

Gender, Climate Change, and Storm Surge Risk Communication

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Final Seminar in Environmental Conservation Education

New York University

December 2017

Introduction

This report examines gender dimension of extreme weather events and other climate impacts. It also explores the potential for greater inclusion of women's voices in climate action and disaster risk management. The first half of this report consists of a review of scholarly and professional literature on gender and climate change, focusing primarily on what the data from natural disasters such as typhoons, cyclones, and tsunamis (though tsunamis are not technically climate-related) can tell us about the gendered experiences of severe weather events.

According to current research, women are often disproportionately impacted when it comes to climate change, particularly during natural disasters, due, broadly, to the gender norms and roles that marginalize them socially, politically, and economically. Gender disaggregated data from worst-case scenario weather events such as Typhoon Haiyan in the Philippines, Cyclone Gorky in Bangladesh, and the Indian Ocean Tsunami suggest that not only do women tend to die at higher rates than men during such disasters, but those that survive experience greater risks to their health, safety, and economic security in the wake of the disaster.

The reasons why women are disproportionately impacted appear to vary greatly across regions, cultures, and circumstances. Because these reasons are highly nuanced and context-specific, they cannot be easily summarized or generalized. Nonetheless, common threads can be found in both the data and the stories of female victims of climate disasters. It is important to parse these out if we are to develop effective strategies for disaster risk reduction (DRR) that address women's unique vulnerabilities, needs, and priorities.

In addition to exploring the gendered impacts of climate disasters, I also review and synthesize literature on the emerging gender-responsive climate action movement, and explore the potential for gender mainstreaming in climate change planning and DRR. Current literature on gender and climate change seems to support the theory that a gender-inclusive movement holds great potential not only for reducing women's vulnerability to disasters, but also for women's economic and social advancement, and for the advancement of the climate action movement at large.

The second half of this report consists of a thematic analysis of interviews conducted with female survivors of Haiyan, a devastating typhoon that struck the Philippines in 2013 killing an estimated 6,000 people. These interviews were conducted as part of a disaster risk reduction project entitled "Forecasting to Communication to Action: Enabling Institutions to Manage Storm Surge Risks," which is currently being implemented in Bangladesh and the Philippines, led by Raul Lejano, a professor at NYU Steinhardt, in partnership with the Bangladesh Disaster Preparedness Centre and the Center for Disaster Preparedness in the Philippines.

The project, which is funded by the World Bank Group's Global Facility for Disaster Reduction and Recovery (GFDRR), seeks to aid government agencies, nonprofits engaged in preparing for

extreme weather events, news media, and other educational providers to craft more effective storm warning messages. To do this, the project team developed guidelines, message templates, toolkits, and an online tutorial for risk communication. Extensive research and analysis went into developing these resources, including a literature review on storm surge communication, a survey testing alternative message texts, and an evaluation of communication around Typhoon Haiyan and other events, as well as a number of other empirical investigations, including a survey of Tacloban City residents that assessed their reasons for not evacuating, and an analysis of institutional issues encountered during Typhoon Haiyan (Lejano et al, Users Guide to Communicating the Risks of Storm Surge, 2016, p. 3).

The following literature review and thematic analysis of interviews were also conducted as part of this project, in an effort to better understand the gender dimension of such disasters and to use that understanding to inform the design of the project's various risk communication tools and strategies. The literature review will be submitted in the form of a "gender report," a section of the final report on this project to GFDRR, along with the thematic analysis of interviews with female survivors.

[**Literature Review: Understanding the gender dimension of climate change and the value of gender-responsive climate action**](#)

Introduction

Climate change affects everyone, but how it affects us differs dramatically depending on where we live, our income, livelihood, race, age, and gender. People who are socially, economically, politically or otherwise marginalized are especially vulnerable to climate change. According to the International Panel on Climate Change (IPCC), "differences in vulnerability and exposure arise from non-climatic factors and from multidimensional inequalities often produced by uneven development processes." A person's vulnerability is therefore not due to a single cause, rather, "it is the product of intersecting social processes that result in inequalities in socio-economic status and income, as well as in exposure. Such social processes include, for example, discrimination on the basis of gender, class, ethnicity, age and disability" (IPCC, 2014b, p. 54).

This is why policy makers often refer to climate change as a "threat multiplier," because climate impacts such as droughts, floods, and other extreme weather events often exacerbate pre-existing

risks such as poverty, disease, food and water insecurity, and political instability, thereby amplifying existing social, political, and economic inequalities. (Olsson, et al., 2014, p. 799). Climate change is therefore far more than an ecological crisis, it is also a social justice issue and humanitarian crisis with immediate and far-reaching implications for billions of the planet's poorest, most vulnerable people.

Women too can be disproportionately impacted when it comes to climate change due to the gender norms and roles that marginalize them socially, politically, and economically. According to UN Women, women's "historic disadvantages," such as their restricted rights, muted voice in shaping decisions, dependence on and unequal access to land, water, and other resources and productive assets make them particularly vulnerable to external threats and stressors such as droughts, floods, and extreme weather events (UN Women, 2015). When we look at gender-disaggregated data on climate impacts from around the world, we see indications of how climate change is acting as a threat multiplier for women, amplifying risks to their health, safety, livelihoods, access to food and water, and economic security.

The specific area of natural disasters provides some evidence of differential impacts borne by women. In cases such as the 2004 Indian Ocean tsunami, Cyclone Gorky in Bangladesh in 1991, and Typhoon Haiyan in the Philippines in 2015 – all catastrophic disasters with casualties in the tens or hundreds of thousands -- the vast majority of victims were women (Sellers, 2016). During disasters such as these, women not only often die at higher rates than men, but those that survive also experience greater risks to their health, safety, and economic security. Several studies have noted, for example, that gender-based violence increases in the wake of a natural disaster (David and Enarson, 2012; Cutter, 2016) and that gender disadvantages in basic living conditions and livelihoods are amplified during and after disasters and humanitarian crises (Fordham and Meyreles, 2014; Cutter, 2016).

Another broad study on gender and natural disaster mortality rates looked at gender disaggregated data from disasters that occurred between 1981 to 2002 in 141 countries and analyzed this data in the context of gender roles and norms in each of these countries. The study concluded that in cases where men and women's gender roles and norms were not highly differentiated, and where their economic and social rights were more equally distributed, the

death rates between men and women were similar (Neumayer & Plumper, 2007, 551-566). This implies that gender equality reduces the vulnerability differential between men and women, and therefore to disaster risk reduction for women.

Evidence from the Literature on the Gender Dimension of Natural Disasters

Typhoon Haiyan, the Indian Ocean Tsunami, and Cyclone Gorky are three stark examples of natural disasters in which women died at significantly higher rates than men. In the case of the 2004 Indian Ocean tsunami, roughly 70% of the estimated 250,000 deaths were women (Sellers, 2016; Oxfam, 2005). During Cyclone Gorky, which struck Bangladesh in 1991 killing an estimated 140,000 people, women are reported to have died at a rate of 14 to 1 higher than men (Lindeboom, Alam, Begum, Streatfield, 2012; Bern et al, 1993). Similarly, preliminary assessments of mortality rates from Typhoon Haiyan in the Philippines, which killed an estimated 6,000 people, indicates that 50% more women died than men (Ballera et al, 2015; Sellers, 2016).

What factors led to women dying at such high rates? In the case of Gorky in Bangladesh, researchers attributed the exponentially higher female death toll to three main factors. First, women in Bangladesh typically do not know how to swim. Secondly, Bangladeshi women's traditional dress – the sari – made it very difficult for women to swim or run away from the storm surge. In many cases women's saris became entangled in trees and debris, or weighted down by water, acting as an anchor and causing them to drown (Haider, 1994, p. 300). And thirdly, women in Bangladeshi culture are subject to 'purdah' the cultural norm that restricts their spatial mobility. Purdah literally translates to "a curtain" and is used figuratively to signify the separation of a woman's world from that of men's. Because of Purdah, women are often confined to the home and are expected to seek their husband or parents' permission before leaving the house, and not venture out without male accompaniment. (Ikeda, 1995, p. 179). Thus, many women who were home without their husbands when the storm hit opted to stay at home rather than seek shelter, and sadly drowned. In other cases, women and their husbands opted not to evacuate because they feared the cyclone shelters would not provide adequate privacy or safety (p. 179).

