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Gender and water management in Mexico

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Abstract

Purpose – The purpose of this paper is to survey water-governance issues impacting women in Mexico and steps that have been taken to rectify the issues, including factors that impact the success of such ventures.

Design/methodology/approach – Various major academic databases were searched for material pertaining to the issue of water management and gender in Mexico, such as EBSCOhost and JSTOR. Both global and regional concerns were a factor in this search. Material was considered on the basis of its recency, academic import, and specificity.

Findings – The review finds that though gender has become a primary concern in addressing water management and other environmental issues, debate has occurred as to whether a perspective of gender mainstreaming or gender-specific projects is preferable in addressing this issue. Although success in implementing gender mainstreaming has been attained by several major organizations, there does not yet exist conclusive evidence that this approach yields desired results.

Research limitations/implications – Information about the efficacy of water access programs is not always available and it is frequently inaccurate. Therefore, much information used in this review takes the form of observations about water policy and its efficacy in regard to gendered approaches.

Originality/value – Women and girls are unevenly affected by a lack of access to water, as it is typically women who bear the brunt of managing household water, and they are more significantly impacted by lacking hygiene facilities.

Keywords Water management, Gender mainstreaming, Gender in Mexico, Water access

Paper type General review

Introduction

To commence, one must recognize that addressing failing water management in Mexico, most especially as it pertains to girls and women, is a vital part of a larger effort to address failing water management on a global scale. To wit, water management is a primary global concern, with as many as 50 percent of global citizens lacking access to piped water (Moser, 2009). Furthermore, the United Nations (UN) has estimated that by 2025, water scarcity will impact 2.7 billion people, with 748 million people lacking access to adequate water as of 2014 (Olufemi and Ojo, 2015). Some of the issues creating these circumstances include scarcity, mismanagement, and aggressive use of resources, including through privatization. Though the past 20 years have brought acknowledgment of a need for development centers to experiment in helping communities manage their resources, dissension exists about the best ways to manage this (Torri, 2010). Furthermore, this problem continues to escalate, as in recent years, aggressive farming, urban growth, and expanding population growth have all contributed to the compromise of the global water supply (Mmbengwa *et al.*, 2014).

Mexico is among the nations experiencing serious water concerns; it is notable in sanitation facilities because though among industrialized nations, it has some water issues that would seem to correlate to a much less developed nation; for example, Australia, The United States, Japan, Israel, Greenland, among others, have 100 percent of population with access to improved sanitation facilities and 100 percent of rural population have access to improved water source, while Mexico only has 80 and 92 percent, respectively.

JEL Classification — Q38, Q56

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In contrast, most of the other nations so severely impacted by water issues are much less developed (The World Bank, 2016a, b). Moreover, drinking water coverage for Mexican population is 92.5 percent (95.7 percent in urban areas and 81.6 percent in rural areas), and national coverage of access to sewerage service is 92.8 percent (97.4 percent in urban areas and 77.5 percent in rural areas) (Comisión Nacional del Agua, 2016). With some of the nation's population suffering from a lack of needed access to water, sanitation and sewerage, this issue is urgent.

The volume of water found within a nation such as Mexico is quite consequential for the purposes of this study. For example, an online report indicates that Mexico, as of 2014, had 350 billion m³ of surface water. It had 150 billion m³ of ground water that same year, as well, and internal renewable water resources stood at 3,220 m³ per capita in 2014. Freshwater withdrawals climbed from 56 billion m³ in 1982 to 80.3 billion m³ in 2014 (Knoema, 2017). As of 2015, Mexico had 5,163 dams or reservoirs; it had 6.4 Mha under irrigation; it had 742 water treatment plants; it possessed 2,287 wastewater treatment plants; it featured 2,617 industrial wastewater treatment plants; and 3,000 km of aqueducts (Alonso, 2015). Finding up-to-date material pertaining to water needs per household, within the Mexican context, is a rather difficult matter. However, published research from earlier in this decade reveals that the average person in Mexico uses nearly 375 litres of water each day, making Mexico the fifth-most profligate of nearly three dozen nations included in the aforementioned research (Data360, 2014). Supply gaps abound across the country and can be traced to inefficient water conveyance infrastructures that are prone to leakage, as well as wastewater treatment facilities that are under-used or poorly maintained; there is also a dramatic diversion of water toward agricultural pursuits, even as the countryside is bedeviled by poor infrastructure, lack of extensions, and poor planning (Alonso, 2015). All of these impacts women inasmuch as global statistics indicate that women and children are especially vulnerable to water shortages and to the illnesses that the absence of potable water creates (Khiyara, 2016).

