training of women cistern builders in Mossoró, Rio Grande do Norte state. Please see CF8, 2006.

The next section describes how these two forms of participation emerged.

4. The Emergence of New Spaces for Women's Participation in the P1MC

The first instance of women cistern builders occurred in the municipality of Afogados da Ingazeira, micro-region of Pajeú, in Pernambuco state, in 2004. One local feminist organization, the Casa da Mulher do Nordeste – CMN, together with other supporters participating in ASA meetings, raised the issue of gender equity in the program's implementation. Casa da Mulher do Nordeste is a feminist non-governmental organization founded in Recife, Pernambuco, in the 1980's by a group called Ação Mulher. Casa's main goal is "to contribute towards the productive and political action of poor women in the Northeast, towards gender equality in a perspective of sustainable human development" (CMN website, n.d.). Currently, Casa has two main programs of action: "Gender and Economy" and "Women in Rural Life"; and two offices, one in Recife and another in Afogados da Ingazeira. Casa has several national and international partners and is linked to a number of networks. Casa is also a member of ASA, and participates in ASA's national meetings as well as meetings of the State of Pernambuco and of the micro-region of Pajeú. It was through this participation at ASA meetings in 2003 that members of Casa, in partnership with other feminists, began to raise questions about gender equity in the P1MC, making an analysis of the sexual division of labour.



Map of Brazil Political & Northeast: States and Capitals
Source: IBGE – Brazilian Institute for Geography and Statistics
The three arrows indicate the approximate location of the three case studies, from north to south: Fortaleza, Mossoro, and Afogados da Ingazeira.

They pointed out that the program was in fact reinforcing existing gender inequalities that helped to maintain women in poverty. They highlighted specifically two aspects related to the sexual division of labour in the program: first, that women were under-represented in political decision-making forums about the program, such as in the micro-regional commissions who selected communities to receive the cisterns. And second, that the program assumed women would not want to build cisterns and therefore did not offer training to them.

In relation to the first aspect, members of Casa argued that decision-making positions for the program, especially the participation of indicated members of ASA's

NGOs in micro-regional commissions, were positions of power in the semi-arid region. Those positions continued to be occupied mostly by men despite the fact that the management of domestic water directly affected rural women. Moreover, it was very difficult for women to get into those positions. This was not only because leadership positions in organizations (including the micro-regional management unit) were mostly perceived as "masculine" and attracted more males, but also because they were positions of power that men did not want to give up. "Water in the Semi-Arid is power!" said Maria Marli de Almeida, from Casa da Mulher do Nordeste. As a matter of fact, of the twelve existing commission members (all men) in her region, four became candidates for city council.

In relation to the second aspect, economic participation, women participated in several volunteer (unpaid) activities, but not in the paid activity of building the cisterns. Male construction workers were selected, hired and trained in their localities to build the cisterns. They were paid around $160 Brazilian *reais* (the equivalent of 100 dollars) for each cistern, which is much more than they were used to, taking into account that it would take a person one week on average to build a cistern. When the women from Casa asked at the ASA meeting why women were not being trained to build cisterns, it was argued that it was because women had no interest. However, when members of Casa then asked the women themselves they found that a number of them were not only interested but also had some experience performing construction in their own households or communities.

After months of mobilization, the first training course for women took place in the Pajeú region with six registered participants in the beginning of 2004, although only three completed the training. The training involved the collective construction of a cistern and since the cistern was built on-site, it raised the curiosity and distrust of community members. Would a cistern built by women leak? Not surprisingly, after the first women cistern builders were trained, they were not hired to build cisterns in their own micro-regions, where cisterns were normally built by men who were invited to do so by organizations headed by men. Women were not part of this network. However, one of the women trained to build cisterns, Lourdes, was also trained as an instructor, and was called by other feminist NGOs from other states to teach women to build cisterns in their micro-regions. Of the first group of three women, one died and the other had to stop working due to family pressure. Despite financial gain for the family, her husband and mother-in-law did not allow her to travel to build cisterns in other communities.

The case of Lourdes was different; she was a single mother and was able to travel and train other women. The first state she went to was Mossoró.

