



Review paper

Addressing Gender-Inclusive Public Health in Climate Change Response: Women in Water-related Disaster

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ABSTRACT

The objective of this research is to put forward the idea of gender-inclusive public health approach as a climate change response at a practical level in the form of a discussion paper. Drawing upon Feminist Political Ecology(FPE), this paper addresses gender-inclusive climate change response in the face of Climate Disasters(CD) to illuminate why gendered power relations over damaged or reduced assets from climate disasters should thoroughly be considered, especially in terms of public health. Focusing on Water-Related Disasters (WRD), which account for the majority of the current CDs, the study finds its implications in breaking down the common misconceptions towards the climate disaster affected people, therefore breaking barriers of enhanced understanding on effective climate disaster risk reduction and response. To do so, the study first turns to a discussion of women in WRDs through briefly outlining the FPE as an analytical framework and identifying vulnerabilities and resilience of women to WRD. Second, it focuses on women's public health risks in the time of WRD focusing on water-borne disease for infectious disease as well as physiological risks, followed by a case of Typhoon Haiyan in the Philippines. Concluding remark then seeks to promote further fruitful discussion in the future for gender-inclusive climate change response. By doing so, this study aims to contribute to the emerging and growing body of research through exerting that the public health impacts of climate change is not gender-neutral and calling for more gender-inclusive climate change response by reducing women's vulnerability and promoting their role as resilient agents for restoration.

Key words: *Water-related Disasters, Gender-inclusive, Public Health, Disaster Risk Reduction*

1. Introduction

Climate change has exacerbated the intensity of climate change-induced disasters (hereafter, Climate Disasters or CD) across the globe (IPCC, 2014). Among them, Water-Related Disasters (WRD) which refers to all disasters from water including flooding, droughts or extreme storms (UN-Water, 2012), accounts for over 90%

of CDs. Especially, the Asian and Pacific region is the most vulnerable to WRDs, occupying 90% of the people affected by such disasters and more than 45% of fatalities (Adikari and Yoshitani, 2009). When it comes to human sufferings from disasters, it is now widely accepted that, geographically, the people in tropical countries or, socioeconomically, Low and-Middle Income Countries (LMCs) would suffer the most. More specifically, it is the

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people in poverty who would face the most detrimental effect of climate change and its induced disasters. Together with the fact that more women are poorer than men (World Bank, 2018), these insights provided a ground for the focus on women in the discourse of climate change with a new perspective. The recent gendered understanding of climate change then puts forward, as it is in this paper, that women are disproportionately vulnerable to climate disasters (Hemmati and Rör, 2007).

The topic of gender dynamics as they relate to CD is an emerging field of study that remains inadequately comprehended globally. So far, the critical analysis of disaster literature has pointed out that “in the disaster context, gender is typically regarded an unimportant component of the many stages leading up to, during, and in the aftermath of the natural disaster” (Miltzer, 2008:8). This short discussion paper aims to summarise the existing body of research in terms of women in WRD to highlight the importance of a gender-inclusive approach to changes in the public health sector in response to the growing burden of WRD globally.

2. Understanding Women in WRD from Feminist Political Ecology Perspectives

To understand the gender dynamics of WRD, this paper takes a Feminist Political Ecology (FPE) perspective as a theoretical framework. The theory of FPE has been widely known after the launching of a book titled “Feminist political ecology: Global issues and local experiences”, written by Rocheleau and her colleagues in 1996. Since then, the theory has been prolific in exploring the relationship between gender and environment, becoming a knowledge resource for policymakers, practitioners as well as researchers (Elmhirst, 2011). FPE frames gender as an axis of power, similar to class or race, which shapes access to and control over natural resources (Sundberg 2017). The theory provides useful tools to examine environmental issues such as the costs of natural disasters, capturing various social formations involved in human-environment interactions (Nightingale, 2006). FPE

views the complexity of social dynamics of gender and other social labels when understanding the human-environment interactions (Goldman & Schurman, 2000).