The policies impacting access to water have a great impact on individuals' access to water, as well as to abilities to rectify water issues. However, historically, water governance in many areas has been poor, meaning that it has not met the needs of the people, especially poor people; one of the goals of improved water governance is to correct prior policy and to improve life conditions for poor people (Cleaver and Hamada, 2010). Mexico's Government is very centralized in the office of President, and the population tends to be passive. Enormous gaps in income exist, and while the wealthy are favoured in water access, the poor are deprived (Castro *et al.*, 2003). Therefore, much of water-governance policy is predicated on a need for remediation, as a means to correct existing difficulties. It is believed that with effective policy, some of the existing challenges of water access can be ameliorated.

It is important to note that water has been considered to be uniquely a concern of women in many Latin American nations, as well as worldwide, as it is women who "are responsible for their families' water supply" (National Catholic Reporter, 2006). Women are overrepresented in poverty (Godfrey and Wolf, 2016). Living in an area with a poor water supply greatly increases difficulties to women, as opposed to men; though a lack of needed water will impact both women and men, it is women who are most challenged by this circumstance (National Catholic Reporter, 2006). For this reason, many argue, women should be particularly considered and involved in water policy (Oswald, 2011).

However, discrimination and inequity exist in the world of water management, and efforts to rectify poor access to water have not adequately considered the relationship women have to water (Andajani-Sutjahjo *et al.*, 2015). Instead, policy has largely been made by men and has considered the needs and priorities of men, despite the fact of women having a much closer relationship to water and experiencing greater difficulties through lack of access. Part of the amelioration process, then, must consider the needs of women in revising water policies.

Due to the issues, poor water access and poor governance cause to women, altering such policy in a way that is effective will stand to greatly improve their quality of life. In fact, some believe that equitable water policies will improve gender equity across nations' Cleaver and Hamada (2010, p. 28) state that: "it is claimed that good water governance can have a positive impact on gender relations, ensuring that women as well as men can claim their rights, negotiate equally over allocation of water, work as partners in managing their water supplies equitably and sustainably, and improve their livelihoods." Improving water-related issues stands to improve women's quality of life in numerous other ways.

This paper seeks to survey water-governance issues impacting women in Mexico and steps that have been taken to rectify the issues, including factors that impact the success of such ventures. The paper is divided in two general sections: water scarcity in Mexico, where are discussed some problematic regions of Mexico regarding water management and gender, and issues impacting women, where it is explained in a deeper way water management and gender. The second section is about rectification steps and topics about approaches taken to solve gender equity, global examples of gender mainstreaming, and the existing obstructions to achieve equity are explained. A review of existing literature on the subject of water access in Mexico will clarify efforts yet to be taken.

Methodology

As will soon become evident, the academic databases – namely, JSTOR and EBSCOhost – were consulted during the course of this research foray. The range of years extended from 1998 to 2017, but the sources were predominantly drawn from the 2010s. The extensive mining of the scholarly literature occurred over the summer and fall of 2017.

An appropriately rigorous methodology is needed to ensure that clear and compelling insights can be identified *vis-a-vis* Mexican water management and the situation confronting Mexican women and girls. With this uppermost in mind, various major academic databases, pre-eminently JStor and EBSCOhost were searched several times for material pertaining to the issue of water management and gender in Mexico. Both global and regional concerns were a factor in this search. Material was considered on the basis of its recency, academic import, and specificity. Organizational websites focused on water management were also included. Material was then hand coded for themes pertaining to this issue, with those themes that occurred most frequently being included and those that did not appear frequently being excluded. With this in mind, the themes of issues impacting women, approaches to gender equity, obstructions to gender equity, and successful interventions in water management have been included. Discussion of current efforts in Mexico is also germane to the interests and focus of this review.

The methodology discussed in the preceding paragraph is critical to bolstering the argument that Mexican women need to be treated in a better fashion by the water management professional class. Although a sweeping literature review at this time, future research will complement the extant findings by presenting case studies and fieldwork observations of the plight of Mexican women struggling to access sufficient amounts of water. The social statistics to come, as well as others which will be presented in later research iterations, do make it plain that Mexican women face many challenges and obstacles.

Limitations

Information about the efficacy of water access programs are not readily available; when the information is available, it is frequently inaccurate or is based on averages, rather than on concrete information, which can then yield misleading results therefore, much information used in this review takes the form of observations about water policy and its efficacy

regarding gendered approaches. Considerable amount of this information is longitudinal and is from governmental or non-profit entities. Additionally, the review is necessarily limited through space; a more comprehensive review could include more information.