The second case comprised the women cistern builders, or "Cisterneiras[11] from Mossoró" in Rio Grande do Norte state. They had support from the March 8 Feminist Centre (CF8) in Mossoró. The CF8 supports and encourages the organization of rural women's groups in the Apodi region around Mossoro. In one of the meetings of rural women workers (animated by CF8 members) in October 2003 the issue of water was raised. A number of rural women (already leaders in their own communities) affirmed that one of the most important issues they wanted to address was access to water. They lived in settlements where there was no adequate access. Either women had to wake up early and walk long distances to get water of low quality (brackish), or, in settlements with wells, the maintenance of pumps was expensive, making water costs high. Women reported that they were drinking less to

11 In Rio Grande do Norte state, women cistern builders were called 'cisterneiras'.

conserve good water. In partnership with the CF8, the women's group mobilized and demanded cisterns for their communities from several government institutions, until INCRA (the Brazilian organization for colonization and agrarian reform) agreed to build a few. The group of women decided that they wanted to participate in all stages of the project, including the building of the cisterns. CF8 members already knew of the existence of the initiative in Afogados da Ingazeira, and contacted Casa da Mulher do Nordeste, which contacted Lourdes. They also had to convince the organization responsible for the project's execution, a local technical NGO, to work only with women.

When the training started in February 2004, fourteen women were registered, and nine finished the course[12]. They faced numerous challenges during the construction of the first cisterns: the weather, their absence from home, the construction process itself, as well as the distrust of relatives and community members due to their gender. During the training to build the first cistern, community members approached them to express their distrust. Some said it was too hard or too difficult for a woman to build a cistern, clearly suggesting they thought it would leak[13]. Later, after the training, some men refused to accept a cistern built by a woman.

These challenges, however, were outnumbered by benefits. The women reported being proud at feeling capable of doing construction work. The cisterns were a community benefit in which they had a major role. This was accompanied by their increased status, self-esteem and recognition in their communities as productive members. Most women before becoming cistern builders had no recognizable profession, and their training and experience opened new professional opportunities. Financial gains were significant as the payment for the construction of cisterns was much higher that what they had been paid for informal work in mining, agriculture or domestic service. Their experience also attracted media attention beyond local newspapers, and some of them appeared on a feature program on TV Globo, a national media network.

> People know me wherever I go. If I go to Currais Novos, close to the city of my mom, people come: "Oh Chaguinha, I saw you on TV; you are a cistern builder, right?" I know a lot of people; after that I met a lot of people. It was a very good experience for me. It was difficult, there were a lot of difficulties, but it was also very good. (Chaguinha, Mossoró, 2008)

Another positive element related to their participation in the program was their closer connection to the women's movement and to feminist organizations. These organizations actively included women cistern builders in a network of services (including water), opportunities (including work) and knowledge (formal and informal). For example, it was the Feminist Center (CF8) that encouraged the cistern builder Linda to participate in an undergraduate course offered by the State University of Rio do Norte to rural residents. She describes the experience of participating in the movement – in which she started to participate after being trained to build cisterns - as life-changing.

> In the schools we learn a lot, but in the movement we learn much more. Both at the personal and professional level…because before I did not even have any work, any income, I did not have anything. And today I have an income when it comes. And we grow, in the discussions that we have, in our

12 The same type of loss attrition of participants also happened in courses for men.

13 Later, after their cisterns were built and did not leak, they were challenged again with the argument that the work, in fact, was easy because women could do it.

> talks. Sometimes I think about how I was before and how I am now. (…) Today I am the same person but with a renovated spirit. (…) Before, I was a quiet person that did not say anything. And then some opportunities appeared for us to be talking, to be discussing, to be reading. I only entered the [university] course because I was in the movement. (…) [the women from CF8], they talked with us about this course, to see if we were interested… (Linda, Mossoró, 2008).

Moreover, rural women's connection to feminist organizations, which for some started with the construction of cisterns, enabled their participation in several other collective actions (such as the Marcha das Margaridas and the World Women's March) and networks (such as the Network of Women Producers of Pajeú[14] and the Xique Xique Network for Solidary in Mossoró[15]). Those connections helped to position their struggle for water as a collective struggle for economic and political inclusion, food security, social justice, and women's and human rights.