FPE sits in the intersections of analyses on gender and the environment, and in terms of transformative politics at multiple social scales and layers. Therefore, the main concerns have been on the traditional feminist struggles over natural resources. So far it has been understood as a strong analytical frame and a feminist strand for drawing attention on gendered power dynamics in the society with regards to access and control over resources properties (Sato and Alarcón, 2019). By considering the complexities of social-environmental relations when understanding environmental issues, FPE recognizes unequal access, uses, and controls over resources caused by gendered social relations of power. It provides an important foundation for understanding differential opportunities and challenges between women and men in the case of environmental changes (Rocheleau et al., 2013).

However, FPE is yet to fully embrace the ongoing climate change discourse, especially in terms of disaster preparedness, recovery and relief. The gendered power relations in a society undergoing extreme stresses from disasters has been focused only since the late 1990s (Enarson and Morrow, 1998; Fordham, 1999, 2003; Cannon, 2002; Wisner et al., 2004; Neumayer and Plumper, 2007), while the issue has been ever more emphasised by various emergency practitioners and field report (Sultana, 2010). Based on such empirical studies, the FPE is expected to critically analyse this emerging area of research, further understanding the gendered social constructions and its gendered outcome when facing climate disaster which is warned to be more frequent and intense in near future.

3. Women’s Vulnerability and Resilience toward WRD

3.1 Women’s Vulnerability

Disasters often aggravate existing problems in societies such as gender inequality. This paper defines vulnerability

as the level to which a system is susceptible to, or incapable of coping with the adverse effects of climate change, climate variability and extremes (IPCC, 2014). In this sense, women's vulnerabilities to WRD are directly associated with social factors such as socio-cultural norms, socioeconomic status and violence against women. From FPE perspective, this is to understand how gendered dynamics adversely affect women when society confront with environmental shock. In the context of WRD, the gendered dynamics can be categorised as socio-cultural norms and political-economic status that persisted before disasters. One other factor is the violence against women that tends to rise in the face of disaster. Yet, the categorisation is for analytical understanding while, in reality, there is no clear-cut margin but rather deeply interrelated.

Socio-cultural norms such as cultural taboos and religious beliefs are reported to contribute to unique vulnerabilities to women when disaster strikes (WHO, 2002). For instance, in settings where girls face barriers to education by cultural norms and practices, women's ability to acquire necessary skills such as swimming and knowledge to cope with hazards are limited (UNDP, 2016). In India and Bangladesh, for example, women have trouble finding private places and tend to use the same sanitary clothes for a much longer time than they should, rendering women susceptible to urinary tract infections and other maladies (WHO, 2002). In certain religious contexts—for instance in Islamic regions in the Middle East, South and Southeast Asia—women are not allowed to interact with men who are not their family members, causing difficulties in the disaster relief process provided by male workers (Akerkar, 2007). Gender roles also heighten women's vulnerability as in a study on a cyclone in Bangladesh, as many women stayed at home to wait for their husbands to make an evacuation decision, or women's mobility was restricted as they had to carry family members including children, elderly, sick and injured by themselves in emergencies due to their responsibilities for caregiving tasks (Juran and Trivedi, 2015).

Women encounter additional vulnerability factors due to their lower political-economic status. Across the world,

women have only a fraction of the rights than men, having less access to resources and assets. Sometimes women are deliberately excluded from formal civil societies, for instance when women must use men's names to register for official use (World Bank, 2020). Under such contexts, the widowed or women living with no male family members are left to be denied access to health care services or assistance from government compensation schemes (Dominelli, 2015). Furthermore, nine in ten countries have laws impeding women's access to economic opportunities (UNDP 2016). In some of these countries, for example, women cannot get a job without permission from their husband. This leads them to be financially dependent on their male family members, leading to reliance on spouses or other male family members, increasing their risk of abuse (Conner, 2013).