Review of the literature

This paper seeks to survey water-governance issues impacting women in Mexico and steps that have been taken to rectify the issues, including factors that impact the success of such ventures. In general, topics about water scarcity in Mexico and issues impacting women are discussed. Furthermore, rectification steps topics are explained in the following topics: approaches to gender equity, global examples of gender mainstreaming, and obstructions to equity efforts. The classifications that flow from this, as delineated below, have been chosen because they are issues that, as the encompassed literature in this paper seem to suggest, speak to contemporary concerns expressed by leading scholars in the field; it may be said, based upon the available corpus, that the shift really has been one unfolding in the past 15 years. Certainly, the large number of scholarly treatments that have made their way into circulation in the past decades indicates that research into this area has exploded within Mexico in the 2010s. As a last addendum, while Mexico City and other heavily populated areas do receive plenty of attention, the entirety of Mexico is the subject of scholarly inquiry.

Water scarcity in Mexico

Water toxicity in Mexico is a complex issue. Over the past decade, water activism in Mexico has intensified (Price, 2006). Because the society is greatly stratified, access to water is divergent across the population, and the interests of rural and urban dwellers are often pitted against each other: in Mexico, it is common for rural or indigenous areas to provide water to cities, making this a possible source of conflict (Vázquez and Lahoz, 2009). For example, one of the largest villages in Mexico, Tlamacazapa, the villagers are caught in a complex web of social disintegration coupled with environmental toxicity and water shortage (Smith and Porteous, 2006). Roaming livestock and open wells contribute to the lack of potable water, as pollution is common (Smith and Porteous, 2006). Some argue that through failing to address the needs of poor women, particularly poor indigenous women, regions of Mexico continue to perpetuate oppression against them (Taylor, 2012).

However, while poor communities may lack any meaningful access to water, wealthier, urban Mexico City also reflects the water crisis in poor water policies permitting the extraction of excessive extraction of water from the aquifers beneath the city; as a result, major landmarks have begun to sink (Barkin, 2007). This crisis has been historically neglected, and the water issue was both ignored and worsened by the fact that for hundreds of years, the city's water needs were met by exploiting nearby lakes. Though dams and the collection of rainfall would aid in this issue, the pattern of development would not permit this (Barkin, 2007).

An additional factor impacting water access in Mexico is its propensity to natural disaster, which can greatly impact the availability of drinkable water. Mexico is very vulnerable to weather-based disasters, and these disasters, such as typhoons and cyclones, have dramatically disrupted access to water (United Nations, 2016). Furthermore, desertification distressing the dryland regions of Mexico leads 600,000 to 700,000 people to migrate from these areas annually. The migratory consequences of environmental factors result in higher death rates for women in least developed countries, as a direct link to their socioeconomic status, to behavioral restrictions and poor access to information (Women Watch, 2016). Weather-based disaster and population patterns due to this disaster make the management of water more challenging in Mexico.

However, another part of the problem of water management in Mexico City is due to bureaucracy. For example, water management in Mexico City has been entrusted to a

municipal water department that reports directly to the mayor and though official figures that 97 percent of the valley's population has potable water piped into their homes. Nevertheless, many poor communities only receive water from tanker trucks that deposit it in 55-gallon drums previously used for shipping chemicals or other hazardous products. A water fee system was organized, but it is ineffective, with poorer households paying comparably more. Additionally, much of the city's water management was transferred to international independent contractors some time ago, and the citizens seem complacent about both this and the impending water crisis (Barkin, 2007).

Historically, the Government of Mexico has not prioritized the water crisis, leading to budgeting issues. During the period 2003-2011 in Mexico, only 1.8 percent of the governmental budget was allotted to water resources, as opposed to the government's total expenditures. Of that, 24 percent of Mexico's water budget was allotted to water resources policy and administrative management, whereas 8.8 percent was devoted to basic water supply and basic sanitation. This 8.8 percent was augmented by 30.88 million dollars in aid (United Nations, 2016).

Despite the difficulties created through bureaucracy in Mexico City, adequate bureaucratic infrastructure exists to address the nation's water issue. Mexico has a comprehensive legal system, a national water authority, a functioning water rights system, and emerging water markets. In 1992, Mexico adopted a National Water Law, which contained specific provisions for the role of the National Water Commission (Conagua), the structure and functioning of river basin councils, public participation in water management, etc. This law was revised in 2004, permitting each of the 13 decentralized regions to organize and function in basin councils that would include civil interests. Additionally, a structure of fee charges for water use is established in Federal Revenue Law (United Nations, 2016).