The third case selected considers the participation of rural poor women as Municipal Commission Members of the P1MC for the Fortaleza micro-region, in Ceará state.

There, the NGO Esplar (Esplar, n.d.) had a long history of work with rural communities and on water issues, and included gender equality among their defining principles. Esplar was also one of the founding organizations of ASA in Ceará state, where it gained the name *Forum Cearense pela Vida no Semiarido* (Ceará Forum for Life in the Semiarid region). Esplar has been sensitive to gender since its creation and had a number of women in leadership positions. One of them, Francisca Malvinier Macedo, became the coordinator of the Forum. Another, Elzira Maria Rodrigues Saraiva, was the coordinator of the P1MC in 2008, since Esplar was the management unit[16] for the Fortaleza micro-region. It was in Fortaleza, different from the other regions studied, that the number of women participating in the micro-regional meetings was equal to the number of men. The strong leadership of both Malvinier and Elzira played a major role in enabling a parity system (50% men and 50% women) for the P1MC micro-regional commission. As with men, all the participating women had to be referred to the commission by a local organization[17], or had already to be volunteering with the P1MC in their communities. However, as reported by Marli from Casa da Mulher do Nordeste, normally women would be under-represented in micro-regional commissions because these were power positions that men were accustomed to occupying and would not want to relinquish.

14 The Rede de Mulheres Produtoras do Pajeú (The Network of Women Producers of Pajeú) is a network of approximately 450 women artisans and organic food producers from the region of Pajeu who jointly commercialize their production in street fairs in Afogados and in neighboring towns to increase their families' income and promote local mobilization. This network has been animated by the Casa da Mulher do Nordeste since its creation in 2003 (Brazil Foundation, 2011).

15 Rede de Comercialização Solidária Xiquexique (Xiquexique Solidary Commercialization Network) is formed by urban and rural workers working under the principles of agro-ecology, feminism and solidary economy. The Network is organized into 12 municipal centers, through agro-ecological fairs, family farming and food stores, plus training and exchanges. It has a strong alliance with social movements, especially the World March of Women, the Solidarity Economy and Agro-ecology Forum. The Network now has over fifty groups, of which 50% are women's groups (Rede Xiquexique de Comercialização Solidária, 2012).

16 The UMG or Micro-regional Managing Unit is responsible for the implementation and coordination of the P1MC at the regional level. The UGM organization is an ASA member.

17 Such as Pastoral Commission of Earth (CPT), Pastoral Commission for the Child (Pastoral da Crianca), or Community Heath Agents Association, and even the local Union.

In Fortaleza, women involved in commissions participated in local and municipal meetings, and some also in the micro-regional meetings. They were also able to participate in state (Forum Ceará) and national (ECONASA) meetings. They were exposed to information from different places and spaces, and most of them proclaimed a growth in knowledge and prestige in their communities.

> I became passionate and this changed my life because we started to wake up to the question of knowledge, because we saw the importance of the earth, the care of the earth, and this has strengthened us. And during the visits we started to pass along information about these things that we did not care a lot about before (Fatima Abreu, Barreiras, 2008).

> The Union did not have an active participation in the community and with the families. Now everybody is together and the connection and the knowledge improved, even inside the communities and the families (Raimunda, Ocara, 2008).

As with the women cistern builders, the commission participants also brought improvements to their communities and extended their rights. They were recognized, valued and paid for their community work, which is less common for women. They also felt rewarded and engaged.

> I will continue, right? To integrate myself more, because before we were only part of the municipal commission, we were not here at the Forum. Then today we gained this space. I intend to improve more each day, and bring it to those families, because to see their happiness is so great. The reservoirs, the cisterns that will ease their situation, the problem of water-- this is what is rewarding in this program; it is for us to see the happiness of the families (Fatima Abreu, 2008).

In addition, the majority of women members of the commission reported that they developed not only more links with their communities and partner organizations, but also with public officials in the municipalities with which they were engaged. Some even heightened their political participation as candidates for union representative or city council.