In the case of the Indian Ocean Tsunami, researchers theorize that several factors contributed to

the much higher mortality rates among women. Some of the causes of deaths among women were similar across regions. For example, across regions and cultures, many women died because they stayed behind to look for their children and other relatives, or because women more often than the men could not swim, or because the men more often than women chose to climb trees (Oxfam, 2005). However, significant differences can also be seen in the factors that contributed to women's deaths across regions struck by the tsunami. For example, in Aceh Besar, Indonesia, women died at a rate of 3 to 1 over men, while in Pachankuppam, India, the only people who died were women. Some of the factors that led to women's deaths in Indonesia, India, and Sri Lanka were highly context-specific, and it is important to note these differences.

Women in Aceh, [Indonesia] traditionally have a high level of participation in the labor force, but the wave struck on a Sunday morning when they were at home and the men were out on errands away from the seafront. Women in India play a major role in fishing and were waiting on the shore for the fishermen to bring in the catch, which they would then process and sell in the local market. In Sri Lanka in Batticaloa District, the tsunami hit at the hour women on the east coast usually took their baths in the sea. (Oxfam, 2005, p. 2).

Research on the aftermath of the tsunami also indicates that those women who survived experienced greater risks to the safety, wellbeing, and livelihoods than men. For example, researchers on the tsunami's effects in India have seen an increase in the number of marriages of girls within their extended families in some of the affected villages in Cuddalore. "There are cases where girls whose marriages had already been arranged before the tsunami, and who have lost both their parents, are now being married off by members of the extended family or the community to other young men. These marriages seem to be contracted in desperation and without involving the girls' consent" (Oxfam, 2005, p. 4). In Sri Lanka, researchers reported that incidents of sexual assault have taken place in displaced people's camps and safety shelters, and that incidents of domestic violence are also on the rise (Oxfam, 2005, p. 10).

In the case of Haiyan, frustratingly little is known about how many more women died than men, or why this may have occurred. One study, entitled "Management of the Dead in Tacloban City after Typhoon Haiyan," was conducted by a team from the Department of Health who was

tasked with identifying, processing, and collecting data on 128 victims of Haiyan. This study reported that the adult male-to-female ratio of victims was 1:1.5, or 50% more females than males (Ballera et al, 2015). These findings are consistent with another integral study, conducted by a different team from the Department of Health, in which 100 cases of people who died during Haiyan in Tacloban City were surveyed. (Ching et al, 2015). This study relied on proxies, such as family members, who answered interview questions on behalf of the deceased in order to assess the risk factors that led to their deaths. Of those surveyed, all victims died from drowning. Ninety-five percent of cases did not evacuate because they did not expect the severity of the storm. While all cases had heard about the coming typhoon, 88% did not understand the warning messages about the storm surge and the magnitude of the threat it posed. Ninety percent reported not knowing that their homes or place of residence was not safe (p. 36).

Sixty-two percent of the deaths surveyed were women. However, this was determined to be a statistically insignificant number. Researchers concluded the being female was not a risk factor during Haiyan, at least not according to this study. These researchers hypothesized that since the study area was a fishing village, with men were its predominant residents, this may have skewed the results. In other words, had there been a more even number of women and men living the area, they might have seen far more female victims. The researchers also speculated that the small sample size of the study may have limited their results (p. 37).

Sixty-eight percent of cases surveyed also did not know how to swim, though this too was determined to be statistically insignificant by the researchers. Sixty-nine percent of deaths were people over the age of 55, which *was* considered to be statistically significant. The researchers concluded that not evacuating before the storm, despite official warnings, was the greatest risk factor for mortality during Typhoon Haiyan.

Although it was reported that messages about the coming storm were received, it was also reported that the message to evacuate was not understood. The term “storm surge” was used to warn the public before Typhoon Haiyan, but many did not understand what this meant (p. 37).

What conclusions if any can be drawn from these studies in Haiyan, where the majority of deaths were women? What, if anything, did Haiyan have in common with Gorky and the tsunami, in

terms of impacts for women? In many cases, it seems that it was just a matter of women being in the wrong place at the wrong time, as in the example from Batticaloa, Sri Lanka, where the tsunami hit while the women of the village were bathing in the sea. There do seem to be a few common threads, however. It seems that not being a strong swimmer was a common cause of death for women in all three disasters. Also, choosing not leave the house for whatever reason, be that out of fear of the safety of the shelters, or because of “purdah,” or because of wanting to protect family and belongings, was a common cause of death. Also important to note are the common ways in which women are negatively impacted after the disaster. Frequently, female survivors are the ones burdened with additional child-care and work, while not being granted access to the same financial resources and capital to support their families as men. It’s important to keep these common risks and burdens in mind in the creation of DRR policy and programming.

Gaps and Limitations in Gender and DRR Research and Policy

Unfortunately, there are some impediments to understanding how and why climate change and natural disasters are impacting men and women differently. One limitation is the way in which data on gender and vulnerability has been collected and analyzed. Often, studies that seek to assess vulnerability of men versus women do so at the household level rather than the individual level, comparing households that are female-headed to those that are male-headed. This, however, ignores intra-household gender differences in vulnerability. Therefore, claims that women’s restricted rights, voice, and access to resources put them at a severe disadvantage cannot be evaluated using this methodology because these claims refer to the distribution of responsibilities and power within households” (Andersen, Verner, & Weibelt, 2016, p. 6).

Another major impediment to understanding of the differential impacts born by women during climate disasters is that not enough data exists yet to analyze. Policymakers and researchers have only recently realized the urgent need for gender-disaggregated data on disasters and begun to make collecting such data a priority in the wake of natural disasters (Bradshaw, 2015a, p. 63). As a result, there has been a great deal of speculation and theorizing on the topic, but not enough empirical evidence to substantiate these kinds of blanket claims. In fact, the most current research on gender and climate change shows that the impacts are not always worse for women

than men across all contexts and cultures. As the body of research grows, it is becoming apparent how variable and context-specific gender differences are across communities, cultures, and regions, with women being more severely impacted in some cases and men in others.

In some cases, males may be more vulnerable to harm from events related to climate change, as evidenced by higher rates of suicide among men, as well as higher fatalities from flooding. While some evidence suggests that men tend to have particular advances in coping with climate shocks, much of the adaptation literature suggests that women and men are both able to adapt, but do so in different ways, such as men tending to migrate while women often use home gardens, small-scale agriculture or forest production collection (Sellers, 2016, 11).

Perhaps a more accurate narrative would be to say that differences rather than inequities exist in the way climate change and climate disasters impact women versus men. In most cases, women's restricted rights, lack of voice in decision making, and lack of access to resources are impacting their ability to cope with and adapt to climate change. Overall, it is safe to assume that climate change will continue to compound and magnify pre-existing gender inequalities if action is not taken to address women's rights, needs, and lack of agency.

Policymakers are also finally beginning to recognize the value of a gender-inclusive approach to Disaster Risk Reduction (DRR) policy and planning. In 2015, the UN adopted the Sendai Framework at the Third UN World Conference on Disaster Risk Reduction. The Sendai Framework is a 15-year, voluntary, non-binding agreement whose goal is the "substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries" (UNISDR Website). It is the first UN DRR framework to include gender rhetoric, though some argue that it still does not do enough to address women's rights during and after disasters. Sara Bradshaw, a leading advocate for gender-inclusive sustainable development and disaster risk reduction, notes that:

The new framework adopted at the World Disaster Conference in March 2015 saw some mentions of the need for sex-disaggregated data, but this wasn't uniform. There is some recognition that women are more than 'victims,' and leadership is mentioned in a number

of places. However, the vulnerability discourse remains dominant and the leadership discourse is somewhat problematic; for example, it promotes ‘empowering women and persons with disabilities to publicly lead...’. It does include one mention of sexual and reproductive health – under discussion of ‘access to basic health care services’, and there is no mention of VAWG [violence against women and girls]. (Bradshaw, 2015b, p. 64).

Bradshaw’s critique of the Sendai Framework suggests that while some small progress has been made in addressing women’s rights and including women’s voices in DRR, not much has changed in the last twenty years. The discourse in DRR policy literature remains largely universalist and unrecognizing of gender (a perspective which, she argues, is actually a male-centered one) (Bradshaw, 2013). Further, Bradshaw argues that in the rhetoric around women and disasters, “women are often constructed as blameless victims, as protectors (of children), or as needing protection (from men)” (p. 99). The lack of women’s agency that this implies, and the power imbalance it potentially reinforces, has long-term implications for men and women’s material and emotional well-being.