Additionally, in Mexico, the Millennium Goal Achievement Fund sought to improve access to water and sanitation, and it employed a gender mainstreaming approach, with the institution of gender units and the promotion of women (Unwomen, 2016). They have found such an approach to be effective, with some of the results including an increase of water budgeting by the Veracruz Women's Institute, the creation of a gender-focused position and enforced gender equity by the Tabasco Water and Sanitation Commission, the creation of gender areas in Chiapas's water institute (Unwomen, 2016).

The results of this research foray clearly show, if nothing else, that the most critical foundational concept which needs to be looked at closely is the concept of a democratized and more inclusive discourse that features flattened decisional hierarchies and more respect for the voices of women. Gender-based theories certainly abound, but all of them should be subordinated to the fact that true democracy – an inclusive decisional framework that encompasses both male and female voices, and one that allows for a constellation of actors to participate – is the most consequential way by which water management practices can shift toward removing inefficiencies that keep women from adequate supplies of water.

Issues impacting women

According to the United Nations Human Development Index, Mexican women lag behind Mexican men – albeit slightly – with regards to their overall human development (United Nations Development Programme, 2017). World Health Organization (2013) data do indicate that Mexico has grappled with pediatric malnutrition in the past, but it is not clear from this data to what extent water malnourishment contributes to the anomalies described by the above-noted data. What is more evident, however, is that maternal mortality rates in Mexico are 496 per every 100,000 live births (The World Bank, 2017). While the available literature does not deign to make the connection explicit, it seems manifest that high maternal mortality rates are proximately linked, in some significant way, to the lack of potable, drinkable water in Mexico. As will be later touched upon, there is a growing attempt

to main-stream gender equality and women's empowerment through such vehicles as the constitutional reform of 2001 modified a series of articles (1, 2, 4, 18 and 115), advancing in the construction of a new relationship between the State and society. Of interest is Article 2 because it considers indigenous rights to land and territory (which includes water resources). Another point to consider is that in 2012 the constitutional Article 4 was reformed, where it was included the right to water. On the other hand, the Law of National Waters of 2004 does not mention a vision of the human right to water with gender equality (Diario Oficial de la Federación, 2017, 2016; Programa de las Naciones Unidas para el Desarrollo, 2012).

There are other programs which attempt to main-stream gender equality and women's empowerment such as the National Gender Equality Policy (2013-2018) and the National Development Plan (2013-2018). However, United Nations Women (2017) grimly notes that the Mexican federal budget of 2015 only set aside 0.5 percent of public spending for programs marked for fostering greater gender equality. Suffice to say, the absence of a comprehensive and pervasive vehicle for main-streaming non-masculine voices in the conveyance and administration of water is surely one reason why so many Mexican women and girls are so vulnerable. To this must also be added the fact that there are more elderly women than there are men in Mexico because of the greater longevity of women (World Life Expectancy, 2015).

Furthermore, the National System for Equality between Women and Men, coordinated by the National Institute for Women in 2010, restates some international commitments signed by Mexico on women's human rights. Among the strategic objectives are the following: increase the availability of infrastructure, roads, water, social services, housing services and equipment to strengthen the productive capacities of women, freeing time to participate, organize themselves and increase their economic self-sufficiency and contribution to development. It is also important to mention that Conagua has several programs, including the Sustainability Program for Drinking Water and Sanitation in Rural Areas, which focuses on rural communities with a population of 2,500 or less with the objective to support the increase in water and sanitation coverage (this is important because the greatest backlogs in drinking water are presented in Guerrero, Oaxaca, and Chiapas; while in terms of sewage, they are Oaxaca, Guerrero, and Yucatán). The program promotes participatory diagnostic processes with a gender focus in its rules of operation. It is the only federal water and sanitation program that seeks to institutionalize certain gender criteria. However, in practice its actions are aimed at integrating women in the works committees and accounting for their participation in these spaces (Comisión Nacional del Agua, 2016; Programa de las Naciones Unidas para el Desarrollo, 2012).

Some of the most important issues impacting people in Mexico, among them women, are availability, access, quality, control and use of water (Vázquez-García and Sosa-Capistrán, 2017). Water is needed for survival, and many would argue that access to water is a basic right, yet water has been institutionalized. The institutionalization of social rights tends to bring with it built-in inequities, which do not align with the concept of democracy (Castro, 2005). In other words, through becoming institutionalized, water has become situated in an inequitable dynamic of gender. In recognizing this phenomenon, in recent years, interest has developed in the gender dimensions of political ecology, resulting in a developing sub-field called Feminist Political Ecology (Elmhirst, 2011). Water, among other natural resources, is a focus of this academic study.