> I am going to tell you something: sometimes I think about going further, because it is possible. If you try, everything you try, you get it. But I am still very much involved here. I believe I could think about going further if I could see the community here, the women wake up to reality. And if I go further, I will, but always towards my land--towards my land of origin (Fatinha, Bom Retiro, Caninde, 2008).

> Dulce did not come today but she is a person who says: "My life before the P1MC was inside the house with my feet at the stove and the sink." Now she became a candidate for union officer and she won, and will assume her office in September. (...) This inclusion of women in the program (...) there was a jump in quality in the political and social lives of these women (Malvinier, Esplar, Fortaleza, 2008).

In conclusion, the participation of women in local commissions, and later in municipal and micro-regional commissions, had an effect on the political lives of women and their communities, opening possibilities for growth, knowledge acquisition and even access to political power. Their involvement depended on the organizations acting as micro-regional management units of the

program being aware of and embracing gender equity, as well as the engagement of women leaders in ASA who fought for their inclusion.

5. Conclusion

The role of democratic governments and civil society organizations in the creation of spaces and opportunities for the democratic participation of women and men in water management has been vital in Brazil, as the case of the One Million Cisterns Program suggests. Part of the recent improvement in the equality equation experienced by the country could be explained by effective policies that have led to such things as improvements in education, direct cash transfers from the state to families, and better income distribution (IPC-IG, 2009).

The overall results of the P1MC program (below) represent real improvements for the lives of the rural poor in the semi-arid region of Brazil, and for women in particular. By June 1 2010, (ASA, 2010) 287,767 cisterns had been built, mobilizing 294,817 families, from which 273,074 individuals were trained in water resources management. In addition, 6,397 municipal commissions and 5,520 construction workers were trained[18].

However, even good policies and programs can fail to include rural poor women in capacities that go beyond their traditional subordinate roles, by ignoring their political and productive contributions as well as their needs and experiences. Even where there are good intentions and gender mainstreaming is included in policies or programs, it is often "harder to do" (House, 2005:209).

Considering that female-headed households make up 30 percent of households in the Brazilian semi-arid region, and that in times of drought a big proportion of poor men out–migrate, the need for gender equity policies in development is urgent, especially in water stressed regions.

This paper has presented a qualitative case study of women's participation in the P1MC program in the Brazilian Semi-Arid region, as an illustration of the promise held in, and the challenges facing, the achievement of gender equity and women's empowerment in water development. It argued that women not only derived significant material benefits from the program, such as access to water, more time, and better health for their families (Lima, 2007), they also acquired economic and political opportunities (as cistern builders and as members of municipal water commissions), roles traditionally reserved for men. The cistern builders, for instance, initially numbered only three, while by 2008 there were approximately 300. They have their own regional meetings, funded by the P1MC budget, which suggests they will continue to grow with the program.

Central to this transformational process was the role played by local feminist NGOs and by social movements and networks supporting women's organization and their participation in non-traditional roles. This extended participation contributed towards extending women's rights not only to access clean water for survival, but to participate in society as agents of their own development.

However, the challenges faced by women are also multiple, from gender bias at the community and institutional levels, to the

18 When the data for the paper were collected in 2008, there was no gender discrimination data. But by collecting information from different sources, the author estimated that more than 5% (300) of cistern builders are women. As training involves the construction of the first cistern, it happens in localities that are building new cisterns. Reports about the participation of women as cistern builders were spread over different micro-regions and organizations, but growing. The total number of cisterns built by women is not available.

need for policy change[19] - not to mention climate change, which will affect the availability of water and food (agriculture) in semi-arid regions. Since its creation, ASA has been aware of and concerned with climate change and desertification, which could signify an extra burden for women, who play central roles in the quest for water and food security (Phillips, 2009:488-489). Therefore, it is ever more imperative to address gender inequalities in special processes related to water. The continuing mobilization and organization of low-income rural women, and the creation of new spaces for political, socio-economic participation, are important steps in this direction.

.

19 In November 2011, the Government of Dilma Rouseff launched the idea of using plastic (PVC) cisterns instead of cement ones.