Potential for Inclusion of Women's Voices in Policy and Action

Conversely, there is great potential for women to participate more integrally in climate change adaptation, both in terms of more gender-inclusive policy creation and more effective action on the ground. Prioritizing women’s involvement in disaster risk reduction, educating and empowering women to take action against climate change in their communities, may present more innovative, different, or foundational contributions that we have yet to fully access.

Women, as Bradshaw and others suggest, are not helpless victims of climate change. Just as men in some cases are more vulnerable to climate threats, women in some cases possess greater knowledge, skills, and adaptive capacities. In many cases, women are already leading the fight against climate change by developing new technologies, and new mitigation or adaption strategies. As Christina Figueres, the Executive Secretary of the United Nations Framework on Climate Change states,

what makes women vulnerable also makes them pivotal to climate change action.

Whether in developing countries or in developed countries, women stand at the front lines in the battle against climate change: as providers of water, food, and energy or as

leaders in businesses, communities and politics. Women are in a unique position to recognize some of the opportunities that climate change provides” (Figueres, 2014).

Figueres and others who advocate for gender-responsive climate action emphasize that women are powerful agents of change whose innovations and contributions to climate action need to be acknowledged. She stresses the tremendous potential that exists in increasing women’s participation in climate change decision making, planning, and programming. As Figueres states, “women are the secret weapon to tackling climate crisis” (2014) precisely *because* of their vulnerability, and their position at the frontlines of climate change. In much of the developing world, women serve as the securers of food, water, and energy for their families. In addition to their role as providers, women often take on community organizing activities, ensure the provision and maintenance of collective resources within the community (Moser, 1993). This means that women are in a special position on the front lines of climate change to first spot its threats, recognize the value of adopting adaptation and mitigation strategies, and to encourage other community members to adopt them as well.

For example, as Figueres notes, “fifty percent of women around the world still burn wood, dung, coal and other traditional fuels for cooking inside their homes. The resulting air pollution in unventilated homes releases high levels of black carbon, causing approximately 1.5 million deaths a year, mainly of women and children in the poorest communities in the world.”

Initiatives like the Low Smoke Stoves Project in Dufur are working to change these outcomes by educating women about biofuel stoves and other low-smoke, sustainable cooking technologies, and then training them to educate other women in their community to do the same. In doing so, they are providing women in the developing world with opportunities not only to reduce greenhouse gas emissions, improve their health or the health of their families, but also save time and money, freeing them up for more productive work (Figueres, 2014).

The Low Smoke Stoves initiative is just one example of how climate action can dovetail with sustainable development goals, having triple-bottom-line benefits for developing economies, climate action, and social justice. (For more examples, see Boxes 1 & 2 in Appendix: *Digital Stories of Women on the Frontlines of Climate Change*). This is the fundamental assumption of a gender mainstreamed approach to climate action: that empowering women to be agents of

change and including them at all levels of decision making around climate action can have multifold benefits,

from raising healthier and more educated children, to strengthening and expanding national economies and improving businesses' bottom line; from making more environmentally friendly legislation to pursuing more sustainable consumer choices. Promoting women's empowerment and advancing gender equality are drivers for a global community that is more adept at mitigating, adapting and building resilience to a changing climate (Aguilar, Granat, & Owren, 2015b, p. 2).

Why shouldn't policymakers and planners make gender mainstreaming a priority then, if only positive outcomes can come from it, while potentially disastrous outcomes could come from taking a gender-blind approach? As we previously mentioned, one impediment to understanding and incorporating gender mainstreaming into DRR is that it's very hard to generalize about gendered experiences of disasters. These experiences are highly localized and context-specific, depending on things such as the time or season in which the disaster struck, and the cultural, economic, or political context in which the disaster struck. Secondly, as previously mentioned, there are limitations to the way in which empirical evidence on the gender dimension of natural disasters has been collected. Thirdly, even when gender mainstreaming language is incorporated into policy, it's not always made a priority or enacted effectively. Given these limitations, what other strategies might be employed to help us both better understand the problem and to save lives? Digital storytelling and narrative might hold the key. At the very least, narrative and anecdotal evidence might help to fill in some of the gaps in research on women's experiences during extreme weather events, and to capture and amplify women's voices and opinions on how best to address their unique needs during and after climate disasters.

A Gender Analysis Framework for Climate Change and DRR

Understanding how gender norms and roles contribute to differences in vulnerability is the first step toward enabling gender-sensitive adaptation or DRR programs. Norms and roles vary by culture, community, age, class, or socio-economic status, thus it's necessary to take a context-specific approach to analyzing how gender plays a role in the impacts of natural disasters on communities. That said, there are certain commonalities among women across the globe that

make them especially vulnerable to external threats and stressors such as climate-related disasters. Gender analysts refer to these commonalities as women's "special condition," meaning "the social, economic and cultural factors and mechanisms which keep women in a situation of disadvantage and subordination with regard to men" (ICUN, UNDP & GGCA, 2009, p. 17). Women's historic disadvantages include restricted rights, muted voice in shaping decisions, dependence on and unequal access to land, water, and other resources and productive assets. Research has found that climate change tends to compound and magnify these existing patterns of gender disadvantage (UNDP, 2007, pp. 81-82).

Women's traditional social and familial roles also put them at increased risk. Traditionally, women play central roles in both families and communities, often while simultaneously shouldering jobs or other productive work. This is what Caroline Moser in her book *Gender Planning and Development: Theory, Practice, and Training* refers to as women's "triple role," meaning the multiple roles women often perform simultaneously in the areas of production, reproduction, and community affairs. In contrast, men are often less involved with household activities or community affairs, and more engaged in production and community politics (Moser, 1993).

Moser's gender analysis theory, which has come to be known as The Moser Framework, is often cited by gender mainstreaming advocates and those working around women and sustainable development. According to the Moser Framework, women's traditional reproductive roles include childbearing, rearing, health care and caring for the elderly, and any domestic tasks required to ensure the maintenance and reproduction of the labor force" such as the provision of food, water, and fuel (March, Smyth, & Mukhopadhyay, 1999, p. 57). In addition to their reproductive roles, women often take on community roles, such as organizing activities that ensure the provision and maintenance of collective resources, such as water, land, and soil. Traditional productive roles include the activities that produce goods and services for consumption or trade, such as growing crops for sale, barter, or household consumption. Both men and women can be involved in these activities. However, women often carry out these productive roles within the domestic sphere and alongside their reproductive roles, in a household farm or home garden, for example, which makes their contributions less visible and less valued than men's productive work (Moser, 1993; March, Smyth, & Mukhopadhyay, 1999).

Threats from natural disasters can have a compounding impact on women's triple roles, often turning them into triple burdens. Take, for example, a woman living through a drought in Machakos, Kenya, who consequently has to walk up to fifteen miles a day to collect water for her family (see Box 1 in Appendix). Doing so deprives her of the time she needs to care for her family members, which in turn impacts both her family's wellbeing and her own, as walking for long distances also poses risks to her health and physical safety.

Or take, for example, Anna Ngau of the Kayan tribe in the Borneo Tropical Forest of Malaysia, whose community is experiencing unprecedented and prolonged flooding. While her husband is away for long stretches of time in search of logging work, Anna must single-handedly care for her home and family as she wades through a foot-and-a-half of water. As she explains, she doesn't have time to do farming, or collect water or food from the forest, because she alone must do all the housework while responding to daily crises that arise from the flood (See Box 3 in Appendix).

And yet despite her increased burden, Ann Ngau and the other women of her tribe are coping. They are developing new systems and technologies for home farming, foraging, and fuel collection, and establishing social networks to support each other and share resources. Their resiliency and capacity to adapt to the impacts of extreme flooding speaks to Figueres' point that women living on the frontlines are the unsung heroes in climate disasters who possess knowledge, strategies, and adaptive capacities that the rest of the world could learn from.

Men generally will go on to a much more leadership capacity, but women are really the true champions for climate change actions. They are the ones getting their families together, their children together, their husbands mobilized. And they do it so willingly and open-heartedly....I would like them to express themselves, articulate themselves, and celebrate how they build resilience. They *are* coping. They are not waiting for anyone to come and tell them how to do this, they are finding technologies, they are finding ways forward. They are working very hard at the ground level, at the grassroots level. For me, doing this research, it's [about] coming to them and embracing their ideas of stewardship and the work they are already doing within their communities. It's not an easy task [what they are doing], especially not when you have to do it invisibly.