In considering resource management through the perspective of gender, as Mjoli (1999) observes, it has traditionally been men who have made decisions for both men and women, presumably for the good of all; this patriarchal approach, she argues, is responsible for the extreme water supply difficulties occurring worldwide. Among the world's poorest, with limited access to water, 70 percent are estimated to be women and girls, and water

infrastructure and planning is typically the domain of men, despite the relationship that women are typically responsible for water management in a practical sense (Andajani-Sutjahjo *et al.*, 2015). In many traditional cultures, it is women who use the bulk of the water, as when women are expected to fulfill a housewife role, they must also wash laundry and dishes, cook, and clean, all of which use water; women also gather and store the water, often under harsh conditions (Andajani-Sutjahjo *et al.*, 2015). Additionally, many households are female-headed (Rogan, 2013). In some regions, girls are not able to attend school due to their water-gathering duties; efforts to lighten these duties permitted the girls to attend school (World Bank, 2003).

Though it is a resource needed by all, water is most pertinent to women, and yet women face numerous difficulties involving access to water. A lack of adequate water promotes disease, as parasites are common, and the inability to wash fruit or to prepare food with clean water results in illness, and illness spreads to others (Onarheim *et al.*, 2016). Additional concerns facing women and girls with lacking water supply include women being sexually assaulted as they go to remote areas to relieve themselves, and girls reaching the age of menstruation having to drop out of school due to an inability to attend to their hygiene (Khosla, 2007). The issue of hygiene directly leads us to a discussion about sanitation and the state of sanitation – especially as it pertains to women – in Mexico.

Poverty alone creates issues of education access, and a lack of hygiene facilities exacerbates this (Grinberg, 2010; Philip, 2015). While men may relieve themselves out in the open, in many cultures, modesty dictates that women and girls use filthy, uncleaned pit latrines, which can have detrimental health consequences (Hannan and Andersson, 2002). In addition, because women often have to use public toilet areas, they may wait until dark, and they may habitually try to drink less water, which can lead to serious health problems (Masgon and Gensch, 2016). Factors such as cultural taboos around female bodies, including reproduction and menstruation, may also impact access to water (Upperman, 2000).

As Marianna Leite (2010) explains, men and women are impacted differently by a lack of access to clean water, and though women are typically responsible for domestic water supply, and therefore, an understanding of women's responsibilities is essential to effective water management; however, a lack of coordination has resulted in a lopsided distribution of resources, difficulty managing resources, and further gender exploitation. In recognition of this inequity, the Beijing Fourth World Conference on women in 1995 focused on the issues of water supply, their impact on women, and the importance of including women in decision-making policies concerning water (Mjoli, 1999). Currently, within the field of global water management, it is generally agreed that sustainable development requires women's full and equal participation in resource management (Aladuwaka and Momsen, 2010). With this in mind, gender equity has come to represent a goal in this field.

Approaches to gender equity

One of the challenges of implementing gender equity in water management, according to Kabeer (2000), is that individuals in society relate to and allot their resources according to norms of gender. Existing gender dynamics, including inequities, are present in structural systems due to the nature of societies. Therefore, an existing inequity is built into water access. Additionally, the outcomes of flood, drought, and general, ongoing lack of access to water impact men and women differently (Buechler, 2009). As described, water scarcity is also a problem of gender.

The lives of many women worldwide revolve around accessing water for themselves and their families, and thus their lives are restricted by this lack of access. Mmbengwa *et al.* (2014) point out that The Network on Gender Equality (GENDERNET) subscribes to the view that women's economic empowerment is a prerequisite for sustainable development and pro-poor growth. For women to be economically empowered, they must have more

accessible water, so that their time is not primarily focused on water management. Many organizations recognize this need.

Policy making focused on women has taken five distinct forms, including welfare, equity, antipoverty, efficiency, and empowerment approaches (Vázquez, 2001). These models consider that women have been marginalized and must be integrated to achieve equality. In other words, many approaches considering the needs of women have focused on the need to improve the standing of women, recognizing that they have been placed in a disadvantaged condition.

Since 1975, emphasis has been given to the concerns and issues facing women, in the interest of improving gender equity worldwide (Vázquez, 2001). Good practices surrounding water policy are identified through The Dublin Principles of 1992; it is expected that the needs of women should be considered in water policy, and that they should have a voice in shaping this policy (Earle and Bazilli, 2013). However, as Earle and Bazilli (2013) note, it is not enough to simply include women in the shaping of water policy, but such policy must also address gender issues. One approach to inequitable allocation of resources is to require gender to be factored into budgets, and some nations have done this (Rubin and Bartle, 2005).