References

Ananias, Patrus. 2008 "Apresentação" in Oscar d'Alva Arruda, & Luís Otávio Pires Farias. *Programa cisternas: um estudo sobre a demanda, cobertura e focalização. Cadernos de Estudos Desenvolvimento Social em Debate – N. 7.* Ministério do Desenvolvimento Social e Combate à Fome; Secretaria de Avaliação e Gestão da Informação Brasília, DF.

Andrade, Manuel Correia de. 1988. *O Nordeste e a Questao Regional.* Sao Paulo: Atica.

Articulacao do Semiárido/ASA.1999. *Declaracao no Semiarido Brasileiro.* http://www.asabrasil.org.br/Portal/Informacoes.asp?COD_MENU=104 Accessed February 18, 2010.

Articulacao no Semiárido/ASA. n.d. *P1MC: Cisternas.* http://www.asabrasil.org.br/Portal/Informacoes.asp?COD_MENU=1150 Accessed September 28, 2010

Articulacao do Semi-Arido/ASA Brasil website. 2010. *P1MC: Resultados.* http://www.asabrasil.org.br/ Accessed September 28, 2010

Attride-Stirling, Jennifer. 2001. "Thematic networks: an analytic tool for qualitative research*".* *Qualitative Research,* vol. 1(3): 385-405. London, Thousand Oaks, CA and New Delhi: Sage Publications.

Brazil Foundation. 2011. Selected Organizations: Rede de Mulheres Produtoras do Pajeú (The Network of Women Producers of Pajeú). March 24, 2011. http://bf10anosen.wordpress.com/2011/03/24/rede-de-mulheres-produtoras-do-pajeu-the-network-of-women-producers-of-pajeu/ Accessed May 30, 2012.

Casa da Mulher do Nordeste/ CMN. n.d. Website http://www.casadamulherdonordeste.org.br/ Accessed September 3, 2009

Centro Feminista 8 de Março./CF8. n.d. Website http://www.cf8.org.br/ Accessed September 5, 2009

Centro Feminista 8 de Março. 2006. "Construindo Cisternas, Desconstruindo Tabus: Mulheres Capacitando Mulheres para o Acesso à Água". Cadernos 8 de Março., N. 7. http://www.cf8.org.br/promocao/2_artigo.pdf

Creswell, John W. 1994. *Research Design: Qualitative and Quantitative Approaches.* California. Sage publications, Inc.

Crow, Ben 2001 *Water : Gender and Material Inequalities in the Global South.* Working Paper Series from the Center for Global, International and Regional Studies and the Department of Sociology from the University of California Santa Cruz. http://repositories.cdlib.org/cgirs/CGIRS-2001-5/ Accessed on Feb 2, 2009

Duarte, Renato. 2001. "Seca, pobreza e políticas públicas no nordeste do Brasil". *Pobreza, desigualdad social y ciudadanía. Los límites de las políticas sociales en América Latina*. CLACSO. Buenos Aires. 464p. http://bibliotecavirtual.clacso.org.ar/ar/libros/pobreza/duarte.pdf Accessed March 15, 2010

Esplar – Centro de Pesquisa e Assessoria. n.d. Website. http://www.esplar.org.br Accessed March 8, 2009.

Frayssinet,Fabiana. 2009. Agribusiness Driving Land Concentration. IPS – International Press Service News Agency. Oct,5, 2009. http://ipsnews.net/news.asp?idnews=48734 Accessed June 5, 2012.

Geertz, C. 1989. *A Interpretação das Culturas*. Rio de Janeiro: Editora Guanabara.

Gnadlinger, Johann. 1999. Technical Presentation of Various Types of Cisterns Built in the Rural Communities of the Semiarid Region of Brazil. IRPAA- C. P. 21. Instituto Regional da Pequena Agropecuária Apropriada. Juazeiro, Bahia, Brazil.
http://www.irpaa.org/publicacoes/files/9thircsc.pdf

Hesse-Biber, Sharlene Nagy & Levy, Patricia. 2006. *The Practice of Qualitative Research*. California, Sage. Publications Inc.

House, Sarah. 2005. 'Easier to Say, Harder to Do: Gender, Equity and Water'. In A. Coles & T. Wallace (Eds.), *Gender, Water and Development* (pp 209-225)). Oxford: Berg.