(<https://vimeo.com/163574307#t=733s>)

Here, Bisan echoes Figueres point that these women are not helpless victims but “true champions for climate change action,” whose triple role in the productive, reproductive, and community domains position them at the frontlines of climate change, making them the problem solvers and invisible leaders in their community’s response to climate threats. The impediment for these women, Bisan implies, is not a lack of understanding of how to adapt or how to lead their community forward, but a lack of visibility and voice. This speaks to the purpose of a gender-responsive approach to both development and climate action, which is not simply to provide aid to women in poverty and the developing world, but to learn from how women are already building resilience, to empower them to leadership roles, and to include them and their ideas in all levels of decision making and adaptation planning.

There is a compound injustice at play: not only are women being disproportionately affected by climate change and during climate shocks, but their voices are not being heard by government, policy makers, planners, and in disaster response, and thus their need for things like access to resources, technology, safety, information and education, are not being met. One solution to this problem is increased female participation and leadership at all levels of climate change planning, problem-solving, and communication. This raises new questions, however, not only about how to go about amplifying women’s voices and empowering them to be agents of change, but also whether it is reasonable and just expect women in the developing world to take on an active role in climate action.

One of the fundamental assumptions of climate justice is that those who suffer the greatest burdens from climate change are often the ones who have contributed least to the problem. Sujatha Byravan and Sudhir Chella Rajan have labeled this phenomenon “asymmetrical impacts,” implying that there is an unequal burden on the developing world and poor communities, which is “all the more unfair because they play only a minor role, if any, in causing the climate problem, and certainly have not reaped the benefits of fossil-fuel intensive economic development” (2010: 246). Take, for example, a woman living in on the coast of Barguna in the Bay of Bengal in Bangladesh (see Box 4) whose village will soon be swallowed up by the sea. Her community’s livelihood is primarily subsistence fishing. Her husband was

killed while fishing during a typhoon, and now she alone must support her family. She consumes very little and produces very little in the way of carbon emissions. Her carbon footprint is practically non-existent. Is it fair to expect her to see climate action as her responsibility, or to have the time to address climate change, when she is facing the immediate threats of sea-level rise, food insecurity, loss of livelihood, and displacement? In her own words:

No land, no trees. there is nothing there. Everything is gone. Our mothers and sisters are all widows. Do you want our sons to lose their fathers? Why are the tidal waves happening? If you didn't make the earth so warm, this wouldn't be happening.

Most would argue that it falls on those in the developed world who are the main contributors to the climate crisis to mitigate the effects of climate change and to assist vulnerable communities in responding and adapting to climate crises. And yet we need women from the frontlines to participate in the movement too, so that their unique needs and vulnerabilities can be addressed, and so that they can communicate and educate their communities about climate change adaptation and disaster response.

There are proven benefits to women's increased participation in climate action, both for women themselves, and for their families, communities, and the environment. Take, for example, the Fairtrade Kabngetuny Farmers' Cooperative Society "Women in Coffee" program in rural Kenya, which has embraced gender mainstreaming in its operations. Through this program, women like Zddy Rotich are learning to adopt climate smart agricultural practices (CSAs) such as planting shade producing trees to keep coffee plants cool, and new technologies such as dung-powered stoves that replace traditional wood-burning stoves, thus reducing the need to cut down trees and the emissions of harmful gasses from burning wood for fuel.

Emergence of the Gender-Responsive Climate Action Movement

Within the last five years the body of data and research on the gendered impacts of climate change has grown exponentially, from a few dozen case studies to thousands from all over the world. The frameworks used to analyze and evaluate the gendered impacts of climate change have their roots in the gender and development (GAD) movement. This is a gender-sensitive approach to policy and planning for international development that first emerged between the

1970's and 1980's, out of joint effort of the United States Agency for International Development (USAID), the Harvard Institute of International Development, and the World Bank. GAD is "a case-study based methodology to identify how women have been left out of development on the grounds that 'women are key actors in the economic system, yet their neglect in development plans has left untapped a potentially large contribution'" (Moser, 1993, 2). Gender mainstreaming is a similar approach to policy and planning, but with broader applications, that was first proposed in 1985 at the United Nations Women's Conference in Nairobi, Kenya and later established as a major global strategy for the promotion of gender equality in the Beijing Platform for Action from the Fourth United Nations World Conference on Women in Beijing in 1995. The UN Economic and Social Council defines gender mainstreaming as

the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels... It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality (Gender Mainstreaming: An Overview, UN, 2002).

It is only within in the last decade, however, that analysts, policymakers, humanitarian aid organizations, and funders have begun to apply this approach in addressing climate change and have begun the process of collecting and analyzing sex-disaggregated data on climate change and natural disaster impacts (Benelli, Mazurana, & Walker 2012). Data on mortality rates from recent catastrophic natural disasters such as the heat wave that swept Europe in 2003, and the 2004 Indian Ocean tsunami served as a catalyst for broader and more in-depth research into the gender-differentiated impacts (Aguilar, Granat, Owren, 2015a). The stark inequities that were revealed through this research have led in the last few years to the development of several new initiatives, organizations, and programs designed specifically to raise awareness of gender issues among climate decision makers and take a gender-responsive approach to policy, programs, and financing.

In 2007, the United Nations Development Program (UNDP), United Nations Environment

Program (UNEP), International Union for Conservation of Nature (IUCN), and Women's Environment and Development Organization (WEDO) founded the Global Gender Climate Alliance (GGCA). The GGCA is “a unique alliance comprised of nearly 100 members—UN, intergovernmental, and nongovernmental organizations from around the world, working together to ensure climate change decision-making, policies and initiatives at all levels are gender responsive and improve the lives and livelihoods of women and men” (Aguilar, Granat, Owren, 2015a, p.2). The first task of the GGCA was to create the *Training Manual on Gender and Climate Change*, “one of the first comprehensive collections of information on gender and climate themes—ranging from the normative international policy framework to support then-nascent gender-responsive decision making, to gender mainstreaming across adaptation, mitigation, technology, and finance” (Aguilar, Granat, Owren, 2015a, p.10). In 2016, GGCA published the Gender and Climate Change literature review, which references over 600 case studies. this is the most comprehensive review of gender and climate change to date.

Gender-Responsive Climate Action Programming and Financing

Global development financing institutions such as the Rockefeller Foundation and the World Bank Group (WBG) have also begun to address the gender dimension of climate change in both their research and funding operations. Both organizations have been trailblazers for Gender and Development since the 1970s, though it appears they have ramped up their efforts in the last few years in light of new findings that previous gender mainstreaming efforts were not achieving their intended outcomes (Fofack, 2014, 84). In response to this, the WBG established the Advisory Council on Gender and Development in 2011, which serves to assist the WBG in promoting gender equality, by closing gender gaps in education, health, promoting women's ownership/control over key assets like land and finance, and enhancing women's voice and agency (World Bank Group website).

Similarly, the Rockefeller Foundation has made gender equity one of its top priorities, and identifying and addressing gender disparities a key tenet of its strategy and grant making. The Foundation “applies a gender lens to all its work, including climate resilience and agriculture, while supporting women as agents of change.” In September 2012, the Rockefeller Foundation awarded a grant to the United Nations Climate Change Secretariat to launch Momentum for

Change: Women for Results, an initiative to inform governments, the media and the public about “the role of women in solving climate change” (Rockefeller Foundation website).

Several climate-specific financing institutions have also begun to adopt a gender-mainstreaming approach to policy and programming. Climate financing refers to the funding of projects designed to mitigate and adapt to climate change in developing countries and vulnerable communities that “lack the necessary resources to develop infrastructure and institutions to address its effects. Such projects include renewable energy development, habitat restoration, sustainable infrastructure development, and capacity building to develop climate-resilient livelihoods practices” (Sellers, 2016, 7). The Green Climate Fund, the Global Investment Fund, the Global Environment Facility, The Clean Development Mechanism, and the Adaptation Fund, all have adopted specific gender policies and action plans within the last five to ten years. As an example, the Global Environment Facility’s gender action plan includes:

Conducting gender analysis and social assessment during project design; consulting with women as project stakeholders; including gender in the statement of the project’s intended objective; developing project components with gender targets; collecting sex-disaggregated data; and creating a budget item for gender-related activities (GEF, 2008).

Conclusion

The question remains, however, as to whether gender-mainstreamed climate change policies and programs are achieving their intended outcomes and impacting the women they intend to serve. Not much literature exists yet, either in academic papers or in reports published by NGOs, on the impacts and outcomes of these gender-responsive approaches. “Many in the advocacy community strongly believe that gender mainstreaming improves outcomes for women and men, yet there is a strong need to document whether and how this is true” (Sellers, 2016, 8). Evaluating the impacts of gender-mainstreaming programming should be a top priority in the next few years, in order to insure that the goals of gender-responsive climate action are being met and if not to make course corrections.

Analysis

Research Methods

Researchers interviewed six female survivors of Haiyan (also referred to as Typhoon Yolanda), in June and July of 2017. All interviewees were residents of Tacloban City, one of the coastal areas hardest hit by storm surge during Haiyan in 2013. All the women interviewed describe scenarios of catastrophic loss and severe trauma, in which they barely survived a “tsunami-like” storm surge of tremendous force that nearly overpowered them, while witnessing family members and friends drown around them and their homes destroyed.

The interviews were conducted as part of the WB GFDRR grant-funded project, “Forecasting to Communication to Action: Enabling Institutions to Manage Storm Surge Risks” (a DRR communication project previously described in the introduction to this paper). The primary goal of these interviews was to learn more about women’s experiences during and after Yolanda, in an effort to better understand the unique risks and challenges that women face during these types of disasters, and in order to create more gender-informed and effective storm surge warning messages.

The interviews aimed at gaining both a broad and in-depth understanding of survivors’ experiences, including how they managed to survive, those they had lost, their reflections on and feelings about the catastrophe, why they believed they survived when others did not, their advice for others who might be at risk from storm surge in the future, recommendations they might make to government officials regarding warning messages, and specifically whether they believed being a woman was a factor when it came to survival. The last part of each interview honed in on the gender dimension of their experience, with the interviewer asking specific, probing questions as to why they believed women might be at greater risk than men during storms such as these, and what measures they might suggest to women in similar scenarios, and to government officials seeking to reduce risks for women.

These interviews were conducted in both an open-ended and semi-structured format, meaning that at times the interviewer asked respondents to simply tell their story of the day that Haiyan struck, without giving much guidance as to what to talk about. More structured follow-up questions such

as “can you tell us more about ___?” were asked to encourage respondents to elaborate on their experiences, reflections, and motivations. At other times the interviewer asked semi-structured questions intended to probe respondents for specific information related to the project’s goals such as, “what can you remember about the evacuation? How many days prior did they announce it? Tell us everything you can say about the evacuation warnings.”

Transcripts of these interviews were then analyzed for common themes and motifs, such as the reasons respondents cited for women’s increased risk or mortality during the disaster, their beliefs about why women decided to stay rather than evacuate, their thoughts on additional risks and vulnerability experienced by women in the aftermath of storms, and their suggested measures for reducing women’s risk and vulnerability. Respondents answers were then further classified into common responses to these themes. For example, several of the women interviewed noted that one of the main reasons women were at greater risk than men during storm surges is because women are not as physically strong as men.

In the following Data and Analysis section, I outline the common themes and motifs found in the responses of these six women interviewed. For each broad category, I list a summary of the most common responses. Below these summaries I include direct quotes that pertain to each theme. In some instances, I include large sections of the interviewees responses with relevant passages highlighted in yellow, in order to give context to their responses.

Data and Analysis

I - Risk and Vulnerability During the Storm

What puts women at a greater risk than men during catastrophic events such as Yolanda, in which there is a storm surge and heavy wind?

Summary of Responses: A) Women’s lack of physical strength; B) women’s lack of “mental strength,” i.e., self-confidence and the will to survive; C) women don’t always know how to swim; D) women’s role as caretakers put them at increased risk during and after a storm.

A (expanded summary): Women lack the physical strength to survive in such extreme weather disaster scenarios. While women may not be the “weaker sex” in all regards, when it comes to strength and endurance men have an advantage. This is not necessarily due to biology, but to cultural norms and gender roles that keep them in the house and from engaging in the kind of physical labor that men do.

Direct quotes from interviewees:

“Well, most of them [men] have jobs that require a lot of physical strength, like carpentry. So most of them were easily able to cope up with the strength of the storm surge.... [but women] lack physical strength. They were not able to endure the surge. You need physical strength in order to survive such a strong force. So I guess that’s the reason a lot of women died. But then I also know a story of a woman who survived. But it’s all thanks to the man who was with her at the time. Because she already when the surge struck, and she thought she’s going to die from the strong current. But a man came to rescue her, so she was able to survive that time.” *Interviewer asks follow up question:*
Earlier, you mentioned that most of the women in your community are housewives and washerwomen. Most of them just stay indoors most of the time. Could that be a contributing factor as to why more women died? “Yes. It could be that most of them [women] lack exercise. They’re not used to situations that require physical strength. So I feel that, at the time, they were also shocked that this is what they’re about to face and that they couldn’t muster enough strength to fight the current.” -- CJM

“For me, a woman is only perceived as weak because of stereotyping. Like, this is what a man should do, and this is what a woman should do. Some people end up sticking to that stereotype but if you think about it, a woman can do what a man can do. Especially when it comes to their needs. The only difference is that women aren’t trained to do what do, and that’s when they are perceived as weak. Because they are not given a chance to do a man’s job.” -- CJM

“Actually, since women are of weaker vessels, I believe there’s truth to that statement. Women are of weaker vessels. During that time, anyone would not survive. Men, women would not survive. But there will be a great(er) chance for men to survive because they’re strong. It really needs strength. They could endure more in terms of battling maybe, hard

tusk. But for women, it is really difficult. I survived because I had skills in terms of gymnastics, in terms of swimming, in terms of strength. I have good enough reserved strength inside and I have willpower. Another thing is, once if you're in the water, you will really be overwhelmed by fear. You will really give up. I did. I gave up when I could not breathe anymore. I just prayed for miracles, and it happened. My having survived is due to a miracle. I may have all the skills in the world that I needed but I was really at the brink of death. Sure, physical willpower will save me. It was a miracle for me. But for the others, it really needs a strong mind, willpower to survive. Without it, you will be dead. In the case of Coleen, it was a miracle she survived. She was unconscious already, carried by the water. In the case of the girl, she will not survive because she was in the water. Luckily, she was on top of a cabinet. Some of the women, I heard, died because they really don't have the skills and it's really very hard once you're under. You will panic and no more. You will just give up easily.” -- ZD

“But there is a generalization that men are stronger than women. And in my own opinion they are just equal.. Women.. Women can do what men can.. Women can protect their families, same as men.... Women can also provide for their families.. Same with men.. But maybe since in that storm.. Since it was strong... it is the strongest.. So like.. Before when it didn't happen yet. Maybe before.. The men... Maybe the women it's like that they preferred to stay at home.. Because it is the men ... the men. Then.. uhhh my Waray waray...” -- JS

“Women couldn't help much, in terms of strength. In such situations, we depend on the men for their strength. Like, when it comes to carrying furniture and other things, it's the men who do that. The women would only guide them... The only thing I can say is that women really are weak. Men are stronger.” -- AA

B (expanded summary): Similarly, women often lack the “mental strength,” to survive catastrophic events. Both Maria Dolores and Zenia mention this specifically. Lacking mental strength to these women means lacking self-confidence, willpower, and determination to survive, “praying for a miracle” instead of believing that one can save themselves, or being “passive” instead of active and reactive in emergency situations.

Direct quotes from interviewees:

“Because as far as strength is concerned, and also the emotion is concerned, women are weaker than men. Because women, our strength is limit. And the mindset of other women are weak.” – MDS

“Women are like that. There are frailties, they are fragile. And they follow what the husband wants.” -- MDS

“**Women are indeed weaker than men.** When they (the men) found out that there's a storm surge coming, when the water rose up, they hurried to put themselves away from danger while the women, they went to save their children first.” -- RH

“I have good enough reserved strength inside and I have willpower. Another thing is, once if you're in the water, you will really be overwhelmed by fear. You will really give up. I did. I gave up when I could not breathe anymore. I just prayed for miracles, and it happened. My having survived is due to a miracle. I may have all the skills in the world that I needed but I was really at the brink of death. Sure, physical willpower will save me. It was a miracle for me. But for the others, **it really needs a strong mind, willpower to survive. Without it, you will be dead.** In the case of Coleen, it was a miracle she survived. She was unconscious already, carried by the water. In the case of the girl, she will not survive because she was in the water. Luckily, she was on top of a cabinet. Some of the women, I heard, died because they really don't have the skills and **it's really very hard once you're under. You will panic and no more. You will just give up easily.**” -- ZD

“That's it. Being inactive, being passive. Just waiting for miracles to land. Just waiting for a knight in shining armor to save them. That's what I see. But there are some, for example, I had one student who told me that she was in the same situation as I was. She only had panties with her – well she had T-shirt at least – and her shorts also got, you know, she didn't know how and what happened. Because she was already swimming and when she transferred to another place, she noticed that she was only wearing panties. And she fought. She swam, she waded through the water, just to save herself. But some women, well, in that instance, they were not gobbled up by water. But in coastal areas,

most women were gobbled up. So most women would find it hard to really save their lives if they have those characteristics. Passive, they could also be easily intimidated, especially if they didn't have higher education. At least those with higher education would learn how to, you know. They have that "I need to", "I can" attitude. But these people with low education, sometimes they don't have that will. They give up easily." -- ZD

"Yes, of course, because we're women. Women tend to be slower. We panicked when we didn't know whether or not we should go there. We tend to panic and we don't know what to do in such situations... Men tend to be calmer, unlike women who easily panic. Men are often just relaxed. Just like what happened to one of our neighbors, Mana Charit. She was so worried about her husband, kept saying, "Oh my, where's my husband?" and I kept saying, "Mana Charit, climb up here quick!" So she climbed up to where we were. But in the end, she was the one who died. Her husband, on the other hand, was safe and sound in the mountains, across Rendisa. I mean, why would she keep worrying about her husband? Free yourself from worries. In the end, she's the one who got swept away by the waves when we jumped over there. She got separated from us." – RH

C) Women can't always swim

Direct quotes from interviewees:

"And women don't know how to swim." -- RH

"The men, yes. That's why more men survived here compared to us women. Because the men here work as anglers, fishermen, so they know how to swim. Meanwhile, the women don't know how to swim. Such is the case." – RH

D) Women's role as caretakers to children also puts them at a greater risk than men.

Direct quotes from interviewees:

"They will have a hard time because they have kids. Carry the kids here, carry here. So also them died." – MDS

“Because firstly, women are always concerned about the welfare of her family. Secondly, they let their children out first.” -- RH

“Women are indeed weaker than men. When they (the men) found out that there’s a storm surge coming, when the water rose up, they hurried to put themselves away from danger while the women, they went to save their children first.” -- RH

II - Should I Stay, or Should I Go? Why women decide not to go to evacuation shelters

Why do women decide to stay home despite evacuation warnings?

Summary of responses: a) women’s subordinate role to men leads them to follow what men in their households decide is the best course of action; b) women do not want to be separated from their husbands during a storm; c) Women, like men, decide to stay home despite evacuation warnings because they are concerned about the safety of their property; d) women, like men, do not understand the severity of the problem.

A (expanded summary): Women, generally, tend to follow what the men in their families decide is best to do in flood situations. If their husbands or fathers decide to stay home, or tell women to stay inside the house, women go along with this decision.

Direct quotes from interviewees:

“Women are like that. There are frailties, they are fragile. And they follow what the husband wants.” -- MDS

“Home is considered the safest place.. So when storms come, where do we [women] usually go? We go to our houses.. We are not even allowed to go out because it is safer at home. Those who usually go are the fathers or the male children, the mother and the younger children are just in the house. This is... there is a gender role where the male,... the male is the protector of the family.. So the women are only inside the house.. Will take care of the kids.. Take care of the house. And maybe because there is a generalization that ... sorry i just can’t take to say that women are... men are stronger than... I’m sorry...” -- JS

“So it's like it is the men who will secure the safety of the entire family. Just like in our experience. Me, I was not ordered around to go out, to get things, mom as well, and my sister-in-law Geo..who were ordered, were father and my brothers because they are stronger... generally...” -- JS

“Well, a lot of women lately, here in Tacloban, have been empowering themselves. They already know the importance of having to work, help in the family, find a place for themselves, they already know that. But there still are some who are dependent on their husbands. There still are some who just prefer to stay at home and take care of their kids and just do nothing. In fact, there still are a lot, especially those who married young and did not finish their studies, they just wait for their husbands. I think a lot of these women, actually, have died, especially when a lot of them were in coastal areas. That's the reason, probably. And these women are those who really depend on everything to their husbands. Physically, mentally, emotionally, socially – in every aspect, they're so dependent on their husbands. So these are the women who are not quite weak, but they will wait for somebody to save them.” -- ZD

B (expanded summary): Women also stay because they do not want to be separated from their husbands in disaster situations. So, if their husband wants to stay, they will stay with him either because they are concerned for him and don't want him to be left alone, or they don't want the guilt and shame of knowing that they left him alone.

Direct quotes from interviewees:

“My husband has 3 kids. I don't like that my husband will be left alone, I won't have peace of mind on whatever will happen to him. And besides, if something bad happened to my husband, what will the children say about it? I left him alone? No. So if he doesn't want to go, I won't go as well. Come what may.” -- MDS

“Actually, in my case, from my family's stories, the women are not reluctant. They wanted to. But the men would like to stay. Most of the time, it's the men who would prefer to stay. Just like the case of my brother. He said that the entire neighborhood is gone and went to the evacuation center, but he and family decided to stay. So what can

the wife do? What can the children do? They could not leave the father, as well. So, they all stayed together. Well, fortunately, they were saved because my sister's house is quite big and it stood up Yolanda. They were able to evacuate to that place, to the house next door. Otherwise, they would all be gone now." -- ZD

C) Women, like men, decide to stay home despite evacuation warnings because they are concerned about the safety of their property.

Direct quotes from interviewees:

"Maybe because of our properties. As I have told you, that my husband just retired. Everything was new. Plus, we had a quite a big store. In fact, we had 30 sacks of rice, and on the first wave, we don't know where it went. The sacks were pushed away, we weren't able to eat them. That's how strong the surge was. Even a spoon we don't have." -- MDS

"Another factor is the security of the house. Because we know that there are opportunistic people who would take advantage of the fact that the house has no people in... they would steal, they would destroy the house. Because of course if the family evacuates and there is a storm, the house will be destroyed so people would find it easier to get in the house so that is also one factor .. because it is hard to leave a house... Hard to leave a house that you words hard to build... Others will have to work abroad they will and for several years away from their family... They send money back home just to build the house. For other people you can say that it is just material thing... It is just a house, we can get that... But they do not understand that it is not just ... it's, it's not just a house... It's the... it's the love you put into building to make that home... To building that house and making that into a home... Because you did... You worked hard for that for you family." -- JS

D (expanded summary): Women, just like men, did not understand the severity and magnitude of the coming storm. They received the storm warnings in the same way men did, and interpreted them just as the men did -- as a typical typhoon situation in which evacuation is advised but may not necessary.

Direct quotes from interviewees:

“No. Actually, the lack of knowledge about storm surge isn’t just limited to these women who do not go out or socialize or are passive. Because even us, who are always outside – even me, I go swimming – I don’t have knowledge about storm surges, so all of us, majority of us here, didn’t have knowledge about storm surges. That’s the reason we were not prepared. We did not take heed of the evacuation warnings. Had I known that storm surge is equivalent to tsunami, we would actually have done things differently.”

Interviewer asks follow up question: So, these women who stay at home even before Yolanda or previous storms, were there situations wherein women who spend most of their time at home being busy, have less access to warning from the community?

Not really. It’s because when there’s a storm – since I was young, I live in San Roque which is also by the bayside – every time there’s a typhoon signal no. 3, 2, or even 1, there’s always this public announcement. I mean, government officials like barangay captains are told to announce and tell the people to evacuate in case of tidal waves. We were always warned.

-- ZD

Take me, for example. Someone advised me to evacuate my family to Bliss. But I just brushed them off because we’ve already experienced a lot of typhoons in the past, so how is this going to be any different? The water never rose up beyond the road. Nobody really expected the water to rise. We just stayed at the store I used to own. Because if I listened to that neighbor who advised us to evacuate to Bliss, we really would have evacuated, along with the children.” -- AA

E) It may be that women opt not to go to an evacuation shelter because infants and kids require a lot of gear, and they don’t want to have to pack up and carry all the gear.

Direct quotes from interviewees:

“It could also be that they don’t want to leave their homes, that they don’t want to carry a lot of stuff with them, especially for their children. Clothes, even bed sheets. Some of them probably feel that it’s a burden to be carrying around a lot of things to the evacuation center. They need to bring a lot in order for their children to be more comfortable.” – RH

“Especially those with a lot of children. They didn’t have food after Yolanda struck. During Yolanda, they evacuated. The family that lived behind our house, the one with a lot of children, they evacuated their children to the school. And then, other families didn’t even have food to prepare.” -- RH

III - The Aftermath: Additional Risks and Vulnerability

Are women impacted differently, or are they particularly vulnerable, in the aftermath of a storm?

Summary of Responses: a) abuse and human trafficking; b) inadequate hygiene, privacy, and safety at shelters.

A) Women face additional vulnerabilities and risks after a disaster such as physical abuse and human trafficking.

Direct quotes from interviewees:

“Yes... Fire, earthquake and the vulnerabilities of women and the children... They do not end even after the storm has passed... Because if you have lost a home... Your entire family would have no privacy, security... Of course, the needs of the women also need to be met because if we take into account the pregnant women, the newborn children, or even the toddlers... They are vulnerable to human trafficking, to abuse... Any kind of abuse.” -- JS

“Um, during disasters, women are more vulnerable because especially if like storms... storms... The sense of normalcy is lost everything is destroyed... The house... There is no safety and your security is compromised... And after Yolanda happened. We had tent cities... Every tent city... it was almost too close... Your sleeping space... Other in the evacuation centers sleep side by side ... everything is mixed, man, women, girl ... if you are a teenager lady of course you have needs... You have needs for privacy... Well all of us have need for that but there are for example a teenager girl... She is undergoing a lot of changes in her body... So emotionally, no really... Emotionally and mentally they are not really stable. If you... If you are a teenager ... and you have lost your home... Your

parents died... You lost your siblings... You crave that sense of security that only you family can give... But since that is gone... If there is someone who makes an offer ... that your life will be better... Work for me... It will be good; your life will prosper I will send you to school... Of Course, you, woman, you're left with no choice but, fine... You will agree. Because you are vulnerable... You need means to survive... So, there are a lot. I have read and heard a lot of news where there women, already broken by the storm, they were further victimized by human trafficking, or sexual harassment, and even influenced to do drug abuse or push drugs... it's already money. So, those things... Those kinds of disasters which happen... Women are really very vulnerable. “-- JS

B) Women have different needs for privacy and hygiene than men, which aren't met by evacuation centers in which everyone cohabitantes.

Direct quotes from interviewees:

“...During disasters, women are more vulnerable because especially if like storms... storms... The sense of normalcy is lost everything is destroyed... The house... There is no safety and you security is compromised. And after Yolanda happened. We had tent cities... Every tent city... it was almost too close... Your sleeping space... Other in the evacuation centers sleep side by side... everything is mixed, man, women, girl... if you are a teenager lady of course you have needs.. You have needs for privacy... Well, all of us have need for that but there are for example a teenager girl... She is undergoing a lot of changes in her body... So emotionally, no really... Emotionally and mentally they are not really stable. If you... If you are a teenager... and you have lost your home... Your parents died... You lost your siblings... You crave that sense of security that only you family can give...” -- JS

Because women have a lot of needs. For example, at the time, many of the women are on their period. It was our number 1 problem. We have period and we don't have extra underwear and sanitary pads with us. We didn't know where to go and what to use. So, that was also what we looked for. -- CJM

IV - Suggested Measures

What measures can be taken, going forward, to reduce risk and vulnerability for women in disasters?

Summary of Responses: A) teach survival skills like swimming; B) general women's empowerment and gender equality; C) mandatory evacuation; D) involving women in communicating risks to other women; E) direct messages to women via TV; F) holding seminars and workshops for women, but incentivizing these in some way to encourage women to attend.

A (expanded summary): Teaching women and children survival skills, such as swimming, and engaging them in physical education would save lives. Swimming and physical strength training would not only give women the skills they need to survive storm surge scenarios, but also the confidence they need to power through extremely situations such as Yolanda.

Direct quotes from interviewees:

“Actually, no. There was no preparation and on the part of education system, I think it was a failure on their part. Because the Physical Education program should offer life skills for all students. It should be a process. Actually, that’s what I’m working on, and that’s what I’m studying on. On how our educational system can help provide the necessary life skills through Physical Education, to physical activities, to our constituents. Not just to women, but also as well as the men and children. Because many children also died. Because once you’re weak and helpless, no more. You will really just give up. You’ll just say, “Oh, I can’t do anything anymore.” Once you’re not confident, fear will set in. And it’s very hard to survive in that occasion, with fear in your mind.” -- ZD

“I do believe the children, from elementary, they really need to be taught survival skills. It is very necessary for countries like ours, surrounded by water, wherein storm surge would be imminent. We travel all the time, so just in case of sea mishaps or accidents, crossing islands, at least you will have that skill. Because if you have that skill, you will survive. I taught some students and actually, I had two students who survived. And the parents personally thanked me because they were teachers. One’s a teacher in San Joaquin and the other one’s a teacher in Manlurip. And they told me, “You were the teacher of my child, my daughter, in UP. And thank you because she learned and she survived.” Both of them were under the house when it went ground zero and they were

really down. And their parents thought they will not survive but because of the skills that they learned – swimming – they survived. I was also a coach for EVSU, I had 2 students in Tanauan. One survived and she was able to save some family members because of her skill, but the other one, she was the weakest among the swimming team. She did not survive. I do not know her story, but she did not survive. But one swimming member, a boy, from EVSU also, Tanuan. He lived in Candahug. Actually, he died, not because of the lack of skill but because he was so confident, he saved a lot of people, but it was too late that he could not save himself. Just like what happened with one of my colleagues. My former student, but I stopped in UP, in Biology – Marjorie. Marjorie is physically weak in stature, but her father was a “Bantay Dagat” and he saved many and it was the time to save her. But unfortunately, he got hit by a, I don’t know, but he got hit in the head and the head cracked. And he wasn’t able to save Marjorie. And they all – he, and a nephew or niece of Marjorie – they all got carried away by the waves.” -- ZD

“All I can think about, really, are the life skills that one has to have. Each one of us must be educated regarding what life skills can do to us in times of disasters.” -- ZD

B (expanded summary): empowering women to join the workforce and take on male-dominated professions/roles would also help women to develop the confidence, determination, and resilience they need to survive catastrophic events like Yolanda.

Direct quotes from interviewees:

“Some measures really have to be done, like empowering women. Do not treat them as weak people. Let them show their potential in the fields of business, corporations, employment... In other countries, they’re encouraged to have blue-collar jobs. We can have women who are welders, fishermen, mason; they can be trained that way. That is also a way to build their potential, not just physically but mentally, as well as emotionally. To be stronger.” -- ZD

“For me, a woman is only perceived as weak because of stereotyping. Like, this is what a man should do, and this is what a woman should do. Some people end up sticking to that stereotype but if you think about it, a woman can do what a man can do. Especially when

it comes to their needs. The only difference is that women aren't trained to do what do, and that's when they are perceived as weak. Because they are not given a chance to do a man's job." Interview asks: So, what needs to be done by women in order to have equal chances of survival? "Do more physical work other than being a housewife or a washerwoman." How would you empower women for them to be able to have the skills necessary in order to even their survival with the men? What can you suggest? To do more chores that men usually do, like carpentry. Things like that." -- CJM

C) Mandatory Evacuation of women and children could save lives.

Maybe, prior to the surge or storm or any disaster, there should be a forced evacuation for the women and children. They will really force them. There were a lot of women who died who were just in their houses. Mostly. So that means that they were not forced, the women and children even though there was an announcement for evacuation. There was even a transportation for these people to evacuate. A truck for evacuation. – MDS

D) Involving women in communicating about storm surge risks through storytelling would be beneficial, both for the women telling the stories and for the people hearing the stories.

Direct quotes from interviewees:

"Um, since Yolanda happened. For me, women are effective storytellers because women are, um, how can you say this... Women are maternal... So... the way women tell their story... it's filled with emotions... They say that right? When a man tells a story, it is different from when a woman tells the same story because women are more detailed... they are better able to remember what transpired on which times, what was worn, how it looked like... A woman is more detailed and clear in telling story. And if we encourage more women to tell stories about their experiences they...We are able to have a more concrete image that we can use to base our integration of needs into policy making in conducting seminars." -- JS

"First of all, we need to share our experiences during and after Yolanda so they can get an idea of our needs. Because that time, there weren't any proper measures to teach women when it comes to disaster preparedness." -- CJM

E) When it comes to communicating warnings about storm surges to women, more effective and targeted communication strategies are needed. TV is the best medium for reaching women.

“It’s important because when it comes to such situations, we should already be armed with the knowledge in dealing with problems concerning women... I think TV commercials are far more effective when it comes to things like disaster preparedness. Girls usually prefer to be home buddies and many of them choose not to go out and mingle with other people. So for them to be more involved, I think TV programs are more effective.” -- CJM

F) Holding seminars for women on storm surge survival is a good idea and would be beneficial, but women might not want to go because these seminars aren’t interesting. Seminars need to be more fun and social, or there needs to be some incentive for attending.

Direct quotes from interviewees:

“They should conduct seminars regarding fires, typhoons, earthquakes. What they [i.e., women] need to do in order to protect themselves during calamities. How they can avoid it.” -- RH

“Many of them aren’t really interested in attending these seminars. [Or,] they’re just too lazy to go. *Interviewer asks follow-up question: So what should you do in order to convince them to attend?* “There are times that, if it’s a friend who invites you to attend and you like what they’re saying, there’s a tendency that they’ll tag along and be part of these seminars. So, I guess one must be friendly.” – CJM

G) Get women jobs.

“They often give us livelihood advice and assistance, but they shouldn’t just go for providing us with things like money and groceries. They should help us get a job instead. Because when they say they’ll give us livelihood, it’s only for the short term. The following day, it’s gone. These NGOs should help us get jobs – any kind of job. I’ll do anything. Because if we depend solely on my honorarium, we’d really be at a loss. I only get P4,800. That’s it.” – AA

Discussion and Conclusion

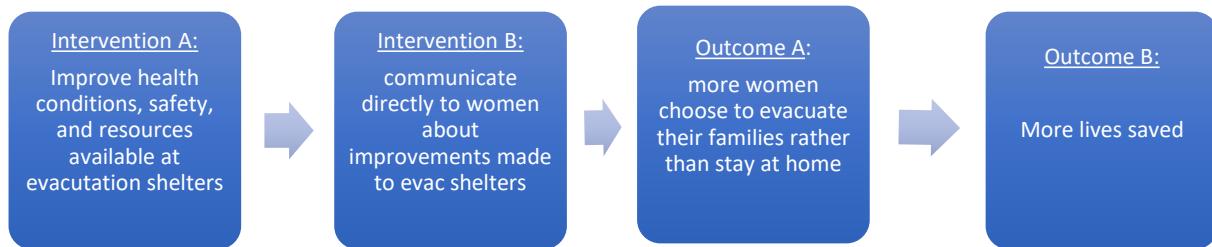
What conclusions can we draw from looking at both the literature and the stories of female survivors' side by side? How might decision makers in the field of DRR use information from these sources to develop more gender-aware communication tools or other DRR practices? Based on information gathered from the literature review and these interviews, what interventions might be proposed that could help save lives?

Common themes included the notion that women aren't as strong swimmers as men and therefore were more likely to drown. Another common theme from both the literature and interviews relates to avoidance of evacuation shelters -- women assume that home is safer than shelters, or they worry that shelters won't have adequate resources for their families such as food and diapers, and therefore opt to stay home out of convenience or fear for their family's wellbeing. This relates to another common theme of both the interviews and literature: evacuation shelters are indeed not safe or clean, and are poorly supplied. So, while those women that choose to evacuate to shelters may survive, they face greater burdens and risks to their health and safety than men once in the evacuation center. These common themes and others, along with suggested measures, are outlined in the table below.

Themes in the <u>literature</u> on women's increased risks and burdens during storms	Themes from <u>interviews</u> around women's increased risks and burdens during storms	Suggested measures or interventions to reduce risks to women, proposed by female survivors of Haiyan
<ul style="list-style-type: none">Not knowing how to swim leads to higher death ratesLack of safety and privacy in evacuation shelters causes women to choose to stay homeResponsibilities such as childcare or concern for	<ul style="list-style-type: none">Not knowing how to swim leads to higher death ratesLack of safety and privacy in evacuation shelters causes women to choose to stay homeResponsibilities such as childcare or concern for	<ul style="list-style-type: none">Teach survival skills like swimmingGreater focus on women's empowerment and gender equalityMandatory evacuation

<p>elderly relatives, leads women to choose to stay home rather than evacuate</p> <ul style="list-style-type: none"> Women's restricted movement due to cultural norms – as in the case of the cultural norm of <i>Purdah</i> in Bangladesh – cause them to stay at home when they should evacuate 	<p>family either slows women down or leads women to choose to stay rather than evacuate</p> <ul style="list-style-type: none"> Lack of physical strength Lack of "mental strength" i.e., not having the confidence and willpower to survive the catastrophe Women tend to follow what men decide to do rather than making best, independent choice 	<ul style="list-style-type: none"> Involve women in communicating risks to other women Direct messages to women via TV Holding seminars and workshops for women, but incentivizing these in some way to encourage women to attend. NGOs should focus on providing economic and employment opportunities for women, especially in the aftermath of disasters, in order to decrease the burden on women.
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When we look at these themes from a solution-oriented perspective, certain interventions spring to mind that might help to reduce risks to women and save lives. In some cases, solutions seem clear-cut and apparent. For example, improving safety conditions of evacuation shelters and communicating directly to women about these improvements would lead more women to opt to evacuate and ultimately save a lot more lives.



Another solution/intervention that might save lives is to make learning to swim compulsory for school children in coastal areas that are prone to storm surges.

In other cases, however, the impediments to women's safety and wellbeing described in interviews and the literature don't have clear-cut solutions or interventions, because these problems may be tied to deeply-entrenched cultural norms, or they are more systemic societal problems with solutions that can't be easily and quickly implemented. For example, a commonly cited problem among interviewees was that women lack the confidence and willpower needed to survive disasters, or that they don't believe they can survive such catastrophic events without someone else's help. Several of the women who noted this as a problem suggested "empowering" women as a solution, or engaging them in the workforce in some way. While these are good ideas, they leave the question of how. What kinds of interventions might be employed that lead women to make empowered decisions during storms and other disaster scenarios and improve their resiliency in the aftermath of the storm? Suggestions such as these harken back to the literature on the goals of the gender-responsive climate action movement, which proposes approaching the problems of climate change adaptation and DRR from a social justice perspective that integrates economic and political empowerment of women and other marginalized groups with climate action, leveraging one to achieve the other.

Other measures suggested by women interviewed included greater inclusion of women in DRR communication and education workshops, and involving women in communicating risks directly to other women. These suggestions are particularly compelling as they relate directly to the storm surge risk communication project, and could potentially be incorporated into some of the project's deliverables, such as the Users Guide to Communicating the Risks of Storm Surge, and the toolkit for storm surge risk communication.

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Appendix

Digital Stories of Women on the Frontlines of Climate Change

Box 1: Stories from the Frontlines of Machakos, Kenya

Learn how women in **Machakos, Kenya** are being impacted by drought, and how walking for long distances poses threats to their health and safety.

Women's Enterprises International is working with women in Machakos to “learn to earn and save money to solve the water problem together.”

Watch here: <https://vimeo.com/110295122>

Box 2: Stories from the Frontlines of Kabngetuny, Kenya

Learn how women like [Zddy Rotich](#) are adopting **Climate Smart Agriculture** practices

the **Fairtrade Kabngetuny Farmers Cooperative Society** - “Women in Coffee” program embraces gender mainstreaming in its operations

Watch here: <https://vimeo.com/channels/994465/145641417>

Box 3: Stories from the Frontlines of Malaysia's Tropical Forest

Learn more about how women in **Kayan and Penan tribes** in the **Borneo Tropical Forest of Malaysia** are learning to cope with and adapt to extreme flooding in the short film, "**“Women of the Forest: The Hidden Burden of Climate Change.”**"

- Watch here : <https://vimeo.com/163574307#t=393s>

Box 4: Stories from the Frontlines of Bangladesh

Learn how women like Mamta Begum in the Bay of Bengal are coping with rising waters and frequent typhoons

- Watch here: <https://vimeo.com/123518175>