It is also imperative that those working within organizations understand the importance of gender and efforts to rectify issues of water management. As early as 1996, many large donor organizations had implemented gender training to make staff aware of issues pertaining to gender and to improve the role of women in projects (Centre for Development and Population Activities, 1996). An approach that involves both consideration of gender issues and women in decision-making positions is ideally suited for addressing this issue.

It is important to resist the temptation to assess the issue of gender and water as one that is universal. Though many societies are patriarchal and privilege the concerns of men, to the detriment of women, societies are also unique and must be considered individually in planning particular interventions. As Orlove and Caton (2010) note, the understanding of water as a resource is cultural, with different cultures valuing it in unique ways that sometimes require careful consideration in developing water policies. Gender and gender norms will exist distinctly within different cultures, as will unique challenges with water access. It is the various combinations of these elements, in part, that have posed challenges to efforts to rectify this issue.

The very structure of water management is set up in a way that is contrary to the interests of women, as Earle and Bazilli (2013, p. 99) argue that “most of the international transboundary water management (TWM) processes taking place globally are driven by ‘the hydraulic mission’, primarily the construction of mega-infrastructure such as dams and water transfer schemes.” However, they argue, this mission represents a “masculinized discourse” that excludes the interests and concerns of women (Earle and Bazilli, 2013, p. 99).

This “masculinized discourse” then has practical ramifications, as those in charge of water projects in Mexico are men, and according to Vázquez (2001), gender issues are usually seen by programmers and designers of water projects in Mexico as a trendy social concern and a burden, rather than legitimate and practical. It has been established in the literature that policies and programs that deal with climate change must acknowledge the reality that gender determines differential access to resources and to the levers that enable decision-making efficacy (Bee, 2013). Water issues ultimately become gender issues when decisional control rests wholly – or primarily – with one gender and not with both.

It should also be added that water issues across Mexico are greatly shaped by the top-down decision-making implementation processes that guide such important areas as wastewater management. This is never more apparent than in the Guadalupe Basin wherein clumsy and exclusive top-down mechanisms have thwarted efforts at truly comprehensive

and effective wastewater management practices (Casiano Flores *et al.*, 2017). Casiano Flores *et al.* (2016), when examining water treatment policy and practice in Mexico's Tlaxcala Atoyac Sub-Basin, question the degree of decentralized decision making in ensuring responsive and locally sensitive management practices. Water treatment in Mexico is problematic, and women face great challenges because of this situation.

It could be assumed that if there were more women in leadership positions in water management, the resulting problems would decrease, as women would likely have more familiarity with the practical ramifications of water issues. Furthermore, in one instance, a water project in Mexico had installed new water pumps and returned to find them non-functioning; those tasked with implementing the project had shown the men how to use the pumps, as they did not know that it is typically women who are responsible for a household's water (Isis International, 2011).

Vázquez (2001, p. 88) also argues that in water planning, gender is approached "in a partial and fragmented way"; rather than being considered in a broad manner, such concerns are usually included at some point after conception and initiation of the plans, and without consulting the women they will impact. Therefore, when these concerns are included, they are not included in a holistic and through way and are less likely to be effective; this is likely an outcome of gender sometimes regarded as irrelevant by project managers. Also, though some water projects are attuned to gender, others do not consider gender as a factor at all (House, 2003). What makes the matter wholly unfortunate is that, while women are largely responsible for domestic and community use, it is men who predominantly determine water-related rights and water-governance issues in Mexico (Sustainable Development Goals Fund, 2017).

Furthermore, with movement toward privatizing resources, many are concerned about the impact this may have on women and girls who are already struggling with lack of access to this resource, though some feminist scholars are hopeful that this shift will enable dialogues around inequities (Ahlers and Zwarteveen, 2009). Khosla (2007) argues that it is imperative that free water be provided to women- and child-headed households. However, with water becoming even more of a valuable resource through privatization, the relationship of poor women and girls to water access looks even more dire.

Another issue impacting the efficacy of efforts to improve water access to women and girls is that of internal water management issues. "Federal and regional tensions exist in the management of water" (Scott and Banister, 2008, p. 555). As Scott and Silva-Ochoa (2002, p. 555) explain, "small-scale water harvesting irrigation systems in Mexico have endured for centuries. They now face considerable challenges with changes in the *ejido* property rights over land and water, the growing importance of alternative sources of livelihoods, and increasing scarcity and competition for water within the river basins." Such issues impede water management in a general sense, and they provide an obstruction in addressing gender-based access issues.