International Policy Centre for Inclusive Growth/ IPC-IG. 2009. *What Explains the decline in Brazil's Inequality?* One Pager N. 89. http://www.ipc-undp.org/pub/IPCOnePager89.pdf Accessed May 13, 2011.

Joshi, D. 2005. 'Misunderstanding Gender in Water: Addressing or Reproducing Exclusion'. In A. Coles & T. Wallace (Eds.), *Gender, Water and Development* (pp 139-153). Oxford: Berg.

Kabeer, Naila. 2003. *Reversed Realities: gender hierarchies in development thought*, London & N.Y.: Verso.

Lima, Suzana Maria Valle et all. 2007. Avaliação do Impacto Social do Programa Cisternas. Capitulo 6. In: Avaliação de Politicas e programas do MDS – Resultados. Volume 1 – Segurança Alimentar e Nutricional. Jeni Vaitsman & Romulo Paes-Souza (organizadores). Secretaria de Avaliação e Gestão da Informação. Ministério do Desenvolvimento Social e Combate a Fome. Brasília, DF. Cromos Editora e Indústria Gráfica Ltda.

Luck, Lauretta, Jackson, Debra and Usher, Kim. 2006. 'Case Study: a Bridge Across the Paradigms'. *Nursing Inquiry*. Vol 13, Issue 2 pp 103-109.

Marchand, Marianne H. 1995. 'Latin American Women Speak on development. Are we listening yet?' In: Jane Parpart and Marianne Marchand (eds). . *Feminism/Postmodernism/ Development*. New York & London, Routledge.

Ministerio do Desenvolvimento Social e Combate a Fome /MDS. n.d. 'The Semi-Arid.

http://www.mds.gov.br/programas/seguranca-alimentar-e-nutricional-san/cisternas/programas/seguranca-alimentar-e-nutricional-san/cisternas/cisternas-2/o- semi-arido Accessed February 18, 2010

Ministerio da Integracao Nacional/MIN 2007. *A Delimimitacao do Semi Arido Brasileiro.* http://www.mds.gov.br/programas/editais/editais-2007-sesan/delimitacao-do-semi-arido-brasileiro.pdf/view?searchterm=semi arido Accessed May 4, 2010.

Moraes, Andrea & Perkins, Ellie. 2007. "Women, Equity and Participatory Water Management in Brazil" *International Feminist Journal of Politics - Special issue Politics of Water: A Confluence of Women's Voices*, Oxford, Routledge Volume 9, Issue 4. December 2007, pp 485 – 493.

Parpart, Jane. 2009. "Fine Words, Failed Policies: Gender Mainstreaming in an Insecure and Unequal World. In: Jacquie Leckie, ed., Development in an Insecure and Gendered World. London: Ashgate Publishers.

Phillips, Ruth. 2006. "Food security and women's health: A feminist perspective for international social work". *International Social Work* 52(4): 485–498.

United Nations. 2005. *Women and Water: Women 2000 and Beyond.* Division of the Advancement of Women. Department of Economic and Social Affairs. http://www.un.org/womenwatch/daw/public/Feb05.pdf Accessed January 7, 2010.

United Nations Women. 2011. *Gender Issues: Women, Poverty & Economics.* http://www.unifem.org/gender_issues/women_poverty_economics/ Accessed March, 10, 2011.

Wallace, Tina & Coles, Anne. 2005. "Water, Gender and Development: an Introduction". In Anne Coles & Tina Wallace (Editors) *Gender, Water and Development.* Oxford, UK: Berg Publishers.

Wijk-Sijbesma, Christine van 1998. *Gender in Water Resources Management, Water Supply and Sanitation: Roles and Realities Revisited.* IRC -International Water and Sanitation Centre. The Hague, the Netherlands.

Zwarteveen, Margreet & Bennett, Vivienne 2005 "The Connection Between Gender and Water Management" In *Opposing Currents: the Politics of Gender and Water in Latin America*" edited by Vivienne Bennett, Sonia Davila-Poblete, and Maria Nieves Rico. Pittsburgh, PA: University of Pittsburgh Press.