Another critical issue is violence against women, which typically escalates in the case of displacements after a disaster due to weakened rule of law and protective systems (Enarson, 1999; Rezaeian, 2013; Arnold, 2017; Rao, 2020). Deficient infrastructure conditions in camps such as long ways to toilets or showers and closing mechanisms of tents lead to an increase of domestic and public sexual harassment, rape and abduction of women and girls (Rahman, 2013). Given that the temporary camps lack essential infrastructure, they may also be coerced into sexual exploitation for basic needs such as food and water, shelter and security, forced by security forces and militaria guarding the camps (WHO, 2002; Moreno-Walton and Koenig, 2016; GIWPS, 2017). In Port au Prince, Haiti, 10,813 women living in temporary shelters reported experiencing sexual assaults in the 6 months following the 2010 earthquake (Kolbe et al., 2010). If not reported from on-site of the disaster-hit area, women are either voluntarily moving or trafficked to other regions, often falling victim to sexual violence (Valerio, 2014).

Victims of sexual violence face social pressure that impedes them from reporting or expressing their feelings towards the situation. Additionally, official statistics on sexual violence are often lacking which may lead to an underestimation of the incidences. For example, in Japan after the 2011 tsunami, official workers at evacuation

centers reported that their managers did not allow them to distribute flyers about the consultation services provided for women who experience sexual violence and harassments due to their reputation (Saito, 2012).

3.2 Women's Role in Building Resilience

Although women are unrecognized and underrepresented during the disaster response processes, they retain a huge potential to be proactive agents of change capable of contributing to solutions for disaster responses (Ravera et al., 2016). Appreciation of women's capacity should always be understood hand in hand with their vulnerability in order to fully grasp the gendered dynamic of disaster to groups impacted. In general, women in poor communities not only take the primary role for housework but also play a pivotal role in resource management, ranging from small livestock and provisioning in fuel and water to managing food production in their communities (Arora-Jonsson, 2011). These roles mean women have extensive knowledge about the management of the household as well as natural resources and the environmental surroundings. This knowledge means women are often best equipped to lead during disaster adaptation, response and recovery. Through self-directed action women take responsibility for family members in times of disaster, scavenging for basic supplies such as food and water, and become the chief first responders in most cases of disasters, positioning them to contribute to livelihood strategies to secure household member's health in changing environment (IPCC, 2012).

Numerous studies also proved that communities cope with disasters better when women are given adequate information or play a leadership role in their communities in disaster reduction and adaptation strategies. A case of the International Federation of the Red Cross (IFRC) for example, demonstrates strong evidence of importance in building women's capacity. In Bangladesh, the IFRC implemented inclusive disaster preparedness workshops that offer women's access to educational disaster-prevention resources. The monthly disaster training workshops separated the communities into "micro-groups" of women

and men and specifically designed workshops for women to promote their knowledge of issues and the ability to take leadership and decision-making positions. This, combined with women's clear understanding of the surrounding environment at the local level, led to sustainable and effective solutions to disasters. As a result, the ratio of male to female death recorded 1:5 after a cyclone in 2007, compared to a ratio of 1:14 after a cyclone of similar magnitude hit the same area in 1991 (Arnold, 2017).

Greater inclusion of women at the decision-making process is also likely to enhance the overall effectiveness and sustainability of the preparedness and response process in WRDs. With their clear understanding of the surrounding environment at the local level, they can effectively mobilize communities in the event of disasters. In other words, recognizing the potential of women as decision-makers and experts can lead to sustainable and effective solutions to WRDs (Aguilar, 2008).

4. Women's Health Risks and their Role in Health Care in WRD – A Case of Bangladesh

When hit by WRD, women's vulnerabilities and capabilities arise from pre-existing gendered dynamics are put together with drastic external environmental changes, such as displacement. The disaster-induced displacement often exposes people to numerous negative consequences to human health (McLeman and Hunter, 2011; Hunter, 2012; McMichael, 2015). It involves health risk heightening changes as forced displacement, crowded or mass gatherings, poor quality of shelters and water, lack of sanitation and hygiene as well as healthcare facilities (Hammer et al., 2018). It is women who comprise the overwhelming majority of the population displaced by climate change (UNDP, 2016), and are facing greater difficulties in accessing resources, privacy and assistance (GIWPS, 2017) while doing their share of work to reconstruct livelihood.