Incorrect information is another factor impeding the effective treatment of this issue. For example, studies on potential exposure to water pollutants may not be accurate, as they tend to rely on an expected average, and factors such as available water can impact the accuracy of such studies (Regnier *et al.*, 2014). Without a clear understanding of the problems pertaining to this issue, it cannot be effectively addressed.

Additionally, disagreements among those aiming to address this issue are another concern. For instance, though an approach focusing specifically on the needs of women was long considered to be ideal, following the Beijing Fourth World Conference on Women, gender mainstreaming was adopted as the desired approach in improving inequities (Mehra and Gupta, 2006). As an emphasis on gender mainstreaming was applied, a focus on projects benefiting women decreased, with the outcome that there is no effective way to measure or enforce the benefit of such programs to women (Ransom and Bain, 2011).

While mainstreaming is believed to work, due to challenging economic times, a focus on women has been encouraged due more to a desire for efficiency and cost-effectiveness, rather than an ethical imperative (Chant and Sweetman, 2012). The result of this is that there is no particular focus on women and no sustained interest in the plight of women, rather than an understanding that addressing women is an effective way to streamline water management issues.

Finally, while some feel that it is important to consider a community's specific needs in addressing water access issues, many in water management feel that it is important to consider governance at an abstract level, rather than issues of local access, in understanding structural gender inequalities (Masgon and Gensch, 2016). While a failure to consider such issues globally yields an inability to address them on a broad level, a failure to consider the unique needs of a community may result in an inability to address their discrete needs. Franks and Cleaver (2007) argue that rather than through abstractions, water governance is best understood as a series of related processes with an impact on poor people. This tension between abstractions and specifics creates a lack of consensus regarding the best way to proceed in water management and addressing gender inequity.

Global examples of gender mainstreaming

Worldwide, a mainstreaming approach has been adopted as the most popular one, and various aid organizations seek to implement gender mainstreaming. It is believed that this approach is most effective for building the needs and concerns of women into policy in a legitimate manner. Therefore, much of the global aid community has focused on gender mainstreaming.

The United Nations Development Program Water Governance Facility (WGF) at the Stockholm International Water Institute (SIWI) has found success in several nations; including Mexico, it was able to successfully improve the roles of women in leadership and decision-making and to mainstream gender throughout policy and planning (Global Water Partnership, 2016). These nations included Angola, Bosnia and Herzegovina, Ecuador, Honduras, and Guatemala, among others (Global Water Partnership, 2016). Though information demonstrating the effectiveness of this approach, as opposed to others, was not available, the WGF was effective in implementing gender mainstreaming.

However, some nations have independently recognized the connection between water scarcity and women's needs. For example, El Salvador has been particularly attuned to the concerns of women, forming initiatives and institutes designed specifically to address the issue of gender in environmental policy as early as the 1990s (Machado *et al.*, 1999). When paired with assistance from aid organizations, such an approach is more likely to yield effective results.

Obstructions to equity efforts

Another major theme occurring in the literature is that of obstructions to efforts in improving access to water and the impact of poor access on women and girls. Some scholars point out that though the needs of women have posed a concern in development for 30 years, relatively little has been achieved in regard to addressing them (Chant, 2007). To have the issues of women and access to water fully realized, of course, the idea of water as a basic right must be recognized. Part of the struggle for worldwide justice regarding provision of clean water is the fight to get water universally recognized – and codified – and a human right. This struggle has been taken up by the UN and by movements in countries around the globe (Light, 2008).

However, the poor, who are most impacted by lack of access to water, are not able to effectively mobilize for several reasons. Mulagwanda (2002) points out that it is important to note that various factors connecting to disadvantage, such as disability or poverty, can contribute to an inability to participate in water management. Frequently, the struggles faced by the very poor are such that they supersede ability for them to lobby for their rights,

even when such lobbying might make a significant difference in improving their lives. One of the issues potentially preventing poor women, specifically, from participating more fully in reform efforts is that, as Bennett (1995, p. 107) explains, when “women organize from their practical gender interests, they focus on the practical issue at hand and generally do not link their immediate problem (water, finances, childcare, and so on) to the characteristics of patriarchy and social class that structure the unequal relations shaping their lives.”

Discussion

Poor water management hurts people all across Mexico; it is an issue of macro-level importance to the country and to its future prosperity. Through the research on access to water and gender equity, it is clear that this issue unevenly impacts women and girls; this is a critical sub-component of water management in the country, and its impact upon more than half of the Mexican population – and, particularly, lower-income women – is often direct and debilitating.

Many times, Mexican girls and women are kept from having normal routines or attending school due to the need to gather water, which is time-consuming, or due to sanitation reasons (Unicef, 2016). Efforts to improve equity in access and to relieve the impact to women and girls have been promising but challenging. Specific geographical and cultural concerns may compound these challenges, and often, they may be a result both of gender stratification and external forces at work, which makes each situation unique. Effective interventions are those that consider the various elements at work in a particular water-scarce culture. A disconnection between the roles and responsibilities of women in the community and the understanding of planners has been responsible for many difficulties in implementing programs.

While the inclusion of women and the financial empowerment of them are considered to be essential in addressing this issue, dissension exists as to whether gender-focused projects or mainstreaming is a more effective approach, despite mainstreaming growing in popularity. However, from the review of literature it can be seen that more research is needed to result in the implementation of new programs that incorporate women in water management because, in most cases, programs that exist do not make a distinction between women and men. Women must be both involved in the making of policy, and gender must be considered as an issue; in this way, women will have a voice and their issues will be considered.

However, other obstructions exist, such as general poverty, environmental factors, and a lack of connection from the political system by poor women and men who are too disenfranchised to involve themselves, even when they have the option. As these obstructions also play an active role in limiting access to water and in bringing disproportionately negative outcomes to women, it is important to assess how they also impact water access, both independently and in relation to gender oppression. A gender-specific project approach may be more capable of handling such issues individually and thus may permit for greater cultural context in devising policy.

As of yet, evidence does not seem to clearly illustrate whether mainstreaming or a project-specific focus is more effective in yielding outcomes of improved access and lessening the burdens of women and girls. To this end, it is difficult to assess which is actually the more effective approach to take. Historically, some vigorous efforts to mainstream gender have yielded little result (Apuşigah, 2007). Some argue that an approach of mainstreaming has marginalized many of the issues that gender discourse has traditionally been concerned with (Marchand, 2009). However, some would argue that this lack of effect is due to a failure to truly integrate gender mainstreaming in a meaningful and sustained way (Rodenberg, 2001). The United Nations Millennium Development Goals, with their emphasis on gender equality as a major focus, stand to intervene meaningfully in gender inequity and water access; this set of initiatives will likely clarify the most effective means of intervention (Women’s Environment and Development Organization, 2005; Ahmed *et al.*, 2016).

The existing research on gender and water access in Mexico reveals that focused effort at addressing this issue has been undertaken; global non-profit organizations have been successful at increasing awareness of women's concerns. However, themes of obstruction and challenges abound. Though efforts show promise, issues of access in Mexico are complex and entrenched.

Conclusion

Clearly, issues addressing gender inequity in water resource management are complex; the direct social consequences for women and for the country are of compelling significance, and their resolution could be integral to the nation moving forwards as it tackles pressing human development issues. Within the field, though an approach of gender mainstreaming has grown to be preferred (Kagoiya, 2008), dissension still exists as to whether gender mainstreaming or gender-focused projects are ideal. The United Nations' efforts to mainstream gender have proven to be successful in meeting this aim, but it still remains to be seen whether this approach will better yield practical results that improve the lives of women.

The dissension can be understood in terms of whether it is better to consider gender inequality as something universal or as something specific to culture and circumstances. While it does seem logical to apply an approach to a particular context, this may not be the most effective method in a general sense and improving awareness of the gender issues particular to water may best be achieved through a more general method. On the other hand, as seen in the example of planners in Mexico who do not tend to take this issue very seriously, viewing it more as a socially fashionable imposition, education about the pragmatic ramifications of absent gender-based policy may be needed to implement such policy in a legitimate way.

Addressing the unique circumstances of each nation facing water scarcity while considering gender as a natural focus of concern seems ideal to balance these perspectives. It is important to consider that such projects do not result in greater burdens to women and girls or to boys and men, as well as to make sure that the facilities are actually effective in meeting need, as pointed out by the Centre on Housing Rights and Evictions (2008), Van Wijk-Sybesma (1998) and Un-Water (2006). In addressing the issues faced by poor women and girls, which are often a product of culture, traditional gender roles, and systemic oppression, it is imperative that additional problems not be created.

The implications of the work above seem clear enough: there is evidence that women are not given a role in making policy and administrative decisions, and such arguments – as mounted from the available evidence – clearly show us that the best far-reaching gender and water management policy framework must feature diversified professional management teams and formal institutional organs that prioritize women's needs and ensure that they are communicated to policy decision makers and framers. If it is trained its gaze wholly upon Mexico, it is found that the country does have a water scarcity issue exacerbated by the patriarchal nature of decisional processes. The suggestion for Mexico is that women should be given more of a voice to ensure that their concerns – and their expertise – both become a part of the policy construction phase.

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