Gender and Plastics

A review of the links in select Caribbean and Pacific islands

INTERNATIONAL UNION FOR CONSERVATION OF NATURE

Norad

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About this report

This report has been commissioned by the International Union for the Conservation of Nature (IUCN) in support of its Plastic Waste Free Islands programme (PWFI). This work was funded through the Norwegian Agency for Development Cooperation grant agreement with IUCN.

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The views in this report do not necessarily align with those of our survey respondents and interviewees, and they are absolved of any responsibility in this regard.

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Created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing the knowledge, resources and reach of more than 1,500 Member organisations and some 18,000 experts. It is a leading provider of conservation data, assessments, and analysis. Its broad membership enables IUCN to fill the role of incubator and trusted repository of best practices, tools, and international standards.

IUCN provides a neutral space in which diverse stakeholders including governments, NGOs, scientists, businesses, local communities, indigenous people's organisations, and others can work together to forge and implement solutions to environmental challenges and achieve sustainable development. Working with many partners and supporters, IUCN implements a large and diverse portfolio of conservation projects worldwide. Combining the latest science with the traditional knowledge of local communities, these projects work to reverse habitat loss, restore ecosystems, and improve people's well-being.

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About Plastic Waste Free Islands

In 2019, with support from the Norwegian Agency for Development Cooperation (Norad), IUCN launched the Plastic Waste Free Islands (PWFI) project, as part of its global Close the Plastic Tap Programme. PWFI was a four-year project working in six islands in the Caribbean and Pacific. Implemented in Fiji, Vanuatu and Samoa in Oceania and Antigua and Barbuda, Saint Lucia and Grenada in the Caribbean, the project sought to promote island circular economy and to demonstrate effective, quantifiable solutions to addressing plastic leakage from Small Island Developing States (SIDS).

The project also aimed to repurpose waste into commercially viable products, thereby generating job opportunities and income for local communities. Key stakeholders from governments, private sector and civil society, united in a vibrant learning and leadership network, co-generated and demonstrated demand-responsive solutions to plastic waste incorporating policy, business operations, and citizen behaviour changes.

Evidence and lessons have been packaged into a scalable and replicable 'blueprint' for use beyond the initial six target islands. Key regional bodies will endorse the blueprint for looking at entire value chains, from production to disposal, and also at plastic usage and wastage in different sectors (such as tourism and fisheries).

By adding value to plastic waste and deploying solutions for better waste disposal, there will be a measurable impact on waste flows from source to sea, leading to reduced plastic leakage into the environment.

https://www.iucn.org/search?key=plastics

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Acronyms

ALDFG	Abandoned, lost or otherwise discarded fishing gear
CRFM	Caribbean Regional Fisheries Mechanism
GDP	Gross Domestic Product
HDPE	High-density polyethylene
ILO	International Labour Organisation
IUCN	International Union for the Conservation of Nature
LDPE	Low-density polyethylene
LGBTQIA+	Lesbian, gay, bisexual, transgender, queer, intersex, and asexual
NSWMA	National Solid Waste Management Authority (Antigua and Barbuda)
PIC	Pacific Island countries
PET	Polyethylene terephthalate
PS	Polystyrene
PWFI	Plastic Waste Free Islands programme
SIDS	Small Island Developing States
SLSWMA	Saint Lucia Solid Waste Management Authority
SUP	Single use plastic
UNEP	United Nations Environment Programme

Executive Summary

To inform gender-responsive programming for the PWFI, IUCN has commissioned the present study to provide a gender analysis of plastic pollution in the tourism, waste management and fisheries sectors of the PWFI islands. The overarching question this study seeks to answer is: What are key human rights issues arising from plastic pollution in the tourism, fisheries, and waste management sectors in the PWFI islands and how do these issues impact men and women differently?

In answering this question, this study seeks to deliver a socioeconomic and sociocultural analysis of the gendered power dynamics, opportunities, and constraints in the context of plastic pollution in the relevant sectors. This report details findings for this analysis from the literature review, interviews and survey of PWFI stakeholders conducted between October 2022 and January 2023.

Discussions of plastic waste legislation are now gaining ground at the national, regional and international levels have been gaining ground in the last decade. Because of this, there is a real opportunity to ensure that considerations of gender and gender-sensitive approaches are integrated into upcoming policies, technological alternatives and other solutions to the issues faced by people in the Pacific and Caribbean islands today.

In this context, our key conclusions and recommendations to further mainstream gender into the objectives and activities of the IUCN PWFI are to:

- **Draw from existing guidance and best practices dealing with the intersections of gender equality and plastic pollution**, e.g., World Economic Forum's *Guide to Ensure Gender-Responsive Action in Eliminating Plastic Pollution*.[1]

  There are also good, recent resources to draw on regarding gender-sensitive and gender-transformative programming on climate change and gender equality intersections in the Pacific. This includes the *Pacific Gender and Climate Change Toolkit*,[2] *Considering Gender Equality, Disability, And Social Inclusion In The Design Of Sustainable Financing Scheme For Waste Management: A Guide For Pacific Decision-Makers*[3] and the *Pacific handbook for gender equity and social inclusion in coastal fisheries and aquaculture*.[4] There are also networks involved in this space in the Pacific, including the International Women's Development Agency (IWDA).

  Impacts and recommendations from existing gendered studies on relevant industries could provide important insights into what has worked in shifting policy mindsets and behaviours, for example the 2006 study on Gender Issues in the Pacific Islands Tuna Industry.[5]

- **Address the research and information gap for the link between gender equality and plastic pollution**: A major limitation picked up in moving the gender equality agenda forward in these regions (and in general) is the lack of gendered data and information on women and men's roles and impact in different relevant sectors. This has been noted for the fisheries sector,[6] and there seems to be a particular gap on information regarding the different roles and impacts of men and women in the waste management sectors in the Pacific and Caribbean.

  This data gap is also true in terms of the information needed to monitor contextual information necessary to understanding the development of gender equality in a country. For example, Vanuatu lacked key contextual sex-disaggregated metrics (e.g., numbers of female/male graduates in different educational fields, amount of public spending on family benefits), and moreover did not have the necessary data to be included in the Gender Inequality Index.[7] Samoa did not have sufficient data to be included in the Global Gender Gap report.[8]

In the context of the information commissioned and generated by PWFI activities, there are many opportunities to mainstream considerations of gender. For example, the next round of quantitative analysis of plastic pollution on the islands could apply sex-disaggregated data, and could include nappies and sanitary items in the analysis given the importance of these consumption products to the plastic pollution and gender nexus. Additionally, a gender-sensitive policy analysis could provide further insights into the existing gaps in the policy arena in this regard.

Particular attention should be paid to understanding gender relations in the Pacific waste management sector, as this is a key gap in understanding. These gendered analyses of the plastic pollution issue would be particularly prescient in the context of regional and international policy agreements being made currently, and of which PWFI stakeholders seem to provide influential input.

- **Empower consumers, both men and women, to contribute to behaviour change**: there seems to be a strong focus on the need for individual behaviour change among Pacific and Caribbean residents. Government policy reflects this in its focus on SUP bans and encouraging re-usable products. An analysis of media articles on solid waste management in Fiji found a strong emphasis on 'microsystem' changes like raising awareness and educating people, making waste management a point of civic pride and personal responsibility, as well as relieving the perceived negligence of people with regards to littering.[9]

  Survey respondents in both regions also confirmed their perceptions of this when questioned on the main sources of plastic waste on the islands. In the Pacific, many of the comments asking respondents to elaborate on sources of plastic pollution included residents throwing rubbish around, and community institutions like schools, churches and community organisations not choosing eco-friendly products as the default.

  Behaviour change is a key piece in addressing the global plastic pollution crisis, and is very relevant in the both Pacific and Caribbean context in terms of shifting norms and managing waste disposal methods. However, there should be inclusive and measured consideration of the differences in the ways the men and women consume, dispose of and pollute plastic products, and the impact this might have on how they can realistically act as agents of change.

- **Go beyond the bags**: the AWPC data on key sources of pollution on these islands found stark differences in disposal rates per capita, showing that residents do not produce nearly as much waste as a tourist. Moreover, where residents are practicing harmful waste disposal like littering, dumping and burning, it seems that many of them have little choice given the lack of reliable and accessible waste management. The insights of the AWPC quantitative analysis could bring this to light.

  For existing and potentially expanding policies on single-use plastics, consider the issue of consumption and disposal from a gendered perspective, and how the policy might adversely impact different groups of people and different ways. From this baseline understanding, create policies that are responsive to and supportive of these differentiated needs. Consider also that while short-term impacts of SUP product bans are generally positive, sustaining plastic bag reductions over the long-term can be challenging, and have unintended negative consequences on overall material consumption and the labour force involved in plastic bag production.[10]

- **Guarantee a place at the table for women in the informal economy.** Some of the segments of tourism and waste management sectors (especially those considered "low skill" and consequently low paid) are dominated by women.[11] In fact, many of the women employed in waste management are informal workers.[12] To a great extent, SUP allows women in the waste management sector and the housekeeping and waiting segments of the tourism industry to access their right to a safe and healthy workplace. Moreover, plastic provides a valuable source of income for informal waste pickers through sales to recycling businesses.

Therefore, policies to reduce plastic waste can affect the livelihoods and safety of women in these sectors if these policies are gender blind. This can be addressed by bringing a gendered perspective into policy making, and ensuring that the most vulnerable groups are consulted in the planning, drafting, implementation, and monitoring of policies.

- **Engage leaders working on the advancement of women's rights and opportunities and build capacity of those on the ground.** In the Pacific, for example, there could be further engagement with the PWL programme,[13] as well as the Pacific Islands Forum Women Leaders Meeting (PIFWLM), which is now held annually ahead of the Pacific Islands Forum Leaders Meeting.[14]

  Another potential opportunity for gender mainstreaming in the PWFI could be providing capacity-building opportunities among relevant waste management stakeholder groups in private sector and government. In the Pacific, this would be especially important given the lack of perceived links between gender equality, women's rights and plastic waste. Local solutions to such capacity-building would be ideal, such as the gender sensitisation training by the Fiji Women's Rights Movement.[15]

Introduction

By 2015, around 4,900 million tonnes — or 60% of all plastics ever produced — had been discarded, accumulating in landfills or in the natural environment.[16] Although there is no comprehensive data about the amount of plastic that ends up in the ocean, it is estimated that about 8 million tonnes has entered the open sea in 2010.[17] Of that amount, almost 250,000 tonnes were floating on the ocean's surface in 2014.[18] By 2019, plastic has been leaking into the ocean at a rate of 6.1 million tonnes per year and this volume is expected to increase by 90% to 2060, reaching 11.6 million tonnes per year.[19]

The impacts of marine and coastal plastic waste pollution are manyfold. Plastic waste pollution also affects marine wildlife that ingest or get entangled in plastic debris, causing starvation, suffocation, and reproductive failure. Moreover, over time much of the plastic accumulated in the environment over time has fragmented into particles known today as microplastics. These microplastics have been found to affect organisms along the food change, including humans. By the same token, many of the chemicals that go into making plastics disrupt the functioning of the endocrine system of humans and wildlife and can cause reproductive, neurotological, and immune disorders.[20]

Moreover, plastic pollution also interfere with fragile oceanic process, such as the carbon cycle, a process in which marine algae capture carbon from the atmosphere to release about 50% of the oxygen consumed by humans and animals.[21] In this context, plastic also slows the rate in which carbon sinks into the ocean, thereby increasing the possibility that this carbon is released into the atmosphere again.[22] Likewise, microplastics also release greenhouse gases as they break down.[23] In other words, ocean plastic pollution a contributing factor to climate change.

The impacts of plastic waste pollution cause economic hurdles on coastal communities worldwide. These economic impacts, which were estimated at US $ 13 billion in 2014, reflect in a decrease in income derived from economic activities such as fisheries and tourism, on which many coastal communities depend.[24] These impacts do not include the hidden health costs. Moreover, these impacts are more hardly felt on small island developing states (SIDS), which are more vulnerable than other countries to environmental changes due to their small size, isolated location, exposedness, and limited resources.[25]

In acknowledgement of the special vulnerability of SIDS, in 2019, with support from the Norwegian Agency for Development Cooperation (Norad), the International Union for the Conservation of Nature (IUCN) launched the Plastic Waste Free Islands (PWFI) project, as part of its global Close the Plastic Tap Programme. PWFI is a three-year project working in six islands in the Caribbean and Pacific. Implemented in Fiji, Vanuatu, and Samoa in Oceania and Antigua and Barbuda, Saint Lucia, and Grenada in the Caribbean, the project seeks to promote island circular economy and to demonstrate effective, quantifiable solutions to addressing plastic leakage from SIDS.

The project also aims to repurpose waste into commercially viable products, thereby generating job opportunities and income for local communities. Key stakeholders from governments, private sector and civil society, united in a vibrant learning and leadership network, will co-generate and demonstrate demand-responsive solutions to plastic waste incorporating policy, business operations, and citizen behaviour changes. This project focuses on tourism, waste management, and fisheries sectors.

To inform gender-responsive programming for the PWFI, IUCN has commissioned the present study to provide a gender analysis of plastic pollution in the tourism, waste management and fisheries sectors of the PWFI islands. The overarching question this study seeks to answer is: What are key human rights issues arising from plastic pollution in the tourism, fisheries, and waste management sectors in the PWFI islands and how do these issues impact men and women differently? In answering this question, this study seeks to deliver a socioeconomic and sociocultural analysis of the gendered power dynamics, opportunities, and constraints in the context of plastic pollution in the relevant sectors.

This report is structured as follows. The first two chapters are introductory and set the common ground for later chapters on the regions of the Pacific and Caribbean. In Chapter 1, we outline the methodology used to carry out the analysis in this report, as well as key concepts and terms which are used throughout the gender analysis. In Chapter 2, we summarise some of the common linkages between the life cycle of plastic (consumption, disposal, management) and gender inequality.

Chapters 3 and 4 present the findings of the gender analysis of plastic pollution in relevant islands and in the Pacific (Fiji, Samoa, and Vanuatu) and Caribbean (Antigua and Barbuda, Grenada, and Saint Lucia), respectively. Although these chapters are structured slightly differently, both cover the plastic pollution issue generally in these regions and on each island. Moreover, they provide a gendered perspective of the issues of plastic pollution and tourism, fisheries and waste management specifically. Wherever possible, information from the relevant islands had been explored and included, and where this is lacking, information from the region has been considered. Any gaps in information have also been highlighted.

Finally, in Chapter 5, we provide overall conclusions from our findings and recommendations both for gender mainstreaming in the IUCN's PWFI programme specifically, and to the wider field of advocacy on reducing and eliminating plastic waste in these regions.

1
Methodology

This section outlines the scope, methodology and clarifies key concepts around gender equality used throughout this report.

1.1 Scope, method and key concepts

1.1.1 Defining the plastic pollution problem

This report will focus on the gendered impacts of plastic consumption (usage), disposal and pollution in the select Caribbean and Pacific islands. In plain terms, we will consider the problem of plastics from their use in everyday lives and in select sectors (tourism and fisheries, namely), the pollution problem that their litter causes and the gendered implications that consumption and disposal have on different formal and informal waste management systems.

This report will thus not examine the impact of fossil fuel extraction and processing nor plastic production, though these are important dimensions to consider through a gender lens and have already garnered some research attention.[26] This is because these upstream plastic activities do not occur in the Pacific and Caribbean islands examined in this report. Plastic products are instead imported and/or in some cases manufactured on the islands. Secondly, this report and the PWFI project are focused on the issue of plastic pollution, and the way that plastic products are used and disposed of.

1.1.2 Gender analysis and key concepts

All around the world, women and men both rely upon and play important roles in the day-to-day management of natural resources and ecosystems. And yet, though these tasks are shared, women experience disproportionate marginalisation and exclusion in accessing and controlling these resources, whether it be the land their food grows on, or the boats that are used to fish their family's dinner. Moreover, women's presence, participation and representation is often minimised in governance processes and official decision-making over natural resources and services.[27]

A primary method to reveal these gendered gaps and differences in resources management is to conduct a gender analysis. According to the IUCN *Guide on Gender Analysis*, this can be described as: "*[…] a process of collecting and interpreting information to identify, understand and describe gender dynamics with respect to different roles and norms in a given context and among individuals and social groups (e.g., as related to class, age, (dis)ability, ethnicity, race, sexuality, etc.).*" [28]

This report uses available secondary information (online and academic literature) and some personal perspectives from the region (via a survey and interviews) to piece together a gender analysis of the issue of plastic pollution on Pacific and Caribbean islands and how these specifically impact men and women in key industries of tourism, fisheries and waste management (see more on the methodologies in Section 1.2). It makes use of abundant academic interest in the field of plastic pollution, and the interest in the gendered dimensions of the labour force in tourism and fisheries sectors in these regions. Comparatively less information on the different roles and opportunities of men and women labourers in the waste management sector could be found for the particular regions and islands of interest.

Because of the reliance of this analysis on secondary sources of information, and the general lack of gendered analyses in the fields overlapping plastic pollution and the relevant regions, key questions remain to be answered. In particular, there is very little available information about how gendered impacts of plastic pollution in the relevant sectors are maintained, e.g., through cultural norms, beliefs, institutional systems.

Nevertheless, this report illuminates existing research and perspectives on the gendered dimensions of plastic pollution in the Pacific and Caribbean, and in doing so will hopefully provide to generate further interest in the overlap between the issues of plastic pollution and gender inequality.

Box 1. Key terms and concepts

Equality is the concept that all human beings are free to develop their personal abilities and make choices without the limitations set by stereotypes, gender roles, or prejudices

Gender equality means that the rights, responsibilities and opportunities of all individuals irrespective of their sex or gender identity are considered, valued and favoured equally in economic, social and political spheres of society. Dismantling inequality may require targeted support of socially disadvantaged groups to create a level playing field.

Gender roles are social expectations regarding for example physical attributes, jobs and actions which are imposed on people according to their assigned sex. These are often the result of existing cultural stereotypes (both positive and negative) regarding male and female behaviour, for example that women are naturally nurturing, and that men are typically strong and aggressive.

Gender mainstreaming is the systematic integration of the respective situations, priorities and needs of people of all genders in projects and policies with a view to promoting equality.

Sex or gender-disaggregated data is any data on individuals broken down by sex (male, female) and/or gender (man, woman, trans, non-binary, etc).

Some of the key terms and concepts informing the gender analysis in this report are outlined in Box 1 and informed by external resources.[29] It must also be mentioned that a majority of the discussion in this report is focused on women's rights, access and opportunities. This is done in the recognition that gender equality involves the advancement of society of men, women and those who do not identify as either. It also recognises that women's empowerment is often a prerequisite for such progress, and is certainly true in the regions and sectors examined throughout this report.

1.2 Methodology

This report is the result of desk-based research using both primary and secondary methods of information collection. The main sources of information on plastic pollution and linkages with gender equality issues in the relevant regions were:

- **A literature review**: A review was conducted of online Anglophonic literature available since 2010, with the most recent possible sources being consulted. Virtually no information exists on the particular linkages between plastic pollution and gender equality in the specific islands and sectors we examined in this report, and there are also gaps in the sector-specific gendered research (e.g. in the Pacific waste management sector). There is however an abundance of literature and initiatives on different impacts of plastic pollution, and on the gendered dimensions of fisheries and tourism specifically. We extrapolated information on potential gendered impacts based on what is known about the different roles, opportunities and access for men and women in these sectors in the relevant islands and regions.
- **A survey with PWFI stakeholders**: This was prepared and distributed with the support of the IUCN Plastics team and garnered significant responses, giving this report the on-the-ground perspectives needed from the regions and islands. See Section 1.2.1 for more on the survey.

- **Expert interviews**: Interviews were semi-structured, lasting between 30-45 minutes, and were conducted between November 2022 and January 2023. In addition to limited resources specific to the regions and islands, there was little availability of contacted people to conduct interviews with, due in part to major plastics conferences in the fall (including INC5) and the subsequent holiday period. The Caribbean analysis was informed by three interviews, and none of the contacted experts in the Pacific were available to contribute to the report. A further two people with general expertise on the linkages between plastic pollution, waste management and gender were interviewed for this report.

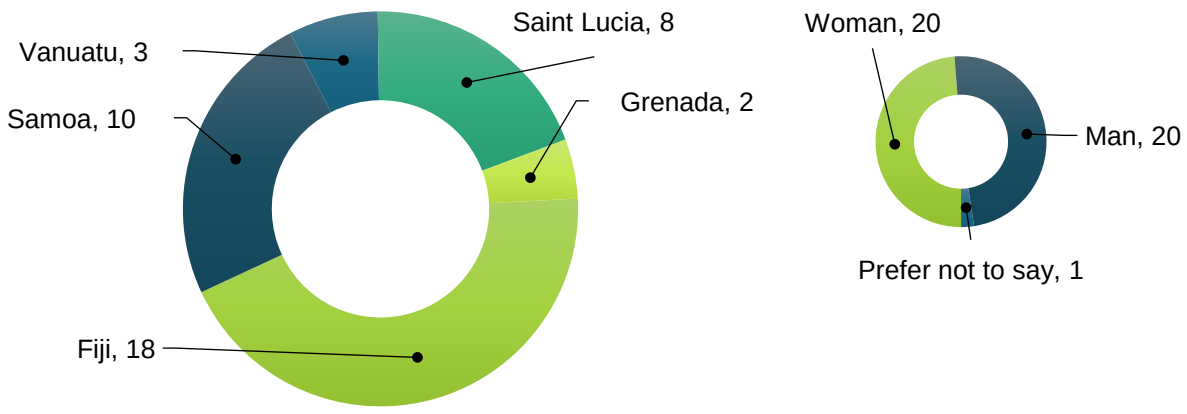
1.2.1 Survey

A survey was prepared to gauge perceptions of PWFI stakeholders in the relevant Pacific and Caribbean islands on issues relating to plastic pollution impacts and policies and their islands, as well as any potential links they perceived to be existing with gender equality and/or women's rights issues. The survey was distributed by the IUCN, maintained anonymity for all participants and was open between November 3-29th 2023.

In total 49 responses were submitted, and 12 of these were incomplete. Of the incomplete submissions, 4 were ultimately considered complete because more than 60% of the survey questions had been responded to. So in total, 41 survey responses were considered for the analysis in this report.

Of the 41 survey responses considered for analysis, over three-quarters (76%) were from respondents in the Pacific – Fiji, Vanuatu and Samoa, with Fijians alone submitting almost half (18) of all responses (Figure 1). No responses were submitted from Antigua and Barbuda. Moreover, the gender split of respondents was very even – almost half (20) were women, almost half (20) were men, and 1 respondent preferred not to identify their gender.

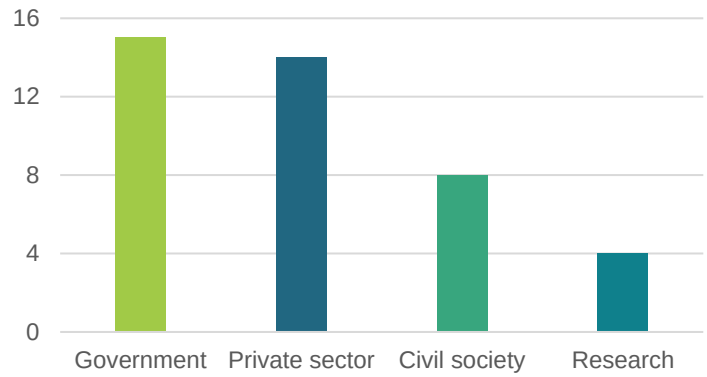
Figure 1 Survey respondents' island of residence and gender



Question: Where do you live? How do you define your gender?

Overall, there was a range of sectors represented among the respondents, and fairly evenly distributed between government, private and civil society/academic sectors (Figure 2). Moreover, all respondents from civil society work for local organisations, the majority on plastic pollution and/or conservation with only one working on gender equality.

Figure 2 Survey respondents' field of profession



Question: You work in (select all the option that best describe your main profession). Note that some respondents chose an 'other' category and elaborated on their profession, which we have categorised here according to the information provided.

Almost three-quarters (73%) of respondents in government work for national government, the rest working at the regional and/or local level (with one respondent working in an intergovernmental organisation, but not clear at what level). Among the private sector respondents, half (seven respondents) work in the waste management industry with 2 out of 5 of these respondents identifying as waste-pickers. Among the rest, three respondents work in tourism, two work in plastic production industries, and one responded from the fisheries industry. One respondent from the private sector was a representative of a national organisation of private sector entities.

2

Plastic pollution and gender equality

Gender roles and responsibilities, varied economic conditions, and access to resources, cultural expectations and differences in knowledge and awareness levels all influence how women and men interact with the world and the products that have become ubiquitous in our lives. Plastic is no exception – the use, disposal, and recycling, as well as the polluting impacts of different plastic products are determined by gender and other socio-economic-cultural intersections. These influences lead to differences in the exposure of men and women to health hazards and environmental threats.

2.1 Overview of the gendered dimensions of plastic

There is increasing recognition that plastics impact different groups of people in unique ways, based on factors that have to do with biology, culture, income, gender, consumption patterns and social norms. These differences have implications at every stage of the plastics value chain – from production to disposal – and can disproportionately affect groups that are already disadvantaged socio-economically.

In particular, the differentiated impacts of plastic production, consumption, disposal, and pollution on women have been coming to light through media, scientific and academic research, as well as in the grey literature driven by multilateral organisations with a gender equality and/or environmental conservation mandate. In observing the intersection of these issues, experts are showing that the impacts of plastics are deeply gendered.

2.1.1 Production

Although the gendered impacts of plastic production are not the focus of this report, it is worth mentioning that women are often employed in the lower-paid and less-skilled positions in production plants. This means that, even though there are fewer women than men in the plastics industry, women are more likely to be exposed to toxic chemicals.[30]

2.1.2 Consumption

The way that women and men consume and use plastics products is gendered, from the types of products they are buying, the reasons for which they are buying them, to their power to change these patterns according to their biological and socio-economic needs.

For example, one source of single-use plastic (SUP) waste is sanitary products.[31] Disposable pads and tampons contain varying degrees of plastic but in some cases up to 90%. They largely end up in landfills, where pads are estimated to take 500 to 800 years to break down, with the plastic components of these products never really biodegrading.[32] Ultimately, however, adequate menstrual health and hygiene management is an essential right of all individuals who menstruate.[33]

Finding solutions to the waste and potential toxic harm created by these products would require deep understanding of the different cultural and social norms which govern menstruation, sanitation and support for infant caretaking. It will also require the consideration of the impact on women as primary users and beneficiaries of the convenience, time and dignity that these single-use products afford.

Consumption can also be gendered according to women's historic and still dominant role in child-rearing and household management. Disposable nappies[i] are another example of a single-use product creating considerable plastic waste, but the removal of which would likely disproportionately impact women (and likely other intersections of this group in terms of e.g., age, class, remoteness) as primary caretakers.

2.1.3 Disposal

A vast majority of our waste, including plastic waste, ends up in landfills or in uncontrolled dumpsites. In countries where formal waste management is not well-established (e.g., gaps in rural and remote areas, communities where informal dumping sites or open burning are common), there is often an informal waste management sector that emerges.

This sector is made up of waste pickers who sort through landfills and dumping sites to find recyclable and/or re-usable content. In many contexts, for example in Ghana[34] and Southeast Asia,[35] women make up the majority of informal waste pickers, exposing them to health hazards and social stigma while consistently earning less than male waste pickers that more often are included in formal employment.

The impact of these sectors on certain groups of women will be explored more closely in the contexts of the Pacific and Caribbean regions throughout this report.

2.1.4 Pollution and contamination

The environmental pollution caused by plastic waste is economically tangible,[36] and can in some places severely impact industries like fisheries and tourism on which people depend for their livelihoods. Depending on the gendered roles and responsibilities present in different industries, the impacts of pollution on economic sectors can impact men and women very differently, as will be seen throughout this report.

Moreover, chemicals used to make plastics, some of which are found to leak into materials they come into contact with, affect men and women differently. Women's bodies generally store a higher proportion of fat, and as a result may store higher concentrations of the type of "fat-loving" toxic compounds that can be found in plastics.[37]

In addition to toxicity is the issue of microplastics: all plastic breaks down into smaller and smaller particles called microplastics (defined as less than 5 millimetres) which are known to be present in our air, soil and sediment, freshwaters, seas, oceans, plants, and animals. We also know that microplastics enter our bodies, through the air we breathe, the food we eat and the ubiquitous plastic products that we come into contact with every day. In 2020, research showed that bottle-fed babies are likely to be swallowing millions of microplastic particles a day as a result of high temperature preparation of milk and sterilisation of bottles.[38] More recently, two separate Italian studies detected the presence of microplastics in human placenta[39] and breastmilk.[40]

The impacts of microplastics on human, and especially infant's and women's health, are still not well understood, though many in the field speculate that because microplastics carry with them endocrine disruptors (such as bisphenol A and phthalates) which interfere with hormone production, as well as other potentially toxic additives, microplastics could be causing long-term effects on human health.[41] Regardless of the current uncertainty on the extent of impacts, there is consensus that action must be taken to address the issue of microplastic pollution.

[i] The terms 'nappy' and 'diaper' will be used interchangeably throughout the report to mean underwear used to collect waste for, in this context, babies and children.

3

Pacific islands: Fiji, Samoa and Vanuatu

Inhabiting some of the most remote islands on the planet, Pacific islanders have a deep connection to the ocean, one that permeates their social, cultural, and economic lives. Yet this source of life and livelihood is now at risk from the sheer amount of plastics that enter the local system, mainly from beyond island borders. In this chapter, we examine the plastic pollution problem on the islands of Fiji, Samoa, and Vanuatu, and provide a gendered perspective in three key sectors: tourism, fisheries, and waste management.

3.1 Key sources of plastic pollution in the Pacific

The Pacific Island countries (PICs) examined in this section vary in size, economic power, and cultures (Table 1). However, some similarities can be drawn when discussing the issue of plastic pollution and its impacts on the environment and people of the islands. For example, PICs altogether contribute less than 1.3% of the mismanaged plastics in the world's oceans yet are disproportionately affected due to their high dependency on ocean resources, and the transboundary movement of waste.[42]

Table 1 Snapshot of Fiji, Samoa and Vanuatu in 2021

Country	Population	Territory area (km^2)	GDP per capita (USD)
Fiji	357,050	18,333	5,086
Vanuatu	131,943	12,189	3,127
Samoa	87,289	2,831	3,939

Source: Asia Pacific Waste Consultants (2021) Plastic Waste National Level Quantification and Sectoral Material Flow Analysis: Pacific Regional Report. Gland, Switzerland: IUCN; World Bank (2021) GDP per capita (current US$), viewed December 2022.

Plastic accounts for 7-17% of the total waste throughout the Pacific region, second only to organic material (35-70%). It is estimated that of this plastic waste, 73% has the potential to leak into the marine environment from littering, dumping directly into inland waterways or windblown into the ocean from uncontained disposal sites.[43]

The extent of plastic pollution on Pacific islands is concerning not only for its magnitude, but for its impact on the environment, livelihoods and ways of life of the people who live on them. PICs and their inhabitants suffer these impacts in a number of ways, including a degrading marine and land environment, pollution and contamination with likely long-term human health impacts, and associated costs for the tourism and fisheries industries upon which so many PIC livelihoods depend.

3.1.1 Limited waste management and its impact on plastic waste

PICs face growing amounts of wastes to manage on their islands, a characteristic challenge of SIDS, but also unique to these islands due to their geographical isolation, limited land space for waste disposal, remoteness, dispersal of populations across islands, and dependency on imported goods and foreign aid.[44] This confluence of factors means most PICs lack adequate domestic collection and sorting services, with most reliable waste collection services offered only to urban communities. While limited waste management isn't itself the source of plastic waste, it exacerbates the problem by enabling the pollution of land, air, and marine environments on the islands.

Indeed, the lack of reliable waste collection services mean that people resort to illegal dumping and burning their waste, as well as municipal dumpsites that are not up to code and which leak plastic and associated toxic contaminants into the air, water, and soil. On top of this, recycling is also restricted or even non-existent due to logistical and transport challenges, lack of collection and sorting facilities, among other reasons.[45] Ineffective waste management, apart from being a nuisance to residents, results in severe long-term environmental degradation and negative human health impacts.

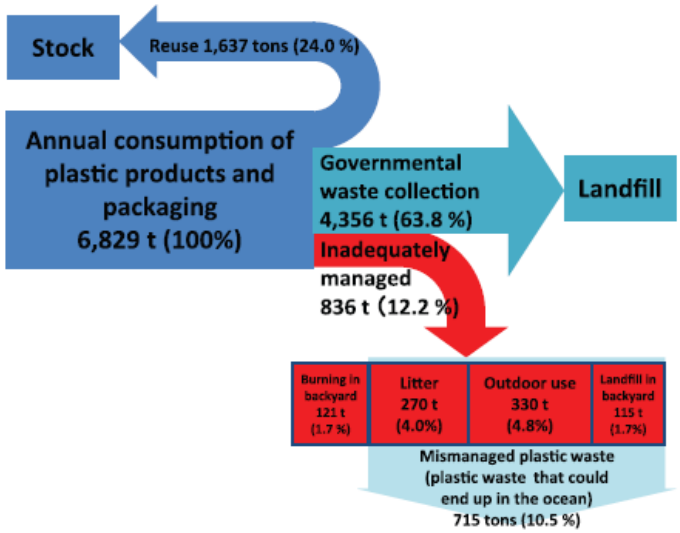
- **Fiji**: Fiji has several controlled disposal sites as well as authorised open disposal sites.[46] Waste pickers operate on several disposal sites and most of these are women, children, and migrants, living in poverty.[47] However, remote and rural areas are still frequently without a waste collection service. Almost half of Fiji's population resides in rural areas, which creates considerable potential for plastic leakage as well as associated impacts like air pollution and soil contamination from standard rural practices like backyard burial and open burning.[48]

  Fiji is the only PIC with recycling and plastic production capacity, and was responsible for all plastic exports in the region. Still, it also imports by far the largest share of plastic in the Pacific, proportions of which outstrip its exports.[49]

- **Vanuatu**: The national rate of access to municipal solid waste collection services is only 12%, much lower than the global average of 41% for low-income countries.[50] Plastic recycling still does not occur in Vanuatu, although recyclable goods are collected and sorted by waste pickers who play a major role in recycling otherwise disposed-of materials.[51]
- **Samoa**: Almost 50% of households in Samoa are not taking part in the waste management services supposedly ensured by the government. [52] Moreover, in keeping with the region's capacity, plastic recycling is virtually non-existent in Samoa. Formal recycling sites do not exist, and any recycling that does take place does so as a result of informal waste picking and sorting for the benefit of a private company who collects and stockpiles plastics for overseas recycling.[53]

  One study shows that over three quarters (76%) of plastic waste in Samoa is either put in a landfill or leaked into the environment as mismanaged waste (defined as the waste discarded through littering, outdoor abandonment and backyard landfilling and/or incineration) (Figure 3). Additionally, the remaining 24% of plastic products labelled as 'reused' may also eventually be landfilled, burned or leaked into the environment. Of the mismanaged 836 tonnes of plastic waste, the authors estimate that as much as 715 tonnes, or 86% of it could end up in the ocean. [54]

Figure 3 Annual consumption and disposal flow of plastic products in Samoa



Source: Asari, M., Tsuchimura, M., Sakai, S., Tsukiji, M. and F. Sagapolutele (2019) "Analysis of mismanaged plastic waste in Samoa to suggest proper waste management in Pacific island countries," *Waste Management & Research*, p.5.

Among survey respondents, there seems to be consensus that the waste management sector is an important part of the solution to the issue of plastic pollution, and already making some of the biggest efforts to improve the situation. After the stakeholder groups of 'local NGOs and civil society' and 'national government,' 'companies in the waste management industry' were perceived as the actors making the most efforts to improve plastic pollution on the island.

3.1.2 Tourism impact on plastic waste

In 2017, Asia-Pacific was the second most visited region in the world (after Europe) and in 2018 accounted for a quarter of the world's international tourist arrivals.[55] Today, the region is recovering from the impacts of the COVID-19 pandemic and its travel restrictions, which in some places were devastating owing to the dominance of the industry. Tourism revenue accounts for 46% of Gross Domestic Product (GDP) in Vanuatu and 39% in Fiji, and in the latter the country saw a USD 2 billion loss in GDP following the pandemic.[56] Much of the literature from the past two years, impacts (both gendered and not) on the people of the PICs following COVID-19.

And yet despite, or perhaps because of, its importance to the islands' economies, tourism generates significant amounts of waste. This is partly because of the sheer amount of resources necessary to cater to the industry - land, air and sea-based tourism activities consume a myriad of plastic materials, especially packaging such as polyethylene terephthalate (PET) water bottles, SUP packaging associated with accommodation, toiletry items and catering materials such as polystyrene containers, plastic cutlery and cups.[57] More and more, resorts and tourist sites are having to import a lot of packaged products to meet tourists' requirements.[58]

The tourism sector is a key contributor to the plastic pollution problem in the Pacific Islands. In Fiji, one analysis found that tourists generate seven times more plastic waste per person per day than households,[59] perhaps not surprising given that in 2019, Fiji was the most popular tourist destination in the Pacific, accounting for 39.5% of all tourists to the region.[60] In Samoa, the tourism sector contributes 20% of all plastics waste generated on the island, with airlines alone contributing over half of this.[61]

Paradoxically, tourism is also one of the industries on the islands that have the most to lose from the negative impacts that plastic pollution has on the environment and human health. One 2011 study in Geoje island in South Korea estimated that a bad episode of marine debris resulted in a 63% decrease in visitors, and a total tourism revenue loss of USD 29–37 million.[62] Similar impact studies have been conducted in the US, showing that there are potential economic losses from increases in marine debris, amounting to loss in tourism and decreases in jobs.[63] A recent IUCN study in PWFI countries also attempts to quantify potential economic losses from plastic pollution based on existing research from other countries.[64]

It is not clear how the COVID-19 pandemic has changed (if at all) the impact that tourism has had on plastic pollution on PIC islands since tourist activities have resumed. With international travel becoming once again active, it will become important to understand how addressing the impact of tourism on pollution will be prioritised in the face of pressure to get the industry back on track.

3.1.3 Fisheries impact on plastic waste

Fisheries – both small-scale and commercial fishing – have a deep-rooted place in Pacific lives, livelihoods and economies. As an important industry and form of subsistence, it also generates waste, a proportion of which is plastic.

- **Fiji**: The fisheries sector's contribution to plastic pollution cannot be ignored (about 7 tonnes per year), yet is negligible compared to the footprint of households (6,032 tonnes per year) and commercial industries (6,072 tonnes per year).[65]

  The impact of plastic on fisheries is, however, well-documented. In 2020, researchers found microplastics in two thirds of the fish collected from the greater Suva inshore environment,[66] and the year after, found every single mussel sampled from five rivers in Fiji contained a high concentration of microplastics.[67] These island foods are an important source of protein and income for Fijians, and in the case of mussels, or *kai*, is also an emerging export commodity.

- **Vanuatu**: The fisheries sector disposed of 66 tonnes of plastic waste in one year, most of which were water bottles, and which accounted for 3.3% of all plastic waste generated in Vanuatu that year. A further 6.3 tonnes of fishing gear are lost at sea.[68] This is significant compared to the total amounts of fisheries plastic waste and the proportion of impact in Fiji and Samoa.

- **Samoa**: Plastic represented 11.5% of fisheries waste disposal (1.09 tonnes per year), with a further 9 tonnes of fishing gear lost at sea.[69] Similar to Fiji, fisheries are an important source of plastic waste, but contribute much less than the tourism sectors combined.

The most oft-cited issue is the plastic waste left by fishermen (and women) in marine environments, also referred to collectively as abandoned, lost and otherwise discarded fishing gear (ALDFG). One such example in the Pacific are 'ghost nets', fishing nets made of nylon that have been lost, discarded or abandoned and which cause issues for marine wildlife. Retrieving and mending these nets is time-consuming and costly, and no alternatives to plastic fishing nets that are durable, affordable and environmentally friendly have yet been designed.[70]

The AWPC estimates corroborate the impact of ALDFG, showing that fishing gear lost or abandoned at sea can make up a considerable amount of the total impact of fisheries plastic waste. In Vanuatu, it accounts for about 10% of the fisheries plastic waste, but in Samoa it amounts to almost 9 times the other types of plastic waste generated by Samoan fisheries.

3.1.4 Marine debris impact on plastic waste

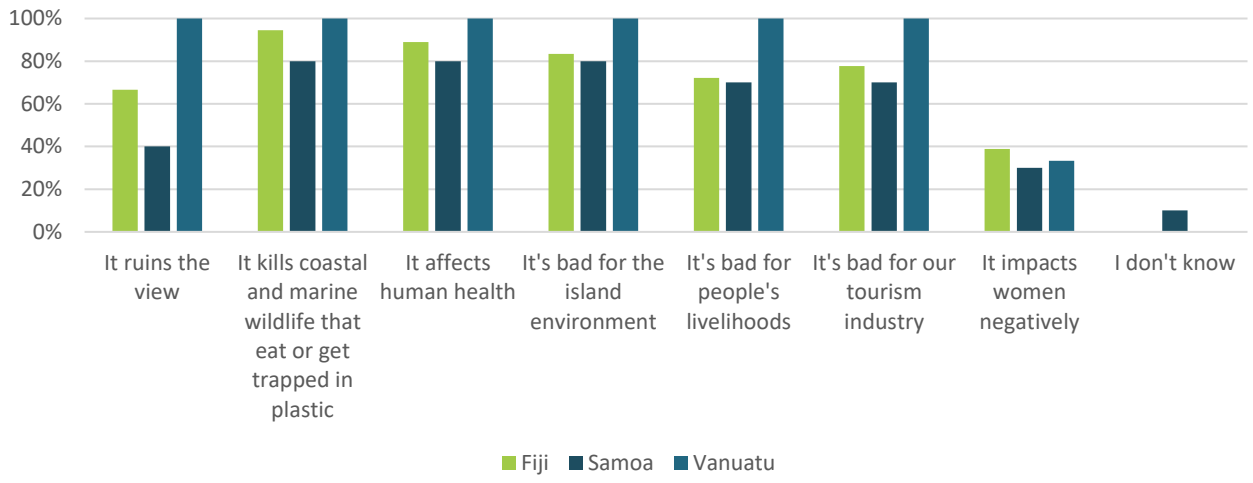
PICs are not only affected by plastic waste coming from on the island, but also by that coming from the ocean and landing on their shores, called marine debris.[71] Offshore sources of marine debris include plastic leaked from the island (due to poor waste management or illegal dumping), ALDFG from fisheries as well as general marine plastic waste carried on ocean currents from other nations.[72] This is especially concerning given the ecological and health implications of marine plastic pollution on PIC people. Plastic debris has the potential to impact the marine food chain through microplastics and leached toxins, all of which impact a crucial cultural, commercial and subsistence resource for Pacific people.[73]

Questions remain as the exact sources of the litter washing up on South Pacific islands, whether it is mostly domestically sourced or from oceanic deposition from further afield. One 2020 study found that most shoreline marine litter were of domestic origin in Tahiti (64% domestic) and French Polynesia (55% domestic).[74] Other experts on the issue express that PICs are exposed to marine plastic pollution disproportionate to their land area and domestic contributions, due to their position within the trade winds and at the outer edges of the Pacific Ocean gyre.[75]

3.2 Gender equality in the Pacific

PWFI stakeholders from the Pacific engaged in the survey exercise conducted by Profundo all agree that plastic pollution is an issue. All respondents stated that they felt their country has a plastic pollution problem, and when questioned on the impact of this pollution, most respondents from the three islands pointed to the negative impacts on the environment, as well as on people's livelihoods and health. A noticeable gap is the response to the idea that plastic pollution impacts women negatively – only about a third of respondents in each country believed this statement to be true (Figure 4).

Figure 4 Survey respondents' perceptions of the impact of plastic pollution on their islands



Question: In what ways does plastic pollution affect your country?

Where does this gap in perceptions of impact on women come from, and how can it be addressed moving forward? In this section we first review some major indicators of gender inequality in the Pacific and the islands of concern here, before moving onto understanding the gendered impacts of plastic pollution in the relevant sectors of waste management, tourism, and fisheries.

There are many methods and ways to assess the extent of gender equality in a country, and no single indicator can determine this. In two assessments of such indicators – the World Economic Forum Global Gender Gap report, the United Nations Development Programme's (UNDP) Gender Inequality Index (GII) – the Pacific region in general, and the islands of Fiji, Samoa, and Vanuatu in particular, show gaps in some key areas of necessity for advancing gender equality. These assessments are based on reproductive health of women, their education levels, political representation and their participation in the labour market.

There are limitations to these types of indices. Firstly, and as has been noted above, they do not consider other key metrics to understanding gender equality and women's advancement in society (e.g., childcare and reproductive policy, rates of gender-based violence.). Moreover, the results are not disaggregated to be able to understand differences in regions (e.g., urban versus rural) or sectors (e.g., fisheries, tourism). Still, in the absence of information on gendered differences in the region, they do provide some insights into where the main gaps lie overall.

According to both assessments, the largest gender equality gap in this region is the lack of political empowerment for women.[76] This is despite higher primary education attainment rates for women as opposed to their male counterparts in Fiji and Vanuatu (and comparable rates of secondary education attainment),[77] and evidence of higher rates of education for women in Samoa too.[78]

The lack of political empowerment in the region is reflected in part by the low representation of women in political office (Table 2), though there is considerable deviation with Fiji. Fiame Mata'afa was elected Prime Minister of Samoa in 2021, and despite potentially benefitting from the parliamentary gender quota in place since 2013,[79] she beat the odds in a country with some of the lowest rates of female participation in politics in the world. Indeed, still 10% of villages prohibit women from becoming a *matai*, or village chief, and only *matai* can be elected to parliament: In 2015, only 7% of Samoa's *matai* were women.[80]

Table 2 Share of seats in parliament held by women

Country	Share held by women
Fiji	22%
Vanuatu	0%
Samoa	8%
East Asia and the Pacific	21%
World	26%

Source: United Nations Development Programme (2020) *Gender Inequality Index (GII)*, online: https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index#/indicies/GII, viewed December 2022.

Across the Pacific, there are also pronounced gender disparities in labour market participation and wages, occupational segregation by gender, and differences in the types of work that women and men perform.[81] Inequalities along gender lines are particularly stark in Fiji and Samoa, where only about a third of women are recorded as participating in the labour market, and where men are earning over twice as much as women (Table 3). There is also a difference in Vanuatu, though it is less pronounced, and also trends along the average of the East Asia and Pacific region. Of course, these estimates do not show important differentiations, e.g., according to sector, class, age, and other socio-economic factors, but give a good indication of the overall picture.

Table 3 Women and men in the labour force 2021

	Labour force participation rate		Estimated gross national income per capita (PPP$)		
Country	**Female**	**Male**	**Female**	**Male**	**Pay gap**
Fiji	38%	75%	5,664	14,270	2.5
Vanuatu	60%	78%	2,354	3,809	1.6
Samoa	31%	54%	3,223	7,312	2.3
East Asia and the Pacific	60%	75%	12,357	18,711	1.5
World	46%	72%	12,241	21,210	1.7

Sources: United Nations Development Programme (2020) *Gender Inequality Index (GII)*, online: https://hdr.undp.org/data-center/thematic-composite-indices/gender-inequality-index#/indicies/GII, viewed December 2022. Note that PPP$ = Purchasing Power Parities, and was calculated for 2017; labour force participation rates are for ages 15 and older; and the UNDP Human Development Index methodology states that "Because disaggregated income data are not available, data are crudely estimated."

Moreover, women and men do different types of work, usually a result of social norms and expectations around their differentiated roles. For example, women dominate the caring professions in PICs, making up 81% of nurses. Care work is often characterised by low pay, long hours, temporary or "zero-hours" contracts, and difficult working conditions, including harassment and violence, which has increased in the context of COVID-19. [82]

The COVID-19 pandemic also exacerbated some of these inequalities in the workforce, disproportionately impacting sector's where women generally have high involvement, like accommodation and food services, and manufacturing. One assessment on the impact of Covid-19 employment in Samoa found that 64% of job losses in formal sector positions were among women. [83] Moreover, Pacific women are overwhelmingly employed in the informal economy, which is also associated with low and unstable incomes, as well as underemployment. [84]

3.2.1 Waste management sector

The waste management sector has been closely linked to action on climate change, as current ways that we dispose of and treat waste contributes to the emission of greenhouse gases, in particular methane from landfills and open dumps. However, waste management also has social dimensions. It an essential provision that many in the world lack, which impacts human health through the soil, water, and air, as well as being a practice that is closely linked to poverty and resource management, and where marginalised communities of men, women and youth have learned to thrive.

Given the importance of these social dimensions, recent attention has been paid to the role of women in the waste management sector, particularly in informal roles such as waste pickers – studies and programmes have been conducted all over the world, for example in Bhutan, Mongolia and Nepal,[85] in India, Indonesia, the Philippines and Vietnam,[86] and in Iran.[87] In comparison, virtually no attention has been paid on the gender nexus of labour and the waste management sector in PICs.

There is no clear indication of how many women are in the waste management sector – both formally and informally – nor what roles they play and what gender-based risks they are exposed to in their jobs. There are some indications that a majority of informal workers, such as waste pickers, are women. One ethnographic study conducted in Fiji and Vanuatu indicates that a majority of informal waste pickers are women, as well as some from the LGBTQIA+ (lesbian, gay, bisexual, transgender, queer, intersex, and asexual) community.[88]

This isn't entirely supported by the survey results. Only four survey respondents (13% of the total) stated that the majority of informal waste collectors are women, though none of them work in the waste management sector (and three quarters are men) (Figure 5). Of the two respondents who are working in the waste management sector, both are men and one identified as a waste picker, and neither stated that they felt a majority of informal waste collectors are women.

Figure 5 Survey respondents' perceptions on the link between plastic waste management and women's rights, access and opportunities

Question: Select any of the following statements that you feel are true.

Beyond the labour divisions in the waste management sector, a key part of the waste management hierarchy is also minimising waste through reduction, which requires the cooperation of people and their households. At a household level, the products that women consume and the ways that they consume them may have profound impacts on relieving plastic pollution in the future. For example, nappies and sanitary items accounted for 33.2% (9,568 tonnes) of all plastic waste disposed of in the Pacific 2020. Nappy disposal alone accounted for 30.6% – the largest disposal of any plastic category by weight.[89]

There seems to be some awareness of the extent of the problem on these islands, and willingness to try solutions. One survey respondent from Vanuatu mentioned the issue, stating that: "*The consultation on nappies that was done by the [Department] of Environment showed the majority of people agreed that they should be banned*." A study in 2020 found that at the end of a project in Fiji to promote better waste management practices, 32% of project participants were using cloth nappies rather than disposable ones.[90]

3.2.2 Tourism

In many PICs, notably Fiji and Vanuatu, tourism remains a priority sector providing over 10% of formal employment opportunities, and further indirect employment opportunities in places linked to the industry.[91] This is estimated to be as much as 45% of the labour force in Fiji serving the tourism industry,[92] with women comprising a third of this workforce.[93] As in the majority of workplaces, women and men do different types of work, and as a result enjoy different opportunities and benefits.

In the tourism industry throughout the APEC region, women are underrepresented in management, enjoy less upskilling opportunities, and on the whole do more of the work that reflects the expectations of women as primary caretakers.[94] For example, one expert noted that: "*In Fiji, women account for nearly two-thirds of university students in tourism courses, yet they hold just one-quarter of the professional and managerial jobs in the industry, with most instead working in minimum wage positions such as cleaning and front-desk work*."[95] Indeed in Fiji's formal tourism workplace, female workers occupy mostly low-paid, "low-skilled" (a euphemism for low-valued and low-paid) positions, usually lacking employment protections like paid sick leave, childcare support or other forms of social protection like pension funds.[96]

Others have focused on the benefits that tourism can bring to its female workforce, including realising opportunities for economic empowerment and the development of gender equality. One 2017 study in Fiji found that women building successful tourist-related businesses were not only becoming economically independent, but potentially also changing norms around representation and decision-making among local power networks, and even enabling expanded roles for men in childcare, cooking and household chores.[97]

Yet, the precariousness of the jobs women typically occupy in this sector, both in formal and informal/self-employed settings, cannot be ignored. During the height of the COVID-19 pandemic, those with informal jobs linked to the industry, such as the entrepreneurs creating and selling handicrafts to tourists, found themselves with no income or social protection to fall back on. One assessment of market vendors in Fiji, 85% of whom were women, found that most did not have enough savings to withstand more than two weeks without income."[98]

These findings altogether indicate that:

- Women are essential to the tourism industry, but occupy precarious jobs, either as self-employed workers and/or entrepreneurs, or formal workers in low-paid jobs with no social protections.
- As the COVID-19 pandemic and previous shocks have shown, the collapse of this industry in the Pacific gives rise to significant gendered impacts, including loss of jobs and income mostly among women, as well as a rise in domestic violence and other forms of gender-based violence.[99]
- Previous studies have shown the tangibility of the economic impacts on tourism. As the long-term impacts of plastic pollution on tourism in PICs become increasingly evident, so too will the gendered impacts of the industry's decline on the groups of people dependent on its success and sustainability.

3.2.3 Fisheries

As seen above, fisheries, while a visible source of land-based plastic pollution in the PICs, does not constitute an important majority in this regard compared to, say, tourism industries or household waste. And yet, the use of marine resources forms a crucial part of Pacific lives and livelihoods, and as such merit attention in looking at the problems and solutions to plastic pollution in the region, especially as they relate to different social intersections. PIC people use their coastal resources in different ways, and as a result develop specialised skills related to their roles, responsibilities and the cultural norms dictating these.

In general, it is said that women use coastal resources for subsistence, as well as material for handicrafts for customary exchange or to sell. They have good knowledge of these resources in shallow waters and close to the shore. On the other hand, while men also use coastal marine resources for subsistence, they go further out to sea to catch fish for food and to sell commercially. Men are also usually more involved than women in high-value commercial fisheries such as *beche-de-mer* (sea cucumber), but women also take part in *beche-de-mer* harvesting, for example in Fiji.[100] Women are thus not as involved in harvesting fisheries (i.e. fishing for subsistence or commerce) but provide important support roles to the harvest (e.g., they work as office staff, make and mend fishing gear, handle fish to shore).[101]

Additionally, and in line with fisheries supply chains in other places in the world,[102] women tend to be more involved in processing and marketing fish from coastal fisheries, including smoking, salting, drying, or cooking fish.[103] In the Pacific, women make up a majority of the tuna processing workforce – they occupy many of the same roles as men (e.g., company managers, plant workers, administrative staff, support staff such as cleaning) but an important distinction is that they do not own the processing companies, and in general make up more of the lower-paid jobs.

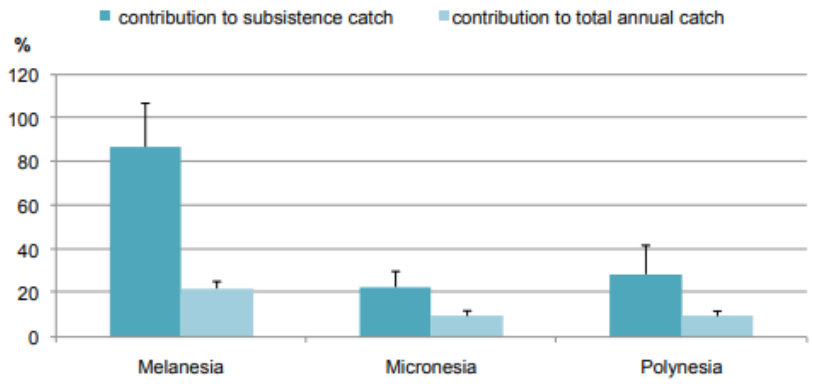
In Fiji in 2001, women made up 12% of company managers in tuna processing companies, while occupying 70% of the more precarious processing/packing job. A 2006 gender analysis of the tuna processing industry found that in Fiji, women received lower pay for the same jobs, discriminatory and inadequate policies regarding maternity provisions and health and safety. In other countries, the author also observed gender-based violence and sexual harassment.[104]

A study from 2009 corroborates some of these generalisations. It looked at the proportion and effectiveness of fishermen compared fisherwomen in the PICs in three different habitats – sheltered coastal reef fisheries, lagoon fisheries and outer reef fisheries. The findings were grouped by cultural region, that is Melanesia (which includes Fiji and Vanuatu), Micronesia and Polynesia (which includes Samoa), to understand whether any differences could be seen across cultural groups as well. Key findings from this study illuminate the differences in these regions, and the possible explanations for the disparities between fishermen and fisherwomen.

To begin with, the study found that across the board, fishermen are mainly responsible for the total annual catch of a community, most of which is sold to those outside the fishermen's community. Men fished more overall, more at night and for longer hours. Fisherwomen also prefer the close-by habitats that are usually easier to access than the outer reef area. The authors speculated this could be due partly to fisherwomen's other responsibilities, especially those in rural areas where the role of being head of the household and caretaker of the family still dominates many women's daily lives. Other explanations include taboos regarding women use of boat transport, fishing at night, and using fishing gear.[105]

A key deviance from this finding is in Melanesia, where women account for as much as 80% of the subsistence catch of their communities, and more of the total annual catch as in other regions, about a fifth (Figure 6). This has implications for the role of fisherwomen in Fiji and Vanuatu in providing subsistence protein in their community and being essential to the management of the reef's resources. As such, they are particularly important groups to consult in any discussion of the impact of coastal fishing on plastic pollution (and vice versa).

Figure 6 Average contribution of fisherwomen to the total annual subsistence catch and the total annual catch by cultural groups



Source: Kronen M. and A. Vunisea (2009) "Fishing impact and food security – Gender differences in fin fisheries across Pacific Island countries and cultural groups," *SPC Women in Fisheries Information Bulletin 19 (February),* p.4.

These findings altogether indicate that:

- The role that men generally play in fisheries – harvesting, commercial fishing – may be valued more highly than the role that women typically play in subsistence fishing, supporting harvest, marketing and processing.
- Commercial processing in particular are usually highly mechanised, low-paying and "low-skilled" jobs which put women at risk of workplace health and safety issues, as well as exploitative and even abusive conditions.[106] This has already been observed in the Pacific tuna processing industry.[107]
- This makes women a less visible stakeholder in an industry on which their daily lives depend on greatly – in terms of providing subsistence for their households, providing the basis for their jobs in commercial processing, and providing the by-products (e.g., shells) necessary for the crafts that bring cultural value and income to their communities.
- Plastic pollution puts fisheries at risk, both in the short-term and the long-term. Both men and women depend on the sustainable supply of quality fish for food, livelihood and cultural continuity. Women in Melanesia (including Fiji and Vanuatu) may be especially vulnerable to the impacts that plastic pollution has on their subsistence fishing and other coastal resources.

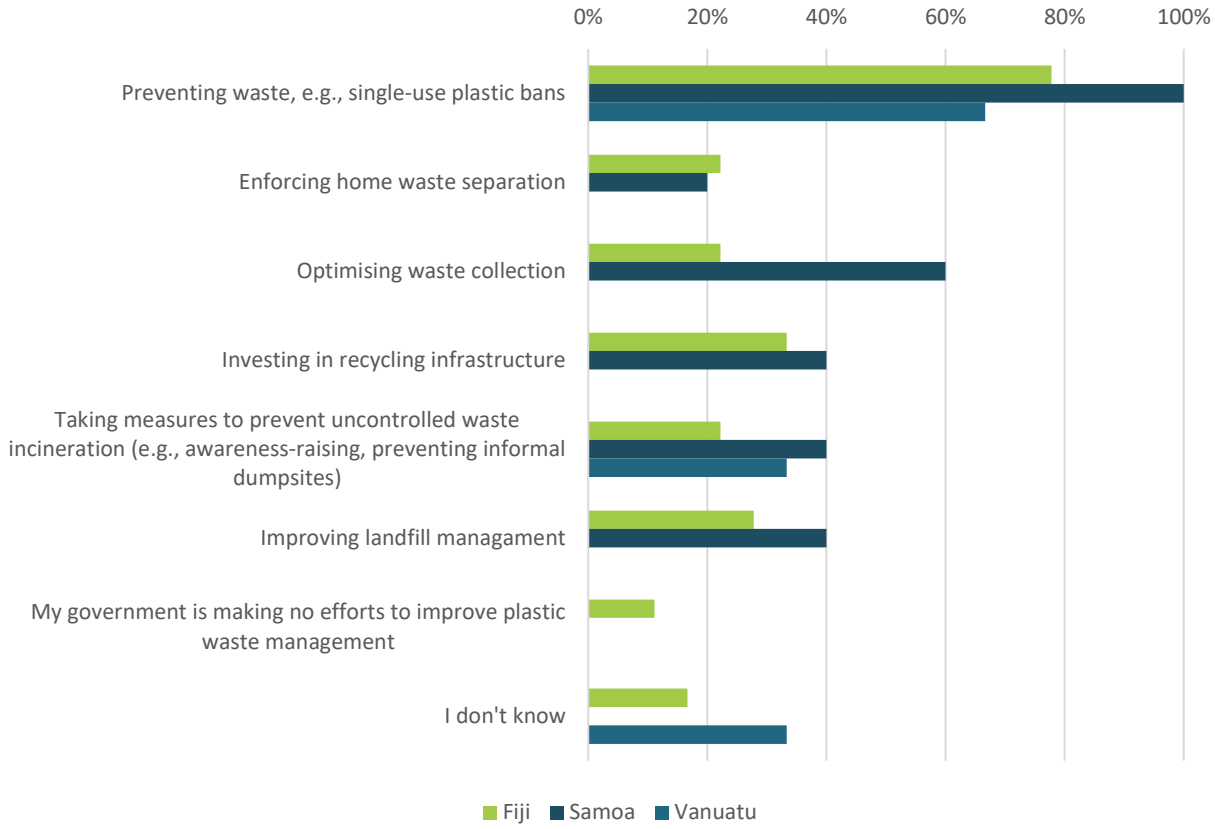
3.3 Relevant gaps in national and regional policies

Pacific SIDS, despite their small size and economic influence, have been at the forefront of calls to action in relation to the prevention of plastic pollution, climate change, and the sustainable use of marine resources.[108] It is thus unsurprising that there are already national and regional legislations in the PICs to manage different aspects and sources of plastic pollution. Yet, despite this visible advocacy and legislative shifts, current approaches in the region have not been sufficient to address the plastic problem in the PICs, and key gaps remain.

With regards to the multiple existing regional agreements on dealing with the issue of plastic pollution, Fiji and Samoa have ratified all of them, and Vanuatu has ratified all of those created in the last 20 years.[109] Specifically, a pair of policies agreed in 2016 and 2018 through the South Pacific Regional Environment Programme commits participating PICs to implementing waste prevention and reduction programs based on principles of a circular economy, including Extended Producer Responsibility (EPR) schemes, and particularly targeting single-use products. Indeed, the policy binds PICs to develop legislation to ban single-use plastics, Styrofoam and plastic packaging, and to provide subsidies to help fund the transition to alternatives.[110]

At a national level in Fiji, Vanuatu and Samoa, it seems that the single-use plastic bans, like the bag bans, have been the most visible government policy to address plastic pollution (Figure 7). Survey respondents also picked up on the lack of the government's ambition in limiting plastic waste among key sectors. Only between 0-10% of respondents stated that the government was implementing restrictions on the tourism and fishing industries on these islands.

Figure 7 Survey respondent's perceptions of policy progress on plastic waste management



Question: What efforts is your government taking to improve plastic waste management?

There also seems to be a sense from the private sector that insufficient attention is being paid to potential partnerships between the government and the plastic production and waste management companies to address the issue, and that too much attention is being placed on campaigns for behaviour change. One survey respondent from Samoa, representing the private sector noted that: "*Private sector and Samoan government need to collaborate more in this effort of management and reducing plastic waste, before working with the community at large*."

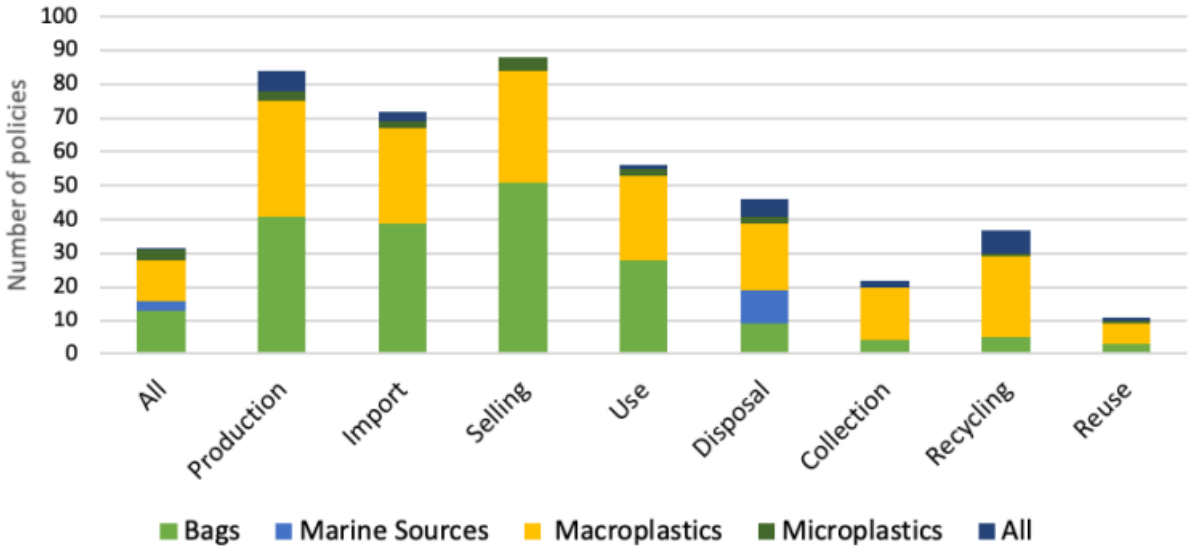
> "*The failure of the [Department] of Environment to implement a container deposit scheme when supported by industry was a travesty and set back private/public cooperation in Vanuatu immensely*."
> Survey respondent from Vanuatu, representing the waste management sector

It is clear then that despite careful progress, key gaps remain. Particularly important to addressing disproportionate impacts on women and other impacts on gender equality is that there seems to be inadequate recognition of the impact on human health. In none of the three countries' policies is plastics recognised as a harmful material in and of itself, for example as a source of endocrine-disrupting chemicals and carcinogens leaching into food and beverages and sanitary products.[111]

Moreover, none of the three countries include a consideration of microplastics in their policies. Despite increasing links being made between microplastics and hazards to human, and particularly women's and infant's health (see Section 2.1.4), virtually no regulation exists which limits the entry of these types of plastics into the marine, freshwater and terrestrial environments of the PICs. This is true for the entire Pacific region, save Palau.[112]

The policy focus on plastic bag bans and the gaps in relation to microplastics and the broader effects on human health and the environment are more or less in line with the global trend. An analysis of plastic legislation all over the world for the past 20 years shows that a lot of attention has been placed on reducing the use of plastic bags, and that virtually no attention has been paid to microplastics[113] (Figure 8) despite the mounting evidence of their ubiquitous presence in our environment and bodies.

Figure 8 Number of national policy documents containing instruments that address a given stage of life cycle



Source: Karasik, R., T. Vegh, Z. Diana, J. Bering, J. Caldas, A. Pickle, D. Rittschof, and J. Virdin (2020) *20 Years of Government Responses to the Global Plastic Pollution Problem: The Plastics Policy Inventory*, Durham, NC: Duke University, p.65.

Experts note that despite providing a valuable foundation for progress, these regional and national instruments over-emphasise waste management and have little scope to regulate the overwhelming quantities of plastic produced and imported into (and between) the Pacific region.[114] These same experts, alongside voices from Pacific SIDS (see quote below), insist that given the transboundary nature of plastic pollution (0) and expansion of plastic production upstream out-of-reach of PIC jurisdictions,[115] only a globally binding agreement can ensure any progress on the issue in this region.[116]

Figure 9 Estimated sources of land-based plastic debris in the South Pacific Ocean

Source: Farrelly, T., Borrelle, S. and S. Fuller (2020, April) *Islands of Opportunity: Toward a Global Agreement on Plastic Pollution for Pacific Island Countries and Territories*, London, UK: Environmental Investigation Agency, p.11.

> "*In my own opinion, for a small country such as ours, a ban won't have any good effect for the long run, instead the whole world has to come together and let's all ban the plastic pollution for good.*"
>
> Survey respondent from Samoa, representing the national government

3.4 Current gender-responsive practices on the islands

Gender-responsive solutions to the plastic pollution problem account for the different roles, responsibilities and impacts of men and women in the key sectors responsible for plastic pollution. Gender-sensitivity also means acknowledging the viewpoints of these different groups of stakeholders in creating the solutions necessary to tackle plastic waste.

Some of the survey respondents from different sectors seemed to espouse such approaches unprompted, indicating that there is a good sense that key stakeholder groups need to be consulted in the development of waste management schemes, and that groups of women (and youth) are important parts of this. One respondent representing the national government in Fiji noted that: "[We need] *updates of village profiling before a waste management of each village is developed and included into the village development plan for the village to act upon it involving mostly women* [and] *youth as drivers of the initiatives*."

There is already strong recognition in the Pacific islands that plastic pollution is a problem that needs to be tackled by residents, governments and the regional and international community. As a result, there are many different kinds of initiatives which attempt to address different parts of the problem, from enabling behaviour change to instituting an entire circular economy approach.

There are also a great number of organisations working on women's rights throughout the Pacific, as well as high-level political forums addressing the issue which has in the past been acknowledged as a high priority. For example, Samoa became the first PIC in 2018 to conduct a national public inquiry into family violence, revealing an 'epidemic' of sexual abuse and gender-based violence.[117] Important forums for research and advocacy of Pacific women's rights include the Pacific Women Lead (PWL) programme, a follow-on from the Pacific Women Shaping Pacific Development programme funded by the Australian Department of Foreign Affairs and Trade.[118] Regional feminist organisations include the International Women's Rights Action Watch Asia Pacific (IWRAW-AP) and more locally there is the active Fiji Women's Rights.

Very few initiatives address the linkage of gender and plastic, and these are mostly tackling the issue of plastic pollution from a women's rights and access perspective. The most developed of the examples found are the women-owned enterprises making reusable menstrual hygiene products, like MANA Care[119] based in Samoa and Mamma's Laef[120] in Vanuatu. A swipe through the MANA Care Facebook page shows that in the last few years, this enterprise has done more than just save on the SUP waste from disposable sanitary products – the organisation has conducted webinars to raise awareness among customers, provided jobs to local female seamstresses, celebrated policy progress on the issue in New Zealand, and conducted community outreach programmes with the Ministry of Women, Community and Social Development.[121]

On the issue of sanitary product alternatives, a few of the survey respondents mentioned that there need to be increased shifts in the social norms of usage of these products, the perception of its convenience and relative benefits versus the costs to the environment. An important misconception to address is that reusable sanitary products (much like reusable nappies) are not affordable, because they are a considerable upfront investment. However, reusable sanitary products have been shown to be cheaper in the long-term than their disposable counterparts.[122]

Other women-run initiatives to reduce plastic waste were informed to us by survey respondents, and include village Women's Committees in Samoa which are charged with enforcing a "environmental cleanliness",[123] or women handcrafters upcycling plastic waste to sell as souvenirs. These type of clean-up campaigns and small-scale upcycling while potentially important in shifting behaviour towards the issue of plastic waste, are not tangibly impactful and in the words of the CEO of Waste Recyclers Fiji Ltd are simply "*moving* [sic] *waste from one area to another*."[124]

Overall, these initiatives are small-scale, and can feasibly tackle only parts of a widespread and multi-faceted problem. More importantly, they seem to be largely isolated from the waste management policy-making space in their own countries, depending instead on the personal investments of micro-entrepreneurs, as well as development and aid budgets from e.g., the Australian government and international civil society.

These isolated solutions are still extremely important, and they seem to prove that addressing the issue of plastic pollution from a gendered perspective (or at least a women's rights perspective) can also improve other rights and access issues. In the case of MANA Care and Mamma's Laef, there is an explicit mission on the part of the founders and its partners, like the Pacific Menstrual Health Network, to end period poverty and increase menstrual health for people in the region.

4

Caribbean islands: Antigua and Barbuda, Grenada and Saint Lucia

Caribbean island populations are the world's largest per capita polluters of plastic waste in the sea. With still inadequate waste management systems in place, plastic waste pollution threatens the sustainability of key economic sectors in the region, namely tourism and fisheries. Moreover, plastic waste pollution threatens public health. The negative impacts of plastic pollution affect women especially. Using a gendered perspective, this chapter presents an overview of the problem of plastic pollution on the islands of Antigua and Barbuda, Grenada, and Saint Lucia.

4.1 Plastic pollution in the Caribbean

Caribbean islands are the world's largest per capita producers of plastic waste.[125] Seven out of the top fifteen per capita polluters of single-use plastics worldwide are island states in the Caribbean.[126] Not surprisingly, the amount of plastic waste found on their beaches and coastal areas is far higher than the global average, with as much as 2,014 litter items per square kilometre, compared to a global average of 573.[127] This makes the Caribbean Sea the world's second most plastic-contaminated space after the Mediterranean Sea.[128]

But the concentration of plastic litter in Caribbean islands is not proportionate to their own consumption and population. In this context, marine litter in this region has been found to originate both in the region as well as in distant waters, which are putatively brought to the area by ocean currents. Nonetheless, local plastic pollution in the Caribbean is an issue of concern, not least because plastic litter is accumulating in the sea.[129] The most common types of plastic litter in some Caribbean islands are bottle caps, followed by other bottles and straws and stirrers (Table 4).

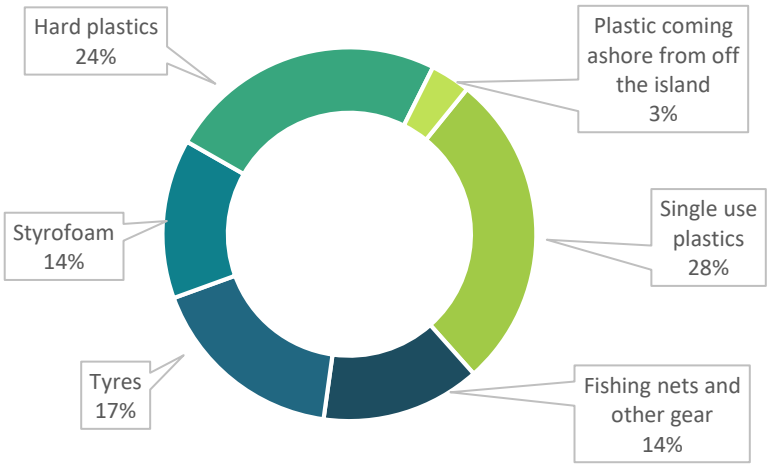
Table 4 Litter found in coastal clean-ups in selected Caribbean islands (litter items/km^2)

	Bottle caps (plastic)	Beverage bottles (plastic)	Straws and stirrers	Food wrappers (candy, chips, etc.)	Grocery bags (plastic)	Take away containers (plastic)
Bonaire	61	3	55	34	15	0
St Marten	3	142	1	8	7	2
The Bahamas	326	311	61	64	58	39
US Virgin Islands	1,078	516	365	511	95	216
Puerto Rico	8,732	8,076	7,728	4,563	2332	1,962
British Virgin Islands	20	170	8	30	22	22
Average (Caribbean)	1,703	1,536	1,369	868	421	373
Average (Global)	8,538	13,062	467	11,948	5,675	4,631

Source: Ocean Conservancy (2021), *International Coastal Cleanup Report*, pp. 16-19.

Fishing gear (lines, traps, nets, etc.) and aquaculture structures are other critical types of marine debris in the Caribbean. These are also known as abandoned, lost or otherwise discarded fishing gear (ALDFG) and are considered the main source of plastic waste in the marine environment from the fisheries and aquaculture sector. Because it is designed to last a long time, ALDFG is the most harmful form of marine debris. Once lost in the sea, it can continue to catch fish targeted by fishers, and it can entangle other aquatic species and damage marine and nearshore habitats.[130] While figures on ALDFG as a proportion of the total plastic waste documented by marine pollution researchers are non-existent, the types of plastic waste cited in the literature are in line with the perceptions of Caribbean stakeholders surveyed in the context of this research (Figure 10).

Figure 10 Survey respondents' perception of the main types of plastic waste in the Caribbean



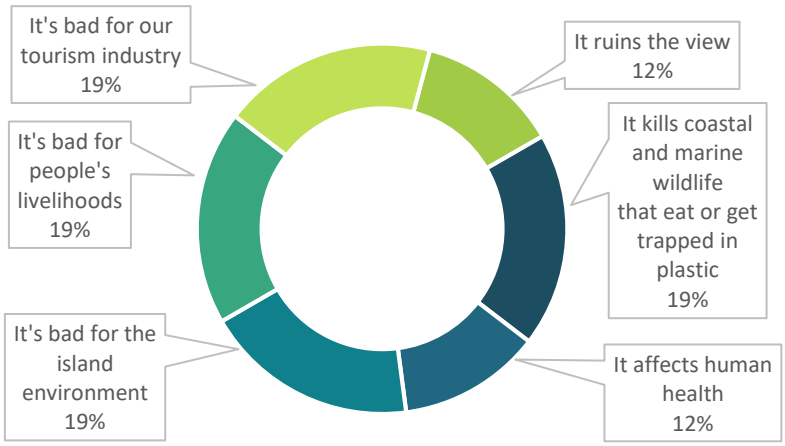
Question: What are the main types of plastic waste you see? Chose 1-3 options.

Coastal and marine plastic pollution represents a potentially lasting loss of biodiversity and poses serious risks to the fisheries and tourism sectors, on which many Caribbean economies depend. Fisheries are a key source of livelihood and food security for a number of local communities in the region. In Saint Lucia, for example, the fisheries sector contributes about 0.4% of the total GDP and 25% of the agricultural GDP.[131] In Grenada, the fisheries sector makes up for 31% of the agricultural GDP.[132] The economic impact of marine and coastal plastic pollution on the Saint Lucian and Grenadian fisheries sectors was estimated at 3.7% revenue loss, based on 2019 data.[133]

By the same token, tourism makes up for an average of 15.2% of the Gross Domestic Product (GDP) in the Caribbean. In countries like Grenada, tourism accounts for over 50% of the GDP.[134] The potential economic impacts of plastic pollution on tourism have been documented. In this context, sea plastic pollution was estimated to cause a potential loss in revenue of between 52 and 61% in Saint Lucia in 2019 and between 16.7 and 37.9% in Grenada.[135] Marine and coastal plastic pollution influences people's choice for holiday destinations and some tourists are willing to pay substantially more to vacation on clean beaches, and some refuse to return to littered ones.[136]

The documented threats of plastic pollution to both biodiversity and the economy in the Caribbean are in line with the perceptions of stakeholders surveyed in the context of this research. Notably, there is little research on the aesthetic pollution caused by plastic waste in the Caribbean and its impacts on well-being. In this context, the survey respondents rated aesthetic pollution as relevant as economic, health, and environmental impacts (Figure 11).

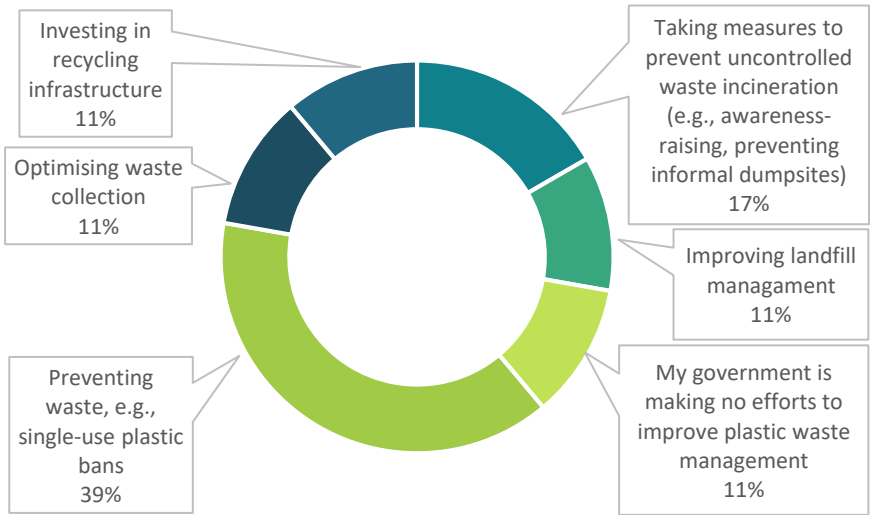
Figure 11 Survey respondents' perception of the impacts of plastic pollution in the Caribbean



Question: In what ways does plastic pollution affect your country?

Aware of the threats that plastic pollution poses to people and the environment, at least 27 countries and territories in the Caribbean have legislated or proposed some form of policy controls on single-use plastic (SUP) and/or Styrofoam products.[137] Additionally, other policy measures have been undertaken in the last years, including investing in recycling infrastructure and taking measures to prevent uncontrolled waste incineration (Figure 12). However, these efforts have so far achieved limited success. A major challenge is the lack of a comprehensive national solid waste management framework that effectively tackles the problem of SUP waste. As a result, on average, only 54% of the region's solid waste is disposed of in sanitary landfills, with much of the remainder leaking into the ocean.[138] This includes some 272,155 tonnes of uncollected and unprocessed plastic, which is disposed of in illegal dumpsites and waterways.[139]

Figure 12 Caribbean survey respondents' perception of governmental efforts to improve plastic waste management



Question: What efforts is your government implementing to improve plastic waste management? Select all that apply.

With a high waste collection coverage rate and a number of policies and interventions on SUPs and other types of plastic, one may ask: *What can be done to tackle the problem of plastic waste in the Caribbean region more effectively?* The following sections take a closer look at the state of plastic pollution and its impact on key economic sectors in Antigua and Barbuda, Grenada, and Saint Lucia from a gender perspective.

4.1.1 Antigua and Barbuda

Antigua and Barbuda are located in the north-eastern Caribbean archipelago. The country consists of two main islands, Antigua and Barbuda, and three smaller uninhabited islands. Antigua and Barbuda islands are a biodiversity hotspot with many vulnerable ecosystems, including dry forests, wetlands, salt ponds and oceans.[140] Tourism is the country's single most important economic sector, accounting for around 80% of the GDP and approximately 70% of employment.[141]

Antigua and Barbuda has one of the world's highest per capita waste generation rates (5.5 kg/person/day) and mismanaged waste (3.2%).[142] In 2018, Antigua and Barbuda imported plastic or rubber products from 84 countries, amounting to almost 3,900 tonnes (USD$ 25 million) counting for half of the imported plastic PET, HDPE and LDPE.[143] Although Antigua and Barbuda's estimated waste collection services serve 98.61% of the population,[144] about 99 tonnes of plastic waste is mismanaged annually, with an unknown percentage leaking into the ocean.[145]

A study of plastic pollution in several Caribbean islands found that in Antigua, sheet like plastic fragments were the most common litter in water, followed by food plastics.[146] In Antigua and Barbuda, 90 per cent of all plastic waste is bags distributed by supermarkets.[147]

- **Policies**

Antigua and Barbuda instituted a National Plastic Bag Ban in 2016 and a ban on Expanded Polystyrene in 2017. The Styrofoam ban applies to the food industry, but not to airline carriers, private airline charters, and passenger cruise vessels importing and using Styrofoam food service products.[148]

According to the United Nations Environment Programme (UNEP), in its first year, the plastic ban contributed to a 15.1% decrease in the amount of plastic discarded in landfills in Antigua and Barbuda. While most large businesses comply with the ban on the commercial use of plastic bags, compliance among smaller operators remains problematic. To improve this situation, the government has distributed reusable plastic bags for free amongst smaller businesses.[149]

Despite the policy framework to address the problem of plastic waste pollution and plastic leakage, this research did not find indications that gender analysis or impact assessments were used in the making or evaluation of those policies.

- **Waste management**

Solid waste management in Antigua and Barbuda is under the control of the National Solid Waste Management Authority (NSWMA), but contractors also provide waste management services to commercial premises, accommodation businesses, and cruise ships to collect and dispose of their waste.[150] There is one single site where waste can be legally disposed of in Antigua, the Cooks Landfill, which exceeded its designed capacity in 2016.[151] The Cooks Landfill site is situated next to a low-lying mangrove wetland.[152]

While NSWMA divides solid waste into different categories (biodegradable organic material, other organic material, paper, plastics, metals, glass, hazardous, green waste/agricultural, and construction/demolition),[153] the Antiguan experts who informed this research stated that waste is not separated at source for collection or disposal. There is, however, a network of small recyclers that sort, bail and export plastics, metals, and paper.[154] One of those recycling companies (Wills Recycling) works together with an undisclosed number of waste pickers, the majority of whom are women, providing advice, training and a cash incentive to enable them to have an income. These women reportedly work with little protection, using their bare hands to dig into the garbage.[155] According to our informants, waste is brought to these recyclers by informal waste collectors and sometimes submitted by individual households to NGOs that conduct periodic waste recycling events.

According to NSWMA data, the Cooks landfill department staff is about 92% men, while 96% of the staff employed in the collections department are male.[156] This contradicts the results of a rapid gender analysis conducted in Antigua and Barbuda that found a higher percentage of women working in the waste sector.[157] It is possible these data disparities reflect the structure of employment across different sectors, where women tend to conduct "low-skilled" (a euphemism for low-valued and low-paid) jobs while men are more often occupying management positions. The fact that the majority of informal waste collectors are female supports this assertion.

- **Fisheries**

Fishing remains an important sector in Antigua and Barbuda, providing employment and contributing approximately 2% of the country's GDP. Fishing is mostly done on a small scale by artisanal fishers who contribute significantly to national food security. Most registered fishing vessels are not active, and workers in this sector shift between fishing and construction depending on the availability of jobs. Antigua and Barbuda import a high number of fish products, mostly to serve the tourism industry, whose demand for fish cannot be met domestically. Women's role in subsistence nearshore and coastal fishing is often unpaid and, therefore, undervalued in economic data. According to a 2012 International Labour Organisation (ILO) survey of Antigua and Barbuda, less than 1% of the fishing sector's employees were women.[158]

Small-scale fisheries management is limited, as the country only uses the Caribbean Community Regional Fisheries Policy and has no policy of its own for small-scale fisheries.[159] Accordingly, there are currently no guidelines for the marking of fishing gear,[160] which is however the largest source of plastic pollution in the fisheries sector.

- **Tourism**

Before the COVID-19 pandemic, tourism accounted for 48% of Antigua and Barbuda's GDP and contributed approximately 62% of export earnings and 70% of employment.[161] According to the ILO, there are more female than male employees in the Antiguan tourism sector. In this context, women are concentrated in lower-paying jobs and play little role in ownership, except in microenterprises.[162]

4.1.2 Grenada

Located in the Caribbean Sea at the southern end of the Grenadines Island chain, Grenada consists of three main islands: Grenada, Carriacou, and Petit Martinique, totalling an area of approximately 348 km^2. The country's coastline consists of diverse marine and coastal ecosystems, including mangrove swamps, coral reefs, sea grass beds, beaches, lagoons, dry woodlands and cactus shrublands.[163]

Grenada's per capita waste rate is 1.13 kg/per person/day (of which 0.06 kg are plastic).[164] As of 2018, over 13% of its waste stream consisted of plastics.[165] Its waste collection services boast a coverage rate above 97%.[166]

- **Policies**

To legislate plastic waste, the Grenadian government introduced a plastic ban in 2018. It became the 8th Caribbean country to do so. This legislation provides fines for illegal dumping, but as of 2021, no penalties were in place nor administered. Grenada passed the Non-biodegradable Waste Control Act in 2018, which appears to ban the import or manufacture of any non-biodegradable product unless permission is explicitly granted. In 2019 single-use plastic bags, straws and polystyrene (Styrofoam) food containers were banned. A year later, Grenada banned plastic utensils.[167]

Despite the policy framework to address the problem of plastic waste pollution and plastic leakage, this research did not find indications that gender analysis or impact assessments were used in the making or evaluation of those policies.

- **Tourism**

Grenada's economy relies largely on the services sector. In this context, tourism, construction, transport, and private education are the main contributors to the economy, accounting for 50.1 % of the country's GDP in 2017.[168] Women make up the majority of the workforce in the Grenadian tourism sector, employed in providing accommodation, food and beverage services, tours, entertainment, craft and other local products.[169]

Before the COVID-19 pandemic, almost 350,000 tourists visited the islands every year, mainly to explore and enjoy the islands' wealth of nature: their landscapes, coasts, and seas. Two thirds of the islands' tourists only visit during the day, while the remaining third comprises stay-over tourists.[170]

4.1.3 Saint Lucia

Saint Lucia is surrounded by the Atlantic Ocean and the Caribbean Sea. With a land area of approximately 616 m^2, the island is covered by a mountainous landscape endowed with a range of terrestrial and aquatic habitats. Ecosystems are diverse and include dry cactus scrubs, rainforests, mangroves, and coral reefs.[171] Tourism is Saint Lucia's main economic sector. Prior to COVID-19, this sector constituted 65% of the country's GDP.[172]

With 704 tonnes, tourism accounted for 14% of all plastic waste disposed of in Saint Lucia between 2019 and 2020. Between 2015 and 2019, land-based tourists disposed of 294 tonnes per year of plastic waste, representing 41.7% of all plastic waste disposed of by the tourism sector annually, equivalent to 0.08 kilograms per tourist per day.[173]

The Saint Lucia Solid Waste Management Authority (SLSWMA) was established in 1996 under Act No. 20 of 1996 (repealed and replaced by the Waste Management Act No 8 of 2004). The Authority was established to improve existing public health and environmental quality standards through more efficient waste management.[174]

- **Policies**

St. Lucia took initial steps in March 2018 towards phasing out polystyrene food service containers The process included the imposition of a 0% import duty on all biodegradable and compostable food service containers and a total ban on plastic shopping bags that aimed to encourage the use of reusable shopping bags. Moreover, St. Lucia instated a total ban on single-use plastics and personal care products containing microplastics, thereby reducing the impact of plastics on the marine and terrestrial environment.[175] Banned SUPS include: PS, PET and HDPE takeaway beverage cups, all plastic takeaway plates, PS and PET cup lids, bowls (not HDPE); PS bowls, trays, tray covers, fruit and vegetable, meat and fish trays, hinged takeaway containers (not PET or HDPE).[176]

In drafting and implementing plastic waste legislation, the Saint Lucian government established a collaborative framework together with the Solid Waste Management Authority and other agencies. Together, these stakeholders implemented waste diversion and minimisation strategies to encourage recycling, reuse and composting. Moreover, public education campaigns were launched aiming to promote biodegradable products and to raise awareness about the economic and environmental impacts of SUPs. In addition to these policies, the St. Lucian government aims to increase the lifespan of the landfills, provide employment and economic opportunities and improve environmental stewardship.[177]

- **Waste management**

The Saint Lucian Solid Waste Management Authority (SLSWMA) has the overall authority on the island's waste. However, SLSWMA does delegate some waste management tasks (e.g., street cleansing) to local government councils. SLSWMA provides waste collection, treatment, disposal, and recycling of solid waste, including hazardous waste from households, public institutions, and healthcare facilities.[178] According to the informants consulted for this project, private contractors are regularly hired to haul construction waste. Unfortunately, it is not uncommon for this waste to end up in illegal disposal sites.

There is one official waste disposal site in Saint Lucia, the Deglos Sanitary Landfill. Together with the Vieux Fort Waste Transfer Facility, the Deglos landfill is managed by SLSWMA.[179] According to one of the key informants interviewed for this research, the St. Lucian waste collection sector is dominated by men, with a few women

Waste recycling is carried out on a small scale by several private operators who collect, process and export plastic for recycling as there are no sustainable markets available for the material.[180] According to the interviewed key expert, the number of recyclers has gone from about 12 to two. One of those two is soon to quit the business because the cost of waste separation makes recycling unprofitable. Asked about the presence of informal waste collectors in St. Lucia's waste management system, the informant stated that there are a few waste pickers, most of whom are children. In this context, the informant said that the majority of the most marginalised St. Lucian households are headed by women and that the children of those households are most likely to be involved in informal waste collection.

- **Fisheries**

The agricultural, forestry and fisheries sectors contribute 2% of GDP and account for 22% of jobs.[181] Over the past decade, fishing in Saint Lucia has changed from artisanal to more commercial fishing with the introduction of longlines and larger boats capable of exploiting offshore pelagic fish including migratory species such as dolphin fish, wahoo and tuna and tuna-like species. Nevertheless, all commercial fishing in Saint Lucia is classed as artisanal given the use of small boats, traditional methods, and simple equipment.[182]

The total volume of wild marine capture in Saint Lucia in 2021 was 1,382.6 tonnes, an increase of 8.9% from the previous year. This increase was driven by increased fishing excursions and domestic demand brought about by expanded hotel and restaurant operations. The estimated value of landings rose by 6.6 per cent to $22.1 million during this period.[183]

There are no official figures on the share of women employed in the Saint Lucian fisheries sector, although the sector is known to be male-dominated. Still, there are some indications of their participation in artisanal fishing and the incipient seaweed farming industry. In 2019, Saint Lucia National Fisherfolk Organisation was presided over by a woman who had become a fisher after the death of her husband.[184] In agreement with this story, one of the experts who informed this research stated that very few women own fishing boats, and most of the women employed in this sector engage in petty trade, including processing (frying, smoking, and drying) of fish destined for restaurants or for direct sale in the street. Likewise, over half of the beneficiaries of a World Bank project supporting the development of the seaweed compost industry are women.[185]

- **Tourism**

Tourism is Saint Lucia's most important economic sector as in other Caribbean islands. In 2019, this sector accounted for 79.7% of total employment and contributed 68.1% of Saint Lucia's GDP.[186] Between 2010 and 2019, the number of stay-over visitors to Saint Lucia grew consistently from 318,626 to 423,736. Cruise passenger arrivals fluctuated over the ten-year period 2010-2020 but enjoyed steady growth between 2016 to 2018 increasing from 587,421 passengers in 2016 to 786,743 passengers in 2019, followed by a 62 per cent decline due to the COVID-19 pandemic.[187] In Saint Lucia, most employees in the tourism and services sectors are women. In 2017, the sector employed over 16% of the country's total female workforce.[188]

PET is collected for recycling in Saint Lucia, and yet it is the second most leaked item in the tourism sector.[189] According to the key experts that informed this research, the prevalence of PET leakage is due to the high consumption of bottled beverages consumed by both tourists and locals alike. Asked about the drivers of demand for bottled water on the island, the key expert stated that tap water is safe and people's preference for bottled water (and other beverages) is rather a behavioural problem that needs to be addressed. To tackle this problem, the key informant suggested setting more incentives such as payment of a deposit by consumers or obliging hotels and public offices to install water filters to ensure that people use reusable containers.

4.2 Plastic waste and gender equality in the Caribbean

While plastic production and consumption cannot generally be attributed to men or women, gender roles can affect these groups' use, disposal, and recycling of plastic products, as well as their exposure to health hazards and environmental threats from plastic pollution.[190] Those roles vary across cultures, but it is undeniable that worldwide, the bulk of unpaid care work is done by women.[191] In this context, women not only spend more time than men conducting household chores, such as cooking, cleaning, childcare, and tending to ill family members, but the gap has widened since the COVID-19 pandemic.[192] At the same time, the use of single-use plastics makes unpaid care work less burdensome for women.[193]

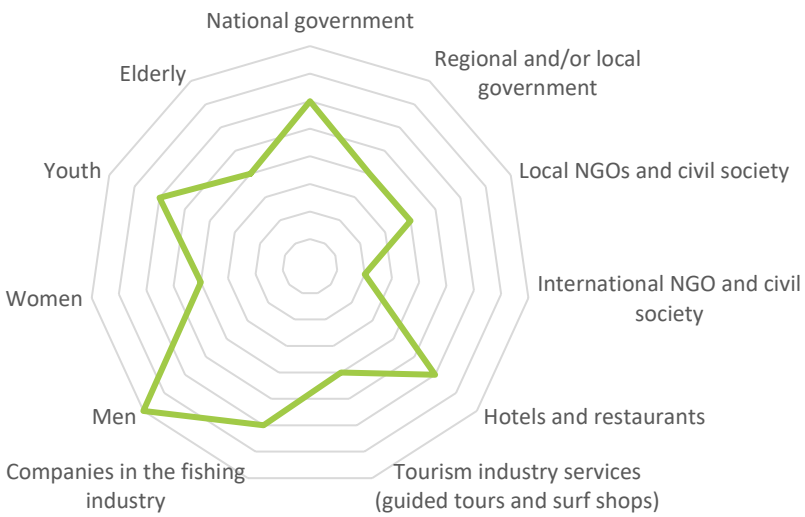
Clearly, understanding the dimensions of gender and plastic consumption is a crucial step in addressing the problem of plastic waste pollution. Therefore, this study aimed to capture whether aspects such as gender roles and the impact of plastic waste pollution on women were being considered when designing policies and interventions to address this problem in the Caribbean region. In this context, survey respondents were asked about the relationship between gender and the use of plastic. The respondents showed little awareness of the role of plastics in women's livelihoods and quality of life (Figure 13), in line with our findings about the lack of gender perspectives in the design, implementation, and evaluation of policies and interventions aimed at addressing the plastic waste problem in Antigua and Barbuda, Grenada, and Saint Lucia (see section 4.1).

Figure 13 Caribbean survey respondents' opinion of the role of plastics in women's life

Question: Select any of the following statements that you feel are true

The survey respondents were also asked about their perceptions of the efforts of different groups to address the problem of plastic pollution (Figure 14). Informants agreed that men did the least to address this problem and women were more likely to do something about it. These findings somewhat reflect previous research showing that women perceive various hazards as riskier than men and therefore are more willing than men to avoid imposing health and environmental risks on others.[194]

Figure 14 Caribbean survey respondents' perceptions of different groups' efforts to address plastic pollution



Question: Which stakeholders make the LEAST efforts to improve plastic pollution on the island? Chose three:

4.2.1 Waste management sector

Some of the poorest communities in the Caribbean lack proper sanitation or waste collection systems, so plastic garbage accumulates and leaks into the environment. There is a host of human and ecological impacts that result from plastic mismanagement. For example, when burned, plastics release toxic chemicals into the air which, when inhaled, can cause distinct types of cancer and respiratory and other health problems.[195] Also, some types of microplastics can cross the placenta in pregnancy, resulting in various problems both for the foetus and its mother.[196] The representatives of the health sector in the Caribbean that informed this research highlighted that there was no data on the prevalence of cancer or neonatal diseases in areas where uncontrolled waste incineration occurs periodically but acknowledged the link between these two.

Likewise, plastic waste can create an additional hazard simply because its impermeability causes it to trap rainwater in stagnant puddles when not disposed of properly. Stagnant water is the ideal breeding site for disease-carrying insects like the *Aedes aegypti* mosquito, which is prevalent in the Caribbean region. This results in disease spread, like zika, chikungunya, dengue, and malaria.[197] In agreement with this, a key informant from Antigua and Barbuda confirmed a higher prevalence of vector-borne diseases (especially dengue and chikungunya) in the areas adjacent to both formal and informal waste disposal sites.

These health hazards do not only affect women directly through their exposure to pollution. Indirectly, the human health impacts of plastic waste disproportionately affect women who, compared to men, face more barriers to accessing health care services in Latin America and the Caribbean, including high out-of-pocket payments for health care.[198] Moreover, the health impacts of plastic waste pollution on men, children and the elderly also affect women who, due to cultural norms, are in charge of tending to ill family members. In other words, plastic waste pollution indirectly adds to women's time spent conducting unpaid care work.

Gender inequality is not only manifested in the wealth of health hazards that result from plastic waste mismanagement. According to one of our key informants, informally employed women in the waste management sector also face more health hazards due to a lack of adequate personal protective equipment. Moreover, not unlike their counterparts worldwide, female informal waste collectors in Latin America and the Caribbean are particularly vulnerable and experience additional forms of inequality, including sexual violence, unequal access to waste, and much lower earnings than male informal waste collectors. From the online survey, it appears that awareness of the problems faced by female informal waste collectors in the Caribbean is low amongst some of the region's key stakeholders who participated in the survey. In this context, most of the respondents regarded the role of informal waste collectors as important or were aware of the occupational hazards those workers face but were oblivious to the gendered issues in informal waste collection (Figure 15).

Figure 15 Caribbean survey respondents' perception and awareness of gendered issues in informal waste collection

Question: Select any of the following statements that you feel are true

4.2.2 Fisheries

The fisheries sector in Caribbean countries is a large source of nutrition, employment, and foreign exchange, and contributes to social and economic stability. The value of marine capture fisheries production and aquaculture fisheries was US$ 460 million annually. The total number of persons employed in the fisheries sector was estimated at 341,668, representing 4.3% of the workforce of the region.[199] In 2015-16, countries members of the Caribbean Regional Fisheries Mechanism (CRFM, including Antigua and Barbuda, Grenada, and Saint Lucia) reportedly directly employed about 125,000 persons in commercial marine capture fisheries (94%) and aquaculture (6%) sub-sectors. While there is no gender-disaggregated data on employment in the Caribbean fisheries sector, there are indications that men are largely employed in the segments of preharvest goods sales, ancillary services, and pelagic fishing, while the post-harvest segments (seafood processing, storage, transport, marketing, and distribution) tend to be gender (but still with a male majority).[200]

As discussed in the previous section, the few fisherwomen in Antigua and Barbuda and Saint Lucia are engaged in near-shore fishing, while men fish offshore. Accordingly, male and female fishers have different roles in causing marine litter pollution and are affected differently by these impacts too. For example, plastic pollution due to ALDFG is a major problem related to male fishers who use more and larger gear than near-shore fishers. Also, because the incomes of women employed in fisheries worldwide are lower than the incomes of men,[201] the economic losses related to the impacts of plastic pollution on coastal life forms affect women more than men.

Despite Caribbean women's lower participation in this sector (compared to men), plastic waste pollution affects them in disproportionate ways. By virtue of their overrepresentation in the seafood processing segment,[202] women in commercial fisheries and aquaculture are more often exposed to microplastics and heavy metals that accumulate in the organs of fish and seafood. Likewise, women in the Caribbean engaged in artisanal fishing spend more time on near-shore habitats, like mangroves, estuaries and the intertidal zone where toxic substances (including chemicals derived from plastic waste) accumulate.[203]

4.2.3 Tourism

The Caribbean region is a major tourism destination. It is estimated that half of the global cruise tourism takes place in this region. In 2018, the Caribbean region received about 25.68 million tourists and made US $32 billion dollars in revenues, making it a major source of income and by far the largest source of employment.[204]

The tourism sector employs a large proportion of Antiguan women, who tend to occupy jobs aligned with stereotypical gender roles, such as caretaking and domestic work. These types of jobs are associated with low pay.[205] Likewise, in St. Lucia and Grenada, female tourist sector employees are most heavily concentrated in housekeeping, food and beverage and front office (74% in St. Lucia and 82% in Grenada), while male employees are more likely to be found in facilities and maintenance and financing and accounting (50% in St. Lucia and 69% in Grenada).[206]

Economic data shows that women's roles and activities in the Caribbean tourism sectors are often unpaid and undervalued.[207] A move towards valuing ecosystem services and the economic contribution that ecosystems make in supporting the economy will help to highlight the value of women's roles in the economy.[208] The stewardship and management of ecosystem services and the creation of new small-scale business opportunities in tourism can also provide additional opportunities for women. But for tourism to work both for women and the environment, the role of plastics for women's occupational safety and incomes needs to be considered and alternatives to plastic must be mainstreamed.

5

Conclusions and recommendations

Discussions of plastic waste legislation are now gaining ground at the national, regional and international levels have been gaining ground in the last decade. Because of this, there is a real opportunity to ensure that considerations of gender and gender-sensitive approaches are integrated into upcoming policies, technological alternatives and other solutions to the issues faced by people in the Pacific and Caribbean islands today.

In this context, our recommendations to further mainstream gender into the objectives and activities of the IUCN PWFI are to:

- **Draw from existing guidance and best practices dealing with the intersections of gender equality and plastic pollution**, e.g., World Economic Forum's *Guide to Ensure Gender-Responsive Action in Eliminating Plastic Pollution*.[209]

  There are also good, recent resources to draw on regarding gender-sensitive and gender-transformative programming on climate change and gender equality intersections in the Pacific. This includes the *Pacific Gender and Climate Change Toolkit*,[210] *Considering Gender Equality, Disability, And Social Inclusion In The Design Of Sustainable Financing Scheme For Waste Management: A Guide For Pacific Decision-Makers*[211] and the *Pacific handbook for gender equity and social inclusion in coastal fisheries and aquaculture*.[212] There are also networks involved in this space in the Pacific, including the International Women's Development Agency (IWDA).

  Impacts and recