

## **The gendered nature of climate change impacts in the Republic of the Marshall Islands**

### **Authors and affiliations**

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### **Abstract**

Empirical evidence on the gendered impacts of climate change is limited, particularly in the islands of the Pacific. This paper presents findings from fieldwork in the Republic of Marshall Islands that engaged with 1362 participants from 15 atolls. The data provides four clear findings. First, that men and women's livelihoods are heavily impacted by climate change, with reduced incomes shifting household dynamics and opportunities. Second, that climate change is increasing the burden that women carry related to their domestic and caring responsibilities. Third, that climate change impacts are increasing the risk of gender-based violence as household insecurity amplifies. Fourth, that despite the gendered nature of vulnerability, women in the Republic of Marshall Islands have relatively high adaptive capacity. Women are typically highly active in community projects and have powerful insight into how to reduce climate change vulnerability in their communities. The findings from this research highlight the need for gender sensitive adaptation policy, that support both men and women's livelihoods, provide wrap-around social support services and increase women's influence in community decision making.

*Keywords:* adaptation, impact, gender, violence, Pacific, household, collective action, livelihoods, health, food security

## Introduction

For more than 20 years it has been clear that understanding and addressing the gendered dimensions of climate change is critical (Dankelman, 2002; Denton, 2002; Nelson et al., 2002). Yet there has been slow progress in research and policy on climate change and gender relative to the increase in climate impacts, and gender is too often tangential to research on vulnerability and adaptation (Garcia et al., 2020).

Nevertheless, there are robust findings from empirical studies on climate change and gender (Dev & Manalo, 2023). These show that women, particularly from the Global South, are disproportionately vulnerable to climate change impacts. In much of the Global South, dependence on natural resources is high and women's responsibilities typically include farming, water collection, household food security, and caring for children and elders (Kakota et al., 2011 Dah-Gbeto & Villamor, 2016). Where climate change impacts on household crops and water security, research finds that women's stress, labour and financial precarity increases disproportionately compared to men (Alhassan et al., 2018; Arora-Jonsson, 2011). In many studies, women have been found to have less access to resources (including information and financial capital), which constrains their capacity to adapt (Eastin, 2018; Omolo & Mafongoya, 2019; Perez et al, 2015). Furthermore, social and cultural norms in patriarchal societies restrict women's participation in household and community decision-making, limiting their ability to influence adaptation (Bee, 2013; Lau et al. 2021; Phan et al., 2019).

As identified by Dev and Manalo in their systematic review (2023), there are three sets of gaps in the literature that need attention. The first relate to structure and agency. Few empirical studies examine the structural drivers of gender inequality specific to local context (Dev & Manalo, 2023;

Howard, 2023). These structural drivers, and the institutional norms that follow, are likely to be reinforced by climate change, further exacerbating the gendered nature of vulnerability. Likewise, few studies recognise the gendered nature of agency – not just focusing on vulnerability and victimhood but focusing on the opportunities and strengths that men and women may bring to climate adaptation despite systemic barriers (Arora-Jonsson, 2011).

The second set of gaps in the literature relate to heterogeneity and intersectionality. Gender refers to the ‘accepted patterns of behaviour that are expected and valued in women and men in a given context, time and place’ (Alston et al., 2023, p3). For the most part, the literature shows little recognition of men’s perspectives, vulnerabilities and capacities, how men and women’s strengths and opportunities may be distinct or complementary, nor how they can be supported to enable meaningful change (Dev & Manalo, 2023). Moreover, there is no uniform experience of ‘woman’ or ‘man’. Age, wealth, ethnicity, education, religion, livelihood, caring responsibilities, health, disability, and sexuality intersect in multiple ways such that vulnerability to climate change is deeply layered and complex. Failing to recognize this heterogeneity flattens our understanding of gender dynamics and can lead to ineffective strategies to support those most vulnerable (Kaijser & Kronsell, 2014).

Third, there is a strong geographic bias in the current literature. Most empirical studies focus on Africa and Asia, but there are very few studies on gender and climate vulnerability in the islands of the Pacific (Dev & Manalo, 2023). It is important to address this geographic bias, not least because successful adaptation in the Pacific islands is critical given their high vulnerability to climate change. Howard (2023) conducted a review on gender and climate security with a focus on the Pacific, finding close parallels with global research trends in that there is a lack of understanding of agency and intersectionality. Howard (2023) also found a geographic bias within the Pacific literature, with most studies focused on Vanuatu and Fiji, and Micronesian studies particularly scant (Cauchi et al 2021; Chand and Taupo, 2020).

The little research on gender and climate change in the Pacific islands shows that in addition to bearing the burden of the work for social reproduction, women also play critical roles in securing livelihoods for their households and communities, and that this is often overlooked and devalued (Howard, 2023). A Pacific-wide study on fish yield found that women's fishing tends to be used to feed the family, whereas men's fishing activities are more likely to be sold commercially (Kronen & Vunisea, 2009). A study on Fijian mud crab fishers (Thomas et al., 2019) found that even when women's fishing contributions to the household diet were larger than men's share, their contributions tended to be undervalued. Moreover, the research shows that women's livelihoods tend to receive less financial investment and women have fewer options for diversifying their incomes, with less access to financial credit (they are less likely to have bank accounts, tax details, credit history or assets to meet regulatory requirements) and fewer opportunities to migrate for educational and employment opportunities due to caring responsibilities (Thomas et al., 2019). Women may also face barriers to economic activity due to social customs, which, for example, restrict them from using boats, fishing at night, and from using some tools (Kronen and Vunisea 2009).

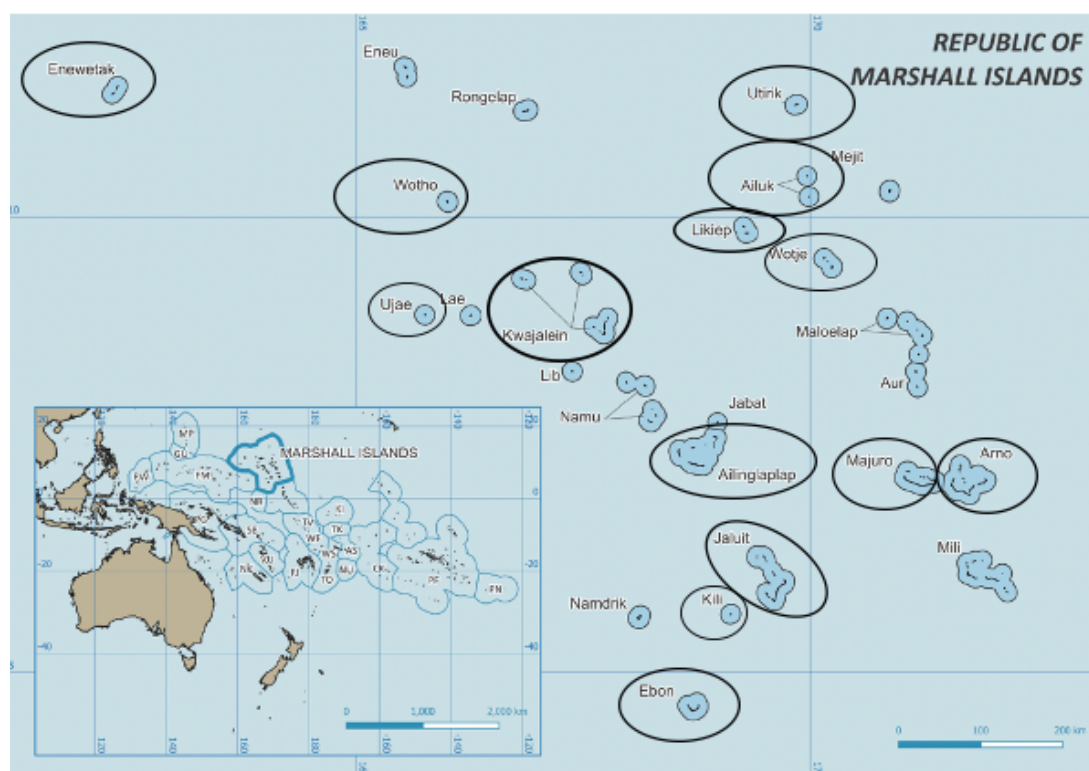
To help advance understanding of the gendered nature of climate change in the Pacific Islands this paper contributes knowledge from an extensive empirical study the Republic of the Marshall Islands (RMI). It seeks to extend our understanding of how men and women are impacted by climate change, how these impacts intersect with other social pressures, and the gendered nature of adaptation ideas and opportunities. This paper hopes to provide the evidence needed to support gender-sensitive adaptation in the RMI.

## Methods

### *Background of study sites*

The Republic of the Marshall Islands is highly vulnerable to climate change impacts. Sea level rise is the most discussed climate risk for the country given its population of 42,418 people live on 26 low-lying coral atolls and reef islands spread across more than 2 million km<sup>2</sup> of the Pacific Ocean.

Climate risk exposure across the island is not uniform: islands to the north receive less rain and are known to experience problems with drought. In addition to sea level rise and drought, the frequency and severity of cyclones, typhoons and flooding are also likely to increase with climate change. Most of the population reside on the urban islands of Kwajalein and Majuro atolls. Many Marshallese depend on climate-sensitive natural resources for their livelihoods.



*Figure 1: Map of the Republic of the Marshall Islands, highlighting atolls where field work was conducted*

The Republic of the Marshall Islands has a long history of colonisation and marginalisation, which shapes its vulnerability. It was subject to colonisation by Spain, Germany, later Japan, and then a trusteeship with the United States (Hezel, 2003). The United States Government conducted 67 nuclear weapons tests between 1946 and 1958, rendering some islands uninhabitable, prompting internal displacement and relocations, and causing ongoing problems for people's health and environment. The RMI remains under a Compact of Free Association with the United States.

Missionary activities, colonisation, and the impacts of nuclear testing have weakened traditional customs in the RMI and shifted gender norms and expectations. Traditionally land tenure in the RMI is matrilineal with the female chief, *Ierooj*, having significant decision-making power. Before colonialism, women participated in fishing, canoe building and navigation (NAP 2023). Women's participation in these activities dropped substantially with colonialism and missionary activities, such that today women have limited input in decision-making despite technically holding chiefly titles and clan affiliation (NAP 2023; Stege 2008).

RMI has high rates of gender-based violence, with a national survey finding that 38% of women aged 15-49 have experienced physical and/or sexual intimate partner violence in their lifetime (RMI 2014). There is legislation and programs in place to address gender-based violence, including the Domestic Prevention and Management Act (introduced in 2011 and amended in 2018), Child Rights Protection Act (2015), Domestic Violence Prevention and Protection Task Force (2012), *Wa Kuk Wa Jimor* (a Mobile Team Awareness Raising project for outer islands on issues including gender-based violence), and the *Weto in Mour* (WiM) program which provides emergency accommodation to survivors of family violence (UN Women, 2023).

### *Data collection*

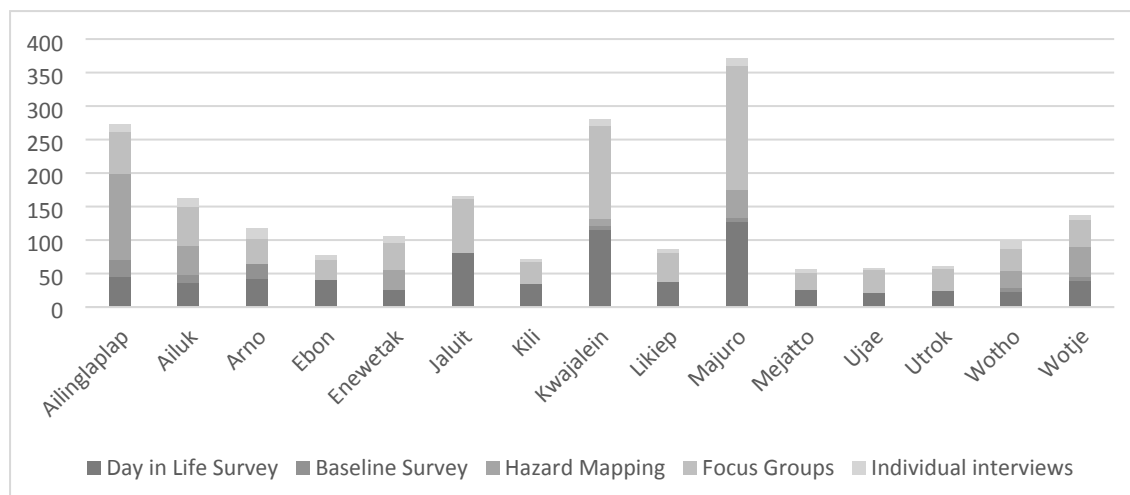
The International Organisation for Migration (IOM) in Majuro managed and coordinated fieldwork through two linked projects<sup>1</sup>. Both projects investigated Marshallese peoples' experiences of climate change, used similar methodologies, and were conducted in collaboration with Jo-Jikum (a youth-based NGO), the Marshall Islands Conservation Society (MICS), and WUTMI (Women United Together Marshall Islands).

Sampling was designed to maximise the number of atolls and islands within the scope of project budgets, and to ensure the sample was as representative as possible of the total population. Data was collected from fifteen atolls and islands (see Figure 1 for a map showing the geographic distribution of data collection across the RMI). Data includes atolls from the north known to be prone to drought, the two urban atolls of Kwajalein (Ebeye) and Majuro, and four populations affected by nuclear testing and relocation (Enewetak, Utrik, Kili island and Mejatto island). Figure 2 shows the number of participants from each atoll, showing a higher number of participants in the more heavily populated areas of Kwajalein and Majuro.

*Figure 2: Participants from each atoll, broken down by method (n=1362)*

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<sup>1</sup> The first of these projects was the *Climate Security in the Pacific* project, which was funded by the United Nations Peacebuilding Fund, and managed by the IOM office in Majuro in partnership with the United Nations Development Fund (UNDP) office based in Suva, Fiji. This project engaged with communities in five atolls (Ebon, Jaluit, Likiep, Ujae and Utrik) and two islands (Kili, and Mejatto island in Kwajalein Atoll). The second project was the *Community Engagement for the RMI National Adaptation Plan* project funded by the World Bank Pacific Resilience Program Phase II, and supported by the Consultation Technical Team of the Climate Change Directorate of the RMI Government. This project engaged with communities in eight atolls (Ailinglaplap, Ailuk, Arno, Enewetak, Kwajalein, Majuro, Wotje and Wotho).



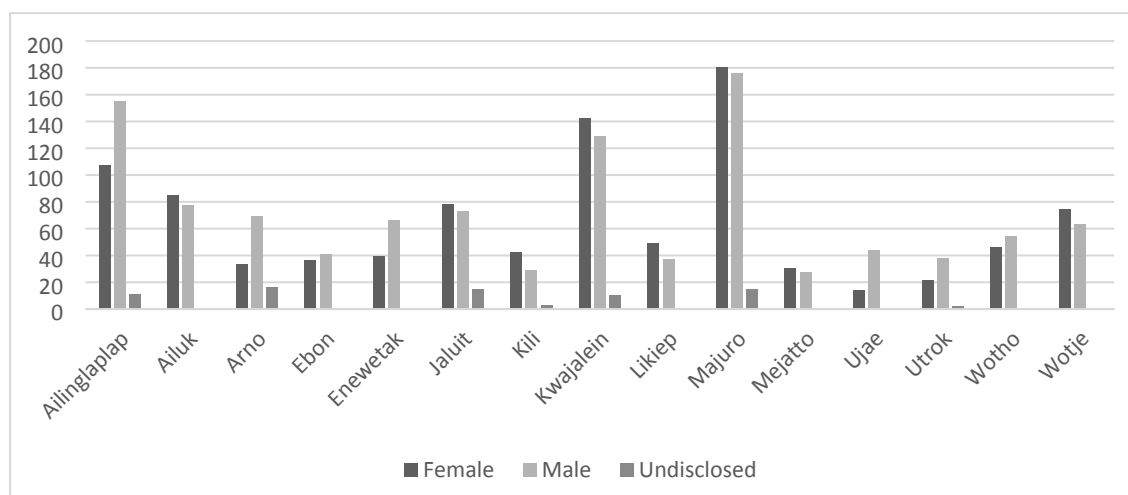
Fieldwork was conducted over a period of 18 months between October 2021 and April 2023.

Methods included a survey, a hazard mapping exercise, focus groups, individual interviews, and observations. Across sites 31% of individuals participated in more than one method, meaning a total of 1362 people contributed information. Based on the population of islands as stated in the 2021 census, this represents 3.2% of the entire population of the country, an average of 18% of the populations of the thirteen rural atolls, 2% of the population of Kwajalein, and 1% of the population of Majuro.

Of the total 1362 participants who contributed to this research, 46% were women. When looking at gender by atoll (Figure 3) representation from women is slightly uneven: some sites had more women participating (particular Ailinglaplap, Arno and Enewetak) and others had more men participating (Kwajalein and Majuro for example). This is a function of availability and the timing of fieldwork. In some cases, the fieldwork coincided with community events which meant that many women were cooking and had other preparations to attend to.

*Figure 3: Participants from each atoll, broken down by gender (n=1362)*





The survey asked participants to identify what changes they may have observed in their climate, how these impacted their day to day lives, how they felt this might change in the future, and what actions they felt would be helpful in managing climate change. The data from this survey helped to understand what people value, the gendered distribution of labour among households, and how people respond to information about climate change risks. Hazard Vulnerability and Capacity Mapping exercises were used to assess disaster impacts and vulnerabilities and involved site visits and transect walks to elicit information about climate change risks and impact hotspots. Focus group interviews were conducted with small groups who were selected according to common demographic or livelihood characteristics. These were used to elicit information about people's values and aspirations, their observations of climate change, the impacts of climate change, the broader environmental and development challenges they face, their adaptation responses to date, and their ideas about future adaptation responses.

A particular type of focus group interview was conducted with youth by the members of the research team from Jo-Jikum. In this method young participants from the community were asked to think about the future they would like to see for their island or what changes they have observed, and to convey this in art or song. Through these creative workshops, 277 young people participated in this research.

A smaller number of people were engaged through individual interviews. These sought similar information to the focus group discussions but were with individuals for whom participation in focus groups was inappropriate for personal reasons, reasons of availability, or because they were particularly knowledgeable and so sought out for further information by the research team.

Data collected from all methods was analysed using two approaches. Survey data was entered into Excel and analysed using a combination of inductive and deductive codes and descriptive statistics. Data collected from Focus Group Discussions and interviews was coded in NVivo (qualitative analysis software) using a combination of inductive and deductive codes.

Data was collected and managed by the International Organisation for Migration (IOM) in accordance with the *IOM Standards of Conduct (IN/15 Rev. 1)* which align with international standards for ethical research. Research design was reviewed by the RMI Government's *Tile Til Eo Committee* as part of quality assurance for developing its National Adaptation Plan. All participants were given free and prior informed consent. Some of this was verbally recorded given not all participants were able to read or write, particularly in the outer atolls of the Marshall Islands. Melbourne and Monash universities undertook the data analysis. Data anonymization, analysis and storage was conducted in accordance with the ethical obligations and standards outlined in the *Australian National Statement on Ethical Conduct in Human Research*. Given the small number of people living in most of these communities, particular care has been taken to remove identifying material from the dataset.

## Results

The results presented in this section step through the gendered dimensions of climate change vulnerability in the Marshall Islands. First, the results outline the gendered nature of observations of

climate change. Second, the results examine how climate impacts are gendered, focusing on food security, livelihoods, health, mental health, gender-based violence, and the social activities of Marshallese men and women. Finally, the results demonstrate the gendered nature of adaptive capacity, with a focus on gendered ideas about adaptation, social capital and collective efficacy.

#### *Observations of climate change and its impacts*

Men and women shared similar observations of climate change (see Figure 4). Women were more likely to report observations of sea-level rise than men. This may be related to high tides which affect routes to school in some communities, especially in Kili. Given women tend to be responsible for accompanying children to and from school, they tended to be more aware of this issue. Women were also more likely to report hotter air temperatures than men, describing conditions as “more intense”, “overwhelming”, “unbearable” and “scorching”. Women’s experience of heat reflects their time spent in and around the household, caring for children. Many houses are poorly ventilated and can be particularly stifling in the heat.

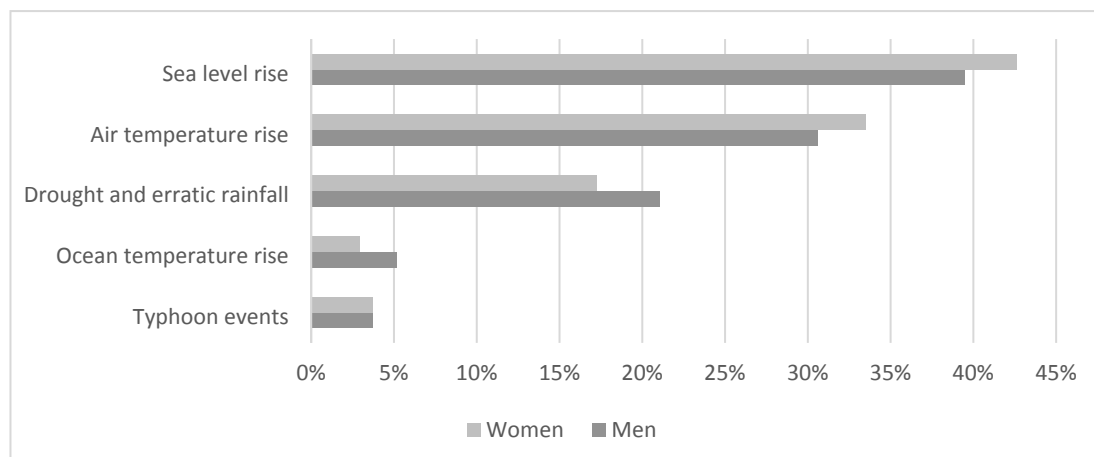
*The heat is different. We open up all our doors and windows and still feel so hot.*

*(SSI77 Majuro women)*

*Before we were more lively we would wake up early in the morning and get the day started but now we don’t. People are feeling weak, sick, dizzy and these are from the effects of climate change. (FGD39, Wotje women)*

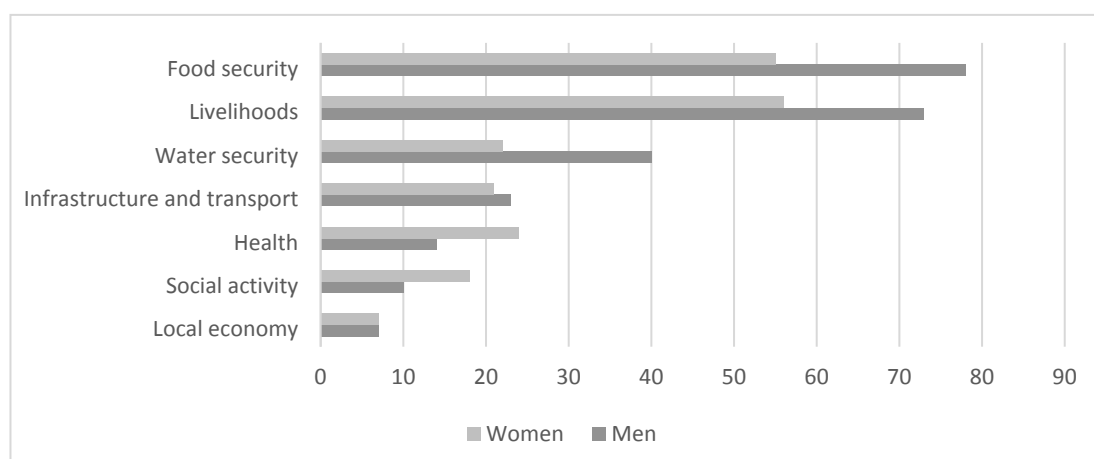
Men were more likely than women to report an increase in drought, and this is likely because men tend to be responsible for harvesting tree crops, gardening, and maintaining livestock, where the effects of drought are most felt. Likewise, men were more observant of changes to ocean temperatures because they spend much more time fishing.

*Figure 4. Most frequent observations of climate change by gender (Day in the Life Survey, n=834)*



Women and men reported differentiated impacts from climate change (see Figure 5). Male participants reported more impacts on food and water security, livelihoods, and infrastructure. Women reported more impacts related to health (closely related to heat stress and water insecurity) as well as changes to their household responsibilities and social activities. Again, this reflects the traditional divisions of labour between men and women, with women generally responsible for household functioning and men responsible for financial security.

Figure 5. Social impacts of climate change by gender (Day in the Life Survey, n=480)



### *Food security and livelihoods*

Looking more closely at food security, male and female participants observed that heat, salinity, and changed rainfall patterns were reducing the yield of food crops (in particular bananas, breadfruit, coconuts, limes, pandanus, swamp taro, tomatoes and watermelon).

*The changes I've seen from the effects of climate change are very disturbing. The pandanus won't even be ripe yet and half of the fruit will fall out. It wouldn't be harvest season yet the colour of the fruit changes. (Arno participant, male)*

Women explained that it was increasingly difficult to provide food for their families as drought was damaging crops. Women shared strategies to manage food insecurity, making the most out of limited resources.

*[When drought affects food crops] I find a way and select crops that are ripe enough for us to eat. If I went out and harvested 10 that would suffice. It has become the standard of living nowadays. (SSI11 Ailuk woman)*

*[To manage drought] We prepare meals that can be stored for a long time, such as breadfruit and pandanus... and we go to the islets and gather foods. (SSI14, Ailuk woman)*

Men shared experiences of changed fishing patterns and the strategies they used to adjust. One male participant from Aerok, explained that men have started to fish in large groups to catch fish for the entire community. Fishing in groups makes it safer for fishermen given they now must travel further to catch fish that have moved to deeper waters, and it spreads the risk of a low catch such that every family can share the benefits. This practice aligns well with Marshallese custom in which fish is traditionally shared or exchanged rather than kept for oneself (Ahlgren, 2016).

The reduced supply of local foods mean that communities are now more reliant on imports to meet their food needs, but at the same time they are earning less income from the sale of copra, fish and handicrafts as climate change reduces the abundance of these. As a result, many households are struggling to buy what they need, which is significantly exacerbated by supply-side constraints associated with limited shipping and markets (for example a 20lb/9kilo bag of flour is \$40 in some islands).

Whilst more men than women reported impacts on livelihoods (Figure 5), the consequences of these impacts were arguably felt more acutely by women. This issue was discussed at length by women in the interviews and focus groups. Women across the RMI earn income from the production and sale of handicrafts (*amimono*). Women reported that droughts and sea-level rise were affecting some of the species that are used to make handicrafts, such as copra and pandanus, and shells harvested from the shore. Women reported needing to travel further to collect these materials.

*We cannot rely on the resources near home anymore we have to travel to islets to look for more and better resources to make handicrafts... because it's too hot, the heat is the cause of it. (FGD39, Wotje women)*

Many women said the weather was now too hot during the day for copra harvesting or shell collection and must now be done in the evening (from 4pm onwards), which is also when they are expected to care for children and prepare the evening meal. The combined effect of these changes is that fewer handicrafts are produced, some are no longer made, women's incomes have fallen, and for women "life is getting harder", with many describing exhaustion from daily chores and family commitments.

*We can't rest if we stop, we don't have money. We need to make copra every day, we make local handicrafts, as well as taking care of our family' (FGD39, Wotje women)*

To compound this pressure, the ability for women to diversify their livelihoods is limited. Many women will diversify household income through making handicrafts but alternatives are not well established particularly for those women with lower levels of education.

*‘When a woman looks for a job, women are overlooked, just because employers only want men’ (FGD15, Kwajalein workforce)*

### *Water security and physical health*

Health impacts from climate change were reported on most islands, particularly by women who bear the burden of caring for those who are unwell. These impacts are driven primarily by high air temperatures and water scarcity, and are exacerbated by extremely limited health services, especially in rural atolls and islands. Dust in the air caused by low rainfall has increased cases of eye infections. Dust also ends up in the water tanks and contaminates drinking water that is already scarce. A lack of good drinking water has increased cases of diarrhea, particularly among children.

*As mothers, our children get sick as a result climate change, as well as the polluted [dust from drought] air we breathe. (FGD21, Majuro woman)*

*Water here is life. If we run out of water we can’t do laundry and can’t do the dishes as well. Or even drink. And we have kids, kids need to take baths and eat and drink. (SSI182, Wotje woman)*

*When there are droughts, we can’t wash our hands and dishes. We could get diarrhea just by that issue. (FGD9, Majuro woman)*

Women in Enewetak expressed grave concerns about the health implications of consuming marine species contaminated by nuclear waste. They were fearful that sea-level rise was increasing the risk of leaks and breaches of the Runit dome (a 115-metre-wide concrete cap placed on 85,000 cubic meters of radioactive debris following nuclear testing by the United States). They were understandably concerned given the absence of any monitoring for contamination.

Participants did not discuss climate impacts on menstrual and reproductive health as the Marshall Islands has strong *mo* (taboo) around peri-natal and menstrual blood. Traditionally, menstruating women could be sent away to isolated houses, or required pin their hair as a marker to others in the community (Ahlgren, 2016). A recent internal research report by the International Organisation for Migration in the Marshall Islands (the Cookhouse Report; IOM, 2021) found that women and girls are not receiving the support they need for menstrual and reproductive health. According to the report, women and girls avoid work, school and other commitments during menstruation due to stigma, inadequate sanitation facilities, menstrual products, and poor transport services. This is worse for women and girls with mobility impairments, and in outer islands where there is less access to menstrual products.

Climate is likely to exacerbate these pressures on women's reproductive and menstrual health. A study by Webb in Vanuatu, for example, found that women who were menstruating were at first denied entry to evacuation centres during Cyclone Pam (2020). With increasing frequency and severity of extreme weather events, provisions should be made to ensure women and girls who are menstruating, pregnant or post-partum have access to the support they need.

#### *Mental health and gender-based violence*

Climate change is having significant impact on mental health. Women in particular reported increased stress. In the RMI women's roles and identities are heavily shaped by their ability to meet their families' needs. Climate change is placing considerable strain on women's ability to provide and prepare meals, to manage health risks for their family, and to contribute financially.

*There is a lot of trauma and stress caused by not being able to provide for their families. These stressors result in social issues such as domestic violence and substance abuse. (Majuro stakeholder interview)*



There is a prevailing social norm in the RMI that men have the right to discipline women who are not fulfilling their responsibilities. Women are increasingly worried about the consequences if they are unable to meet social expectations (Yamaguchi on RNZ, 2013a and 2013b). A few research participants linked increased instances of gender-based violence to climate change pressures. Participants were not comfortable to discuss the topic in depth, typically limiting discussion to the need for more support for those experiencing violence and the need for community awareness programs. Certainly, the lack of adequate support for women from the justice system, and inadequate infrastructure and services mean that women and girls experiencing gender-based violence are relatively isolated (noting that refuges are in the process of being implemented in some areas). Women also pointed out that there are not enough spaces for women to get together and collaborate, and that social isolation is increasing due to heat (see below). This isolation in turn increases mental health pressures and opportunities for gender-based violence.

A few comments by participants suggest that women are increasingly frustrated by the gender imbalance in the division of labour. Men's livelihood activities are becoming less profitable (farming, copra and fishing), and women are providing additional income (through handicrafts and copra) whilst continuing their social reproduction tasks. This appears to be destabilizing traditional gender roles within the household and prompting resentment.

*Copra is the main local source of making money but today the Wotje amimono*

*(handicrafts) has taken over the lead and men are starting to get lazy. (NO3,*

*Wotje woman)*

*Imported goods weren't coming in for a long period of time, not only because of*

*drought, but laziness with men has become a thing, which led to women taking*

*the lead in most work that needs to be done around the community. (FGD33,*

*Wotje woman)*

Male participants were less likely to articulate personal stress in interviews and focus groups, however survey findings demonstrate a high level of concern about their livelihoods and financial security.

### *Social life and activities*

Impacts on social life was a concern raised by women much more than men (see Figure 6). Women tend to be more responsible for social reproduction and social isolation has significant consequences for the mental and physical health of women. The main cause of decreasing social interactions was said to be heat, which is forcing people to spend more time inside, and so spend less time not socialising and exercising. This impact of heat was reported across many islands. These comments highlight how the daily patterns of life are beginning to shift due to climate change.

*It gets too hot here in the island. [Before] We would walk around the community and chat with friends. But nowadays everyone would stay indoors because of the humidity. (DIL30, female, Wotje)*

This problem of isolation is compounded by increasing tensions within some communities over scarce resources. For example, some people in Wotje commented on growing competition for seed stock and water resources. In Jaluit, community members reported experiencing conflicts and tension between other families and communities as resources become scarce. In Ailuk there was a report that negative impacts on income and livelihoods were leading to land disputes. These tensions are expected to increase in the future with further climate impacts and erosion of land. As one participant said:

*I can see the change through the social climate amongst the community. It used to be so peaceful and the atmosphere amongst the people was calm. Now there's more hatred and social isolation in the community. They don't take care of their*

*siblings and they're arguing over land now. You can tell everything is starting to change. (Enewetak female)*

### *Adaptive capacity*

The findings presented so far demonstrate how women are disproportionately vulnerable to climate change in the RMI. Male participants are experiencing significant upheavals to their livelihoods and their capacity to provide a stable income for their families, but women carry a substantial burden of responsibilities which are all made more difficult by the impacts of climate change. It is women who report a strain on their health and well-being and feeling limited in their options to shift this dynamic given prevailing gender norms and the lack of adequate social services.

Nonetheless, the data also demonstrates the resilience and adaptive capacity of both men and women. Many people pointed to the ways in which communities act collectively to solve shared challenges, and that “work together” and social cohesion are key assets for and enablers of adaptation. For example, community-organized clean-up days are common, including in urban Majuro. In Arno, people said that community members provide shelter to those whose homes have been damaged and work together to help people rebuild after disasters. In Kwajalein, when public water supplies are inadequate people often buy water for those who cannot afford to. The people of Ailuk reported sharing their water supplies with neighbours.

When asked about the future, many participants felt overwhelmed and stressed by climate change risks, but many were resolved to adapt and took hope from their community's ability to work together.

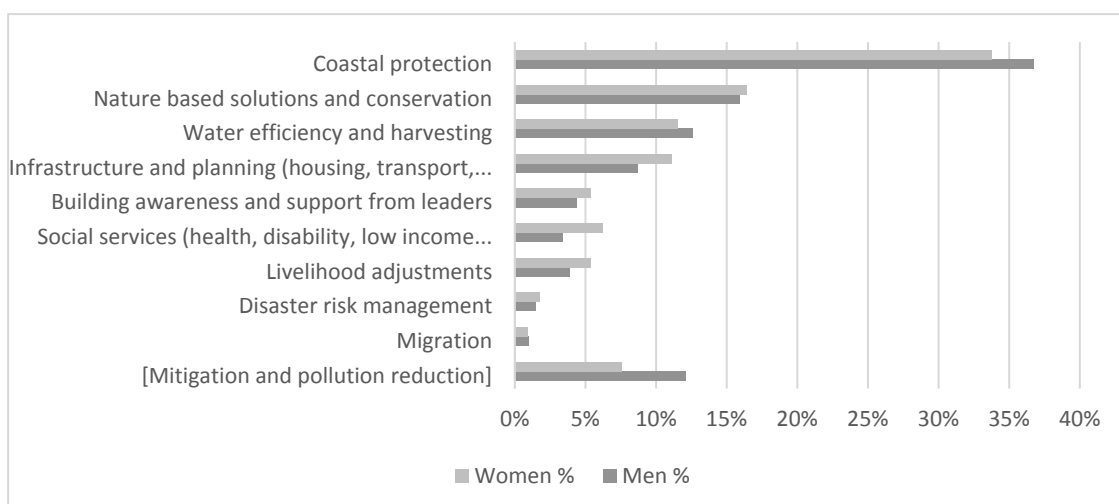
*My aspiration is to see a future where everyone can work together to come up with solutions for our country to address issues like climate change impacts (sea*

*level rise, king tides, etc), corruption, land issues, have better medical care, better educational opportunities, and more. (Majuro participant)*

*There is no more time to be ignorant because, even in a small island like ours, we cannot ignore the immense changes, most of which are not encouraging. To build resilience, we need to harmonize not just with nature but with each other. (Ebon male)*

Men and women demonstrated a strong awareness of climate change issues and articulated good ideas on how to adapt. When asked about what needed to be done to help their community adapt to climate change, female participants tended to give responses that showed their understanding of climate change as a social justice issue, whereas men tended to favour engineering responses such as coastal protection measures and water storage solutions (see Figure 6).

Figure 6. Ideas about adaptation by gender (Day in the Life survey, n=432)



Some male participants had taken action to build or repair seawalls to protect their homes themselves, and many called on government to take greater action.

*The seawall in my front yard has been deteriorating so since then I have been repairing it with rocks that i find near my house to help prevent the water from hitting/ruining my house and materials. There were people that helped me: my community, my family as well as my friends (BSP2, male, Majuro)*

*[It's] sea level rise I fear most, it'll eat away our coast and we are already facing road issues with the sea water coming onto land. We request seawall to our local leaders ..water is also coming from underground. We request that someone with special skills/engineer come and inspect our damaged roads (BSP27. Male, Ailinglaplap)*

Reflecting their primary responsibility for social reproduction and care, women made many strong suggestions about ways to improve social services to reduce vulnerability. Key among these were requests to improve access to nurses and doctors and medicines, which was mentioned in almost all rural communities and some urban ones. Linked to observations of increasing distress due to climate change was mention of the need to improve mental health services, because “currently there is no outlet for people when they feel depressed or anxious” (Majuro male).

Women also requested more action on domestic abuse, including legal protections, outreach and education, and safe houses. Finally, there were many mentions of the need to improve education services and school facilities (particularly sanitation). Training and education on climate change was suggested, particularly on adaptation responses. Female participants suggested ideas to improve disaster management, and this mostly took the form of improving or developing evacuation shelters. Women suggested that these be stocked with food, water, sanitary products and flashlights, and with multiple rooms that could also serve as women’s centres and safe houses for gender-based violence. Other suggestions included better warning systems, developing and communicating evacuation plans, and improving stockpiles of emergency supplies. A disaster response fund to help

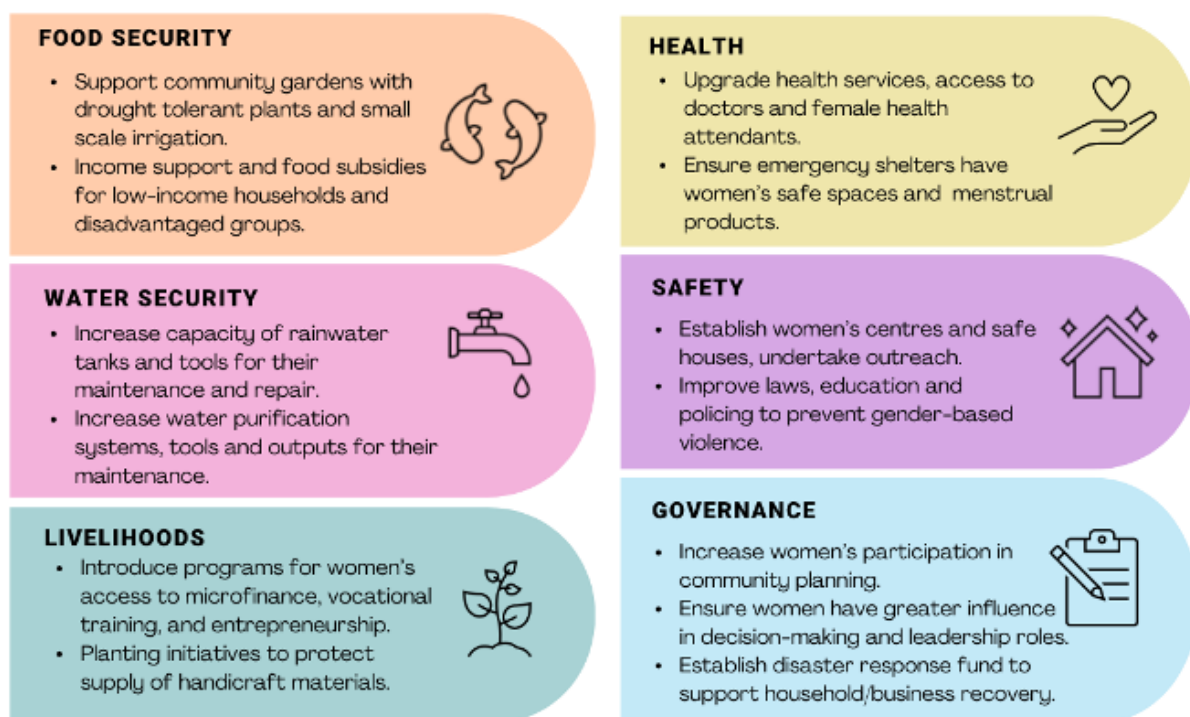
households recover from storm and flood damage was suggested, as was a flood insurance scheme for businesses.

### Discussion

The impacts of climate change across the RMI are profound, reaching deep into the fabric of how communities and households function. Climate change is disproportionately increasing the burden that women carry related to their domestic and caring responsibilities. Men's traditional livelihoods of fishing and agriculture are experiencing reduced yield, and women are increasingly engaging in additional livelihoods to supplement household incomes. As households manage climate impacts, the pressure on women to manage food and water security, health and livelihoods, is amplified. This causes significant stress, and if women can't meet their families' needs they can face an increased risk of gender-based violence.

The results strongly demonstrate a need for gender-sensitive adaptation in the RMI. For adaptation to be equitable and effective, it needs to promote gender equality, address the specific vulnerabilities women face, and strengthen women's participation and influence in decision-making. As identified elsewhere, strategies need to work within existing social and political and economic contexts and push for broader social change (Dev & Manalo, 2023; Hoyer, 2022). Recommendations for gender-sensitive adaptation in the RMI are outlined below (Figure 7). These recommendations are data driven, stemming from analysis of the *Community Engagement for the RMI National Adaptation Plan* and the *Climate Security in the Pacific* project.

*Figure 7. Data-driven recommendations for gender-sensitive adaptation in the RMI*



Most of these recommendations are community-focused and will deliver benefits to all community members, such as supporting community gardens and increasing rainwater capacity across the community. Women would disproportionately benefit from these interventions given their responsibilities for meal preparation, water collection and household cleaning and bathing. Several recommendations target women and girls specifically. These seek to reduce gender-based violence and increase women's access to education and financial credit to support alternative employment opportunities. The recommendations balance top-down strategies, such as increasing women's leadership and strengthening laws to combat gender-based violence, with practical day-to-day strategies where more immediate benefits can be realised (Alston, 2013). There are certainly many other interventions that could support gender-sensitive adaptation in the RMI, including addressing inequitable distribution of land tenure, though this was not raised in the data collected from this research and so has not been included.

Despite the gendered nature of vulnerability, communities in the RMI show impressive adaptive capacity and resilience. Sharing and generosity is deeply ingrained in the RMI culture, fostering strong social capital and resilience. The communities who participated in this research have long withstood pressures from drought, heat, food and water insecurity, health impacts, ongoing delays in transport of food supplies, and receive limited investment in infrastructure and social services. Whilst climate change impacts are amplifying, it is important to recognize this resilience. When asked about their island homes, participants shared a deep sense of belonging, pride in their way of life, and mostly a determination to continue living there.

Nonetheless, this research highlights that much of what makes island life sustainable is a result of highly gendered labour divisions. Women's labour is fundamental in providing stability to communities and is mostly undervalued. Women are typically very active in the community and are involved in community groups and initiatives. Because of this they also have powerful insight into how to reduce climate change vulnerability. Protecting women's wellbeing and increasing their influence in decision-making is therefore key to the broader communities' wellbeing and sustainability.

There are limitations to this research. Despite the strength of the sample size, the data does not provide strong insight into intersectionality. There is some data demonstrating that people with disabilities have higher levels of vulnerability: they have difficulties accessing transport particularly during extreme weather events, and do not receive the level of medical support they need. There are suggestions that internal migrants face employment discrimination and that some households have been temporarily displaced due to coastal erosion. Finally, there are indications that young mothers, particularly unmarried mothers, are highly vulnerable financially and lack social supports to manage increased climate impacts. Further research is needed to investigate this in depth, providing those groups opportunities to articulate their experiences and needs.



### **Conclusion**

Evidence from the RMI shows that gender inequality is currently being reproduced and amplified as communities adjust and adapt to climate impacts. This needn't be the case. For adaptation to be equitable and effective, interventions should recognize and address the gendered nature of climate change impacts. Adaptation efforts can support women by helping them to alleviate food and water scarcity, providing income support, diversifying livelihoods, and safeguarding the health of household members. They can also increase women's participation in decision-making processes, protect them from the risks of gender-based violence, and start conversations that challenge gender norms.

### **Acknowledgments**

We would like to acknowledge the contributions of all people who collected data and who supported this research. From the International Organisation for Migration in the Republic of the Marshall Islands, we would like to thank Tibeo Akeang, Christopher Alik, Albers Alik Jr, Carrol de Brum, Shannon Fitzpatrick, Peji Glad, Scott Hafner, Baren Jordan, Timothy Kabua, Romar Paccu, Roselle Qunit, Malyia Rudolph, Maya Sam, Arnold Silk and Sonia Tagoilelagi. From Women United Together Marshall Islands, we would like to thank JoKirenwit Anjain, Sabina Basin, Tojien Jorkan, Bwojenta Kabua, Martina Lebaun, Handy Niro, and Eldia Timothy. From the Jo-Jikum Youth Centre we would like to thank Loredel Faye Areieta, Mannley Compass, Jollia Peters, Deborah Schutz and Jobod Silk Jr. From the Marshall Islands Conservation Society, we would like to thank Junior Mark, Leimomie Masumoto, and Vanessa Rogers.

### **Author Note**

We have no conflicts of interest to disclose. The findings in this paper stem from two research projects managed by the International Organisation for Migration (IOM) in Majuro. The first of these

projects was the Marshall Islands component of the Climate Security in the Pacific project Phase I, funded by the United Nations Peacebuilding Fund, managed by the IOM and implemented in partnership with the United Nations Development Programme (UNDP). The second project was the Community Engagement for the RMI National Adaptation Plan project funded by the World Bank Pacific Resilience Program Phase 2, and was implemented by the International Organisation for Migration, Jo-Jikum, Marshall Islands Conservation Society, and Women United Together Marshall Islands. Data analysis was led by the University of Melbourne under the Australian Research Council project 'Future Islands: Catalysing Solutions to Climate Change in Low-Lying Islands' (FL18010004).

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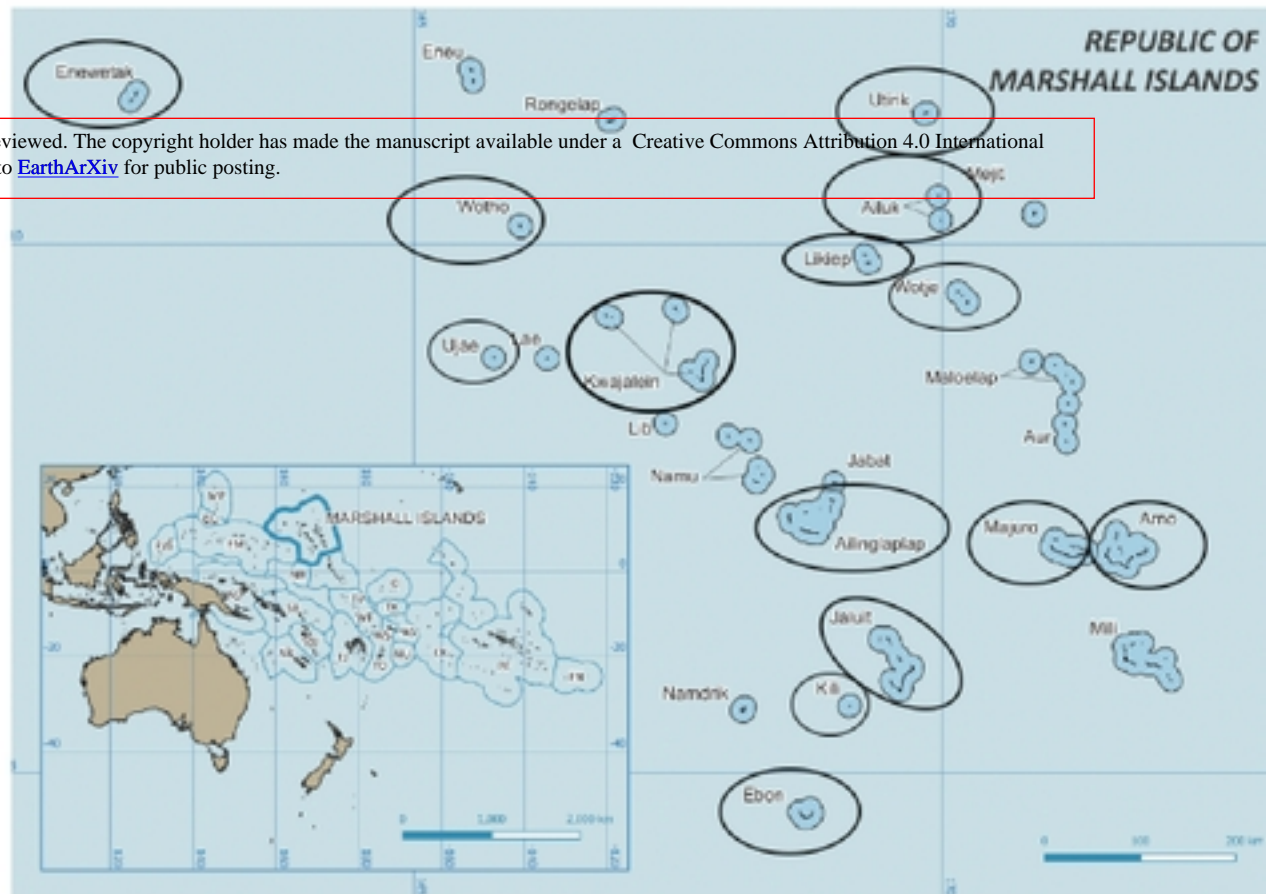
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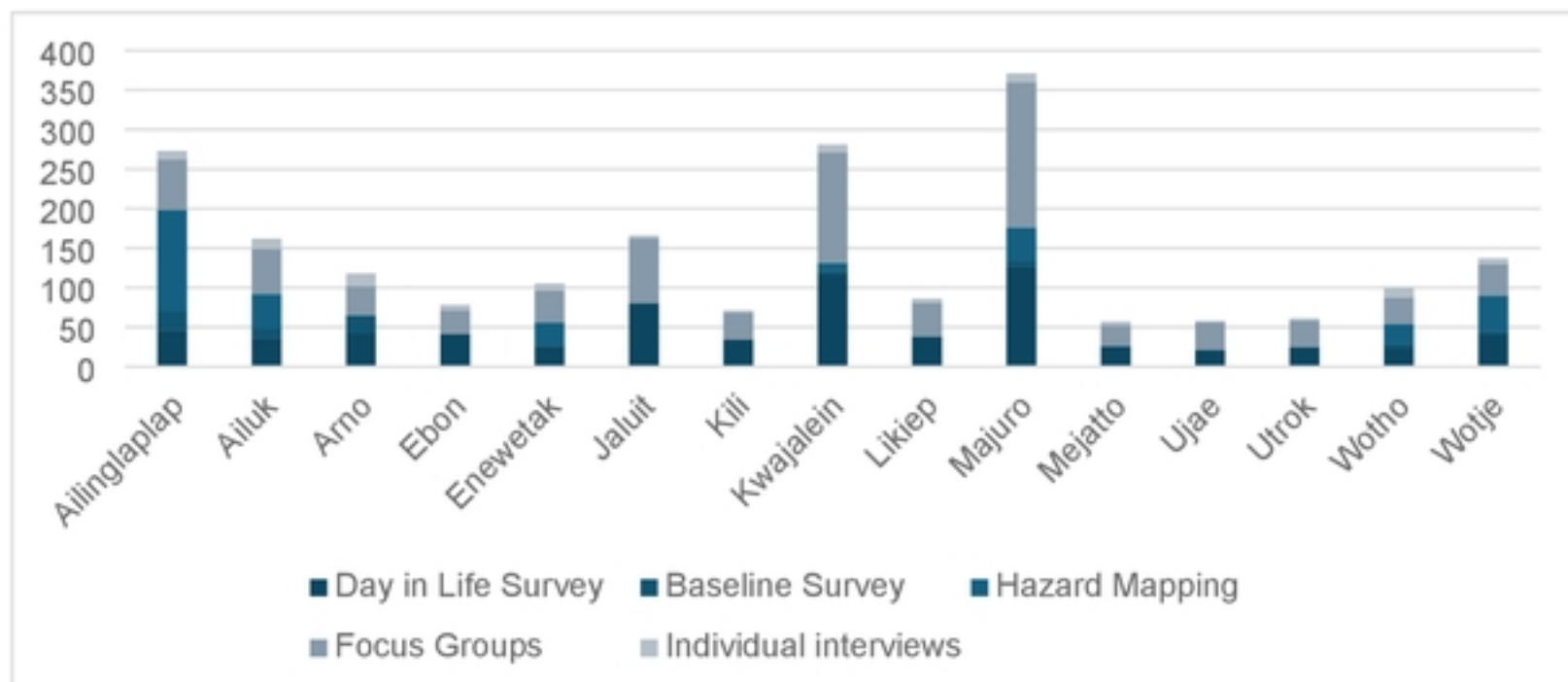
# Figures for Mortreux et al, The gendered nature of climate change impacts in the Republic of the Marshall Islands

Figure 1: Map of the Republic of the Marshall Islands, highlighting atolls where field work was conducted

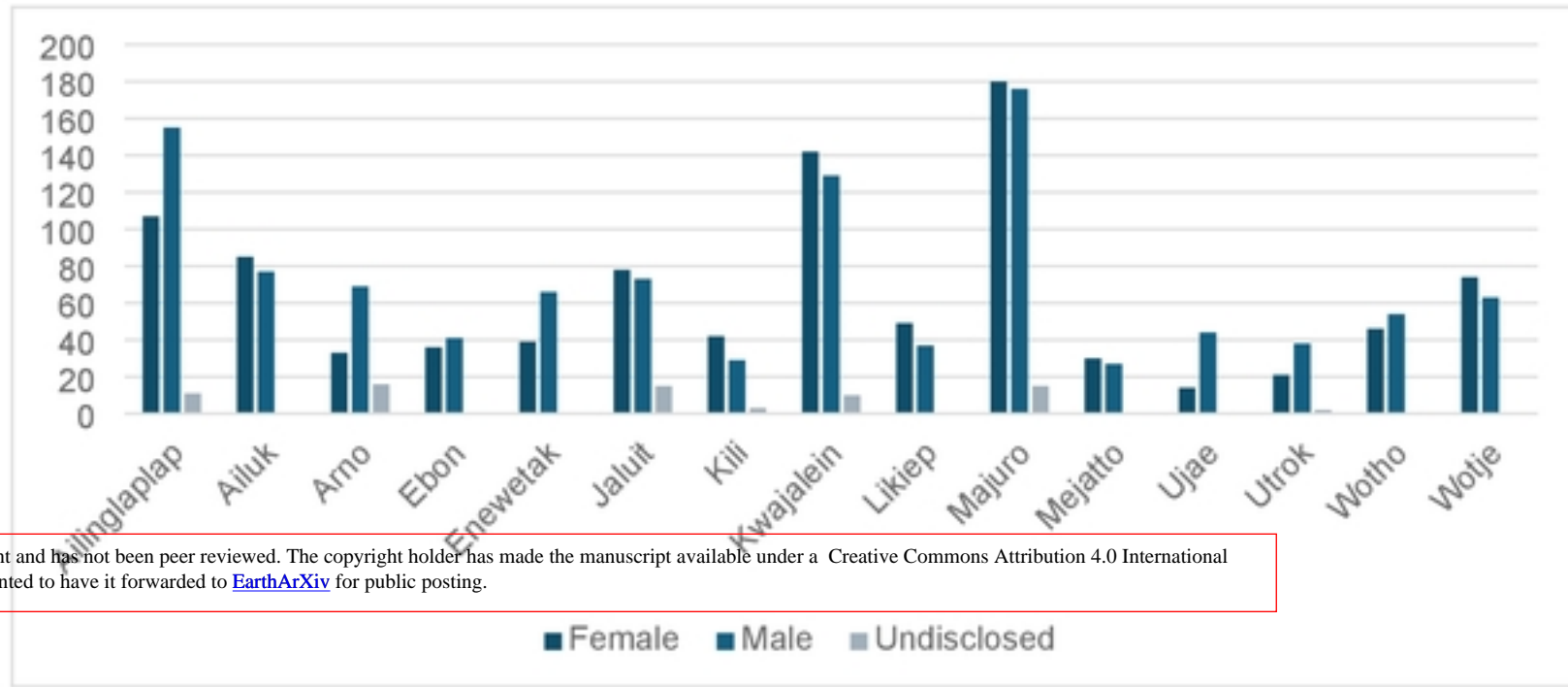


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Figure 2: Participants from each atoll, broken down by method (n=1362)

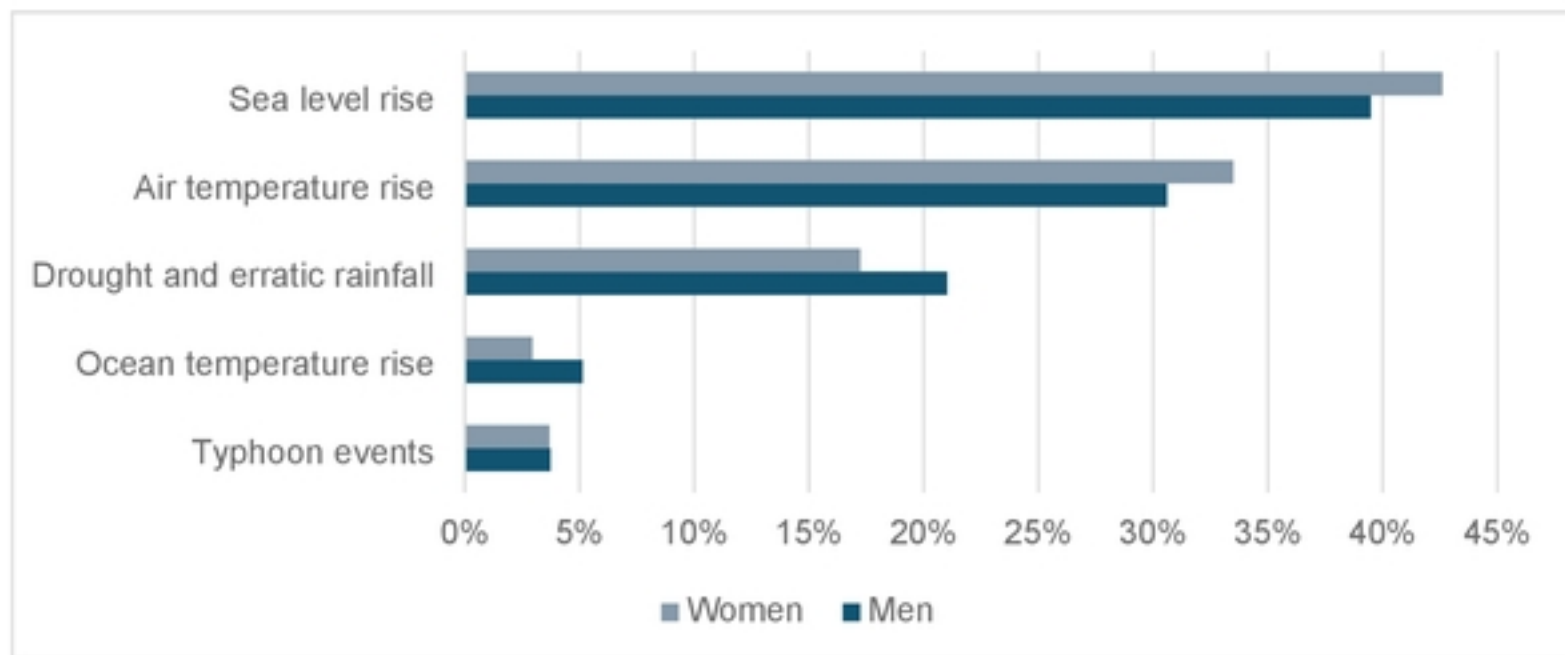


**Figure 3: Participants from each atoll, broken down by gender (n=1362)**

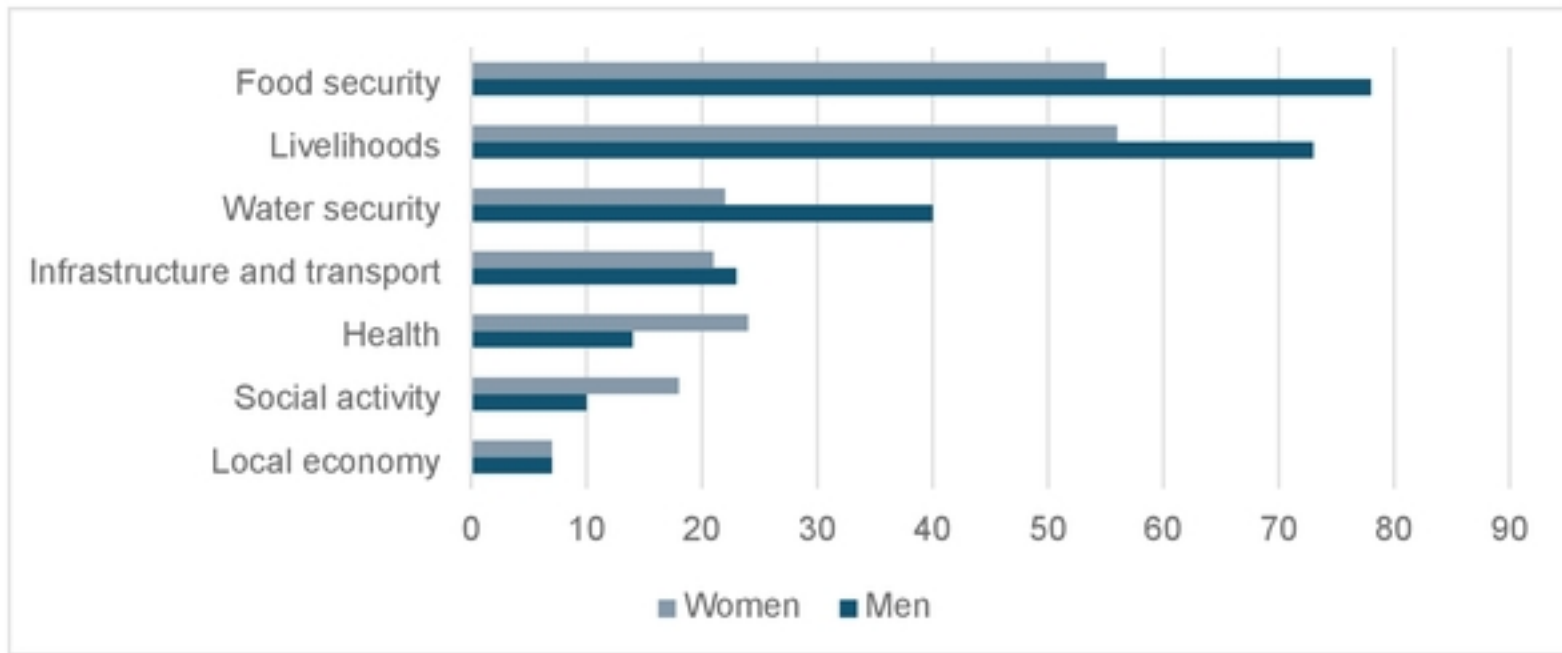


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**Figure 4. Most frequent observations of climate change by gender (Day in the Life Survey, n=834)**

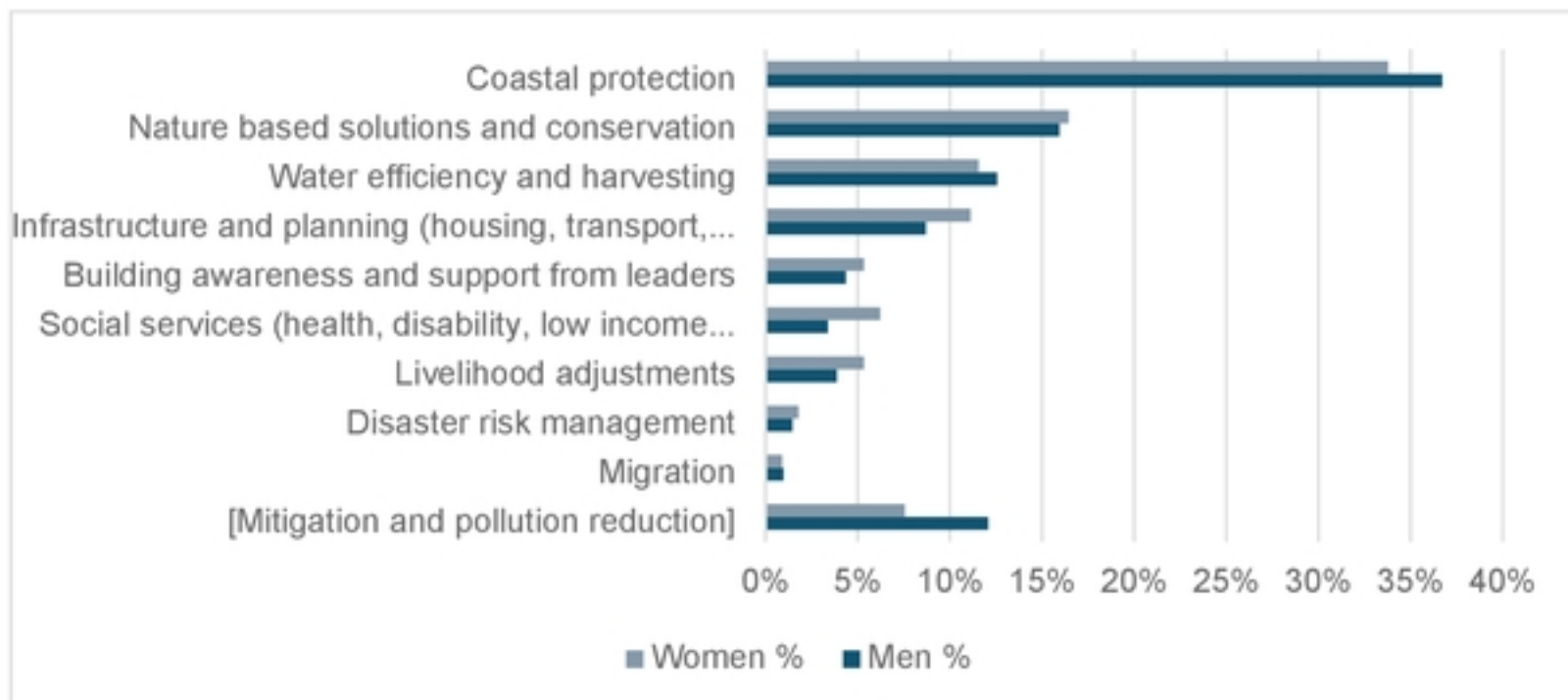


**Figure 5. Social impacts of climate change by gender (Day in the Life Survey, n=480)**



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**Figure 6. Ideas about adaptation by gender (Day in the Life survey, n=432)**



**Figure 7. Data-driven recommendations for gender-sensitive adaptation in the RMI**

### FOOD SECURITY

- Support community gardens with drought tolerant plants and small scale irrigation.
- Income support and food subsidies for low-income households and disadvantaged groups.



### HEALTH

- Upgrade health services, access to doctors and female health attendants.
- Ensure emergency shelters have women's safe spaces and menstrual products.



### WATER SECURITY

- Increase capacity of rainwater tanks and tools for their maintenance and repair.
- Increase water purification systems, tools and outputs for their maintenance.



### SAFETY

- Establish women's centres and safe houses, undertake outreach.
- Improve laws, education and policing to prevent gender-based violence.



### GOVERNANCE

- Increase women's participation in community planning.
- Ensure women have greater influence in decision-making and leadership roles.
- Establish disaster response fund to support household/business recovery.



### LIVELIHOODS

- Introduce programs for women's access to microfinance, vocational training, and entrepreneurship.
- Planting initiatives to protect supply of handicraft materials.



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