To clearly delineate such circumstances with a concrete case so far has been difficult due to lack of gender-aggregated

data collected in the disaster-hit area. Yet, Satkhira district, the most disaster-prone area in South West coast of Bangladesh, would be the best example, if not only, as a number of local studies have strived to deal with the issue of women in climate change. A recent study of randomly selected women from 142 households in Satkhira district illustrates women in WRD with figures (Hasan and Shovon, 2019). During a disaster, women are confronted with difficulties in arriving at a secured place that are different than men. First, women's physicality including their long hair (40.84%), apparels (89.43%), physical strength (61.6%) and lack of swimming skills (25.35%) hampered them from escaping fast. Second, their roles in the family to take care of their family members

(children 33.8%, waiting for relatives 47.18%) and household assets (92.25%). Third, their gendered structure of the society, such as not being informed of the disaster (83.8%), not taking emergency decisions (86.61%) or not able to go out alone (27.46%).

After a disaster strikes and demolishes houses, survivors are led to shelters and camps. However, many women prefer not to move to cyclone shelters as they deem dangerous for them. The reason for them to stay in their houses or temporary housings for themselves are shown below (Table 1), which is concluded by the author that such temporary shelters does not consider gendered needs.

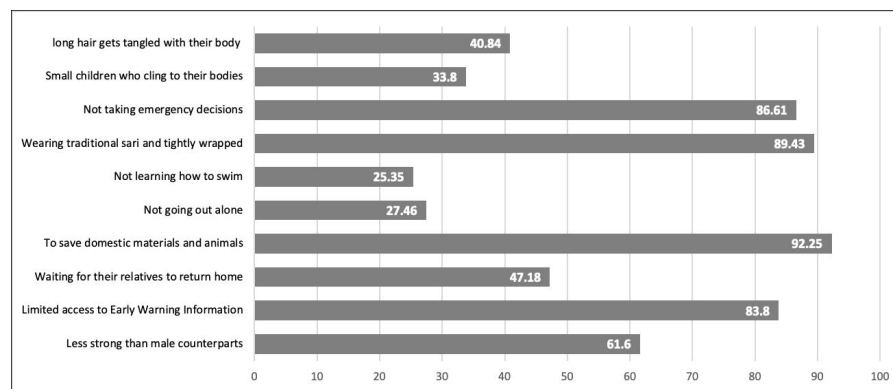


Fig. 1. Barriers for women to maneuver to secured place during disaster (Hasan and Shovon, 2019.)

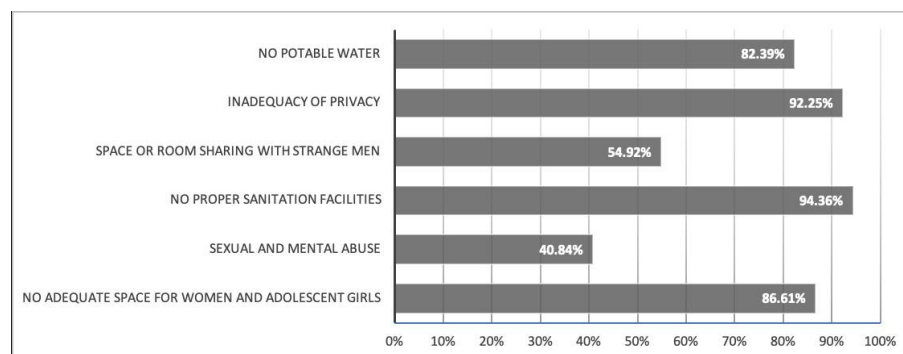


Fig. 2. Discouragements for women to go to cyclone shelters (Hasan and Shovon, 2019.)

Not only does it lack consideration for women, but a lack of infrastructure and facility for housework in many shelters add workload for women. Another study in Satkhira district outlined a triple burden of women in dealing with climate change, saying that they work as 1) a producer, 2) caregiver and 3) breadwinner (Mondal, 2014). From 6 focus group discussions with 10 women each together with 2 In-depth interviews in a village in Satkhira, the study summarises that due to frequent cyclones and recurrent high tide in rivers, houses, markets and homesteads have been destructed while salinity ingression degraded agricultural land. The cultivating land has shrunk from 80% to 15% within two decades. As a result, the ecosystem is changing while women now need to walk long distances to fetch fresh water.

In Satkhira, securing potable water is a major factor for exhaustion when women are already suffering from chronic nutritional deficiency. They are highly affected by different water-borne diseases during a disaster, as well as the prevalence of skin disease (76%) followed by diarrhoea (60%) (Hasan and Shovon, 2019). The risk of water-borne disease for women rises as they are compelled to stay within a certain radius from their homes while tube-wells that many of the disaster-prone areas rely on to fetch water frequently become polluted. Further, while men would take boats to defecate far from their communities, women would have to find communal latrine or find a place near their houses, which further pollutes their living environments. Most significantly, pregnant women with less mobility face further difficulties with slippery floors, which makes them far more vulnerable to secure safe water (Neelormi, 2009). Also, long exposure to saline water has induced severe gynaecologic diseases to many. Further, when infected, many find cost a barrier to visiting medical centres in cities.

5. Discussion

The climate disasters present significant and devastating broad of public health concerns that pose tremendous challenges to the communities and their residents.

Displaced women are often excluded from early warning systems before the disaster as well as post-disaster recovery efforts, facing greater difficulty than men in accessing assistance (Arnold, 2017). These intertwined vulnerabilities and lack of resilience often push women into poverty trap or permanently displace them from their homes, as well as weaken their health mentally and physically, which extends the adverse effect of disaster. Therefore, in order for the health-related decision-making groups to ensure and provide a successful diagnosis and treatment of the health impacts of WRD, it is necessary to build a gender-inclusive public health response and raise awareness of such needs in reality. The efforts would include, but not limited to the following:

- Gender-inclusive Early Warning System and drills
- Emergency response and swimming education focused on women as disaster preparedness
- Immediate and reliable data collection (gender, age-disaggregated)
- Gender-inclusive design of shelters
- Safety measures for women for domestic and sexual violence

As briefly outlined in this paper as an example of a thought process, the argument put forward for the women in the times of WRD is as follows. First, human vulnerability and capacity to respond are highly gendered (Hunter and David, 2009). The impacts of disaster can largely be correlated to existing social inequalities which act in complex ways to disadvantage women in their society (GFDRR, 2018). Second, while advocating disproportionate impacts on women, the narratives of seeing women as a group of victims have been constructed in the face of WRD, or climate disasters in general. Such narratives frame women as mere passive beneficiaries, obscuring the potential of women (Okali and Naess, 2013). Third, the underrepresentation of women in the decision-making process for disaster responses is the reason behind failing to both reduce vulnerabilities and enhance capacities of women in responding and building resilience towards disaster (Arora-Jonsson, 2011).

Gender-inclusive WRD response methods that suit country- or local-specific contexts have not been thoroughly

devised to materialise such goals and plans. While some countries still need to strive for institutionally incorporate gender inclusiveness, the concept rather has long been a buzzword in the international and national political agenda yet remains mere rhetoric to a degree that it is seen too often without meaning. As this paper addressed the need for sector-specific gender-inclusive climate disaster response in the public health context, incorporating the gendered dynamics in every sector and fields is vital to building a truly holistic climate change response. On one side, a feasible and workable plan needs to be built in the face of emerging risks of further climate change consequences, but it also should be compatible with more robust research and study. In this regard, this paper concludes with a plea for future climate change responses of all fields to proactively contemplate on gendered dynamics in each and every corner of their work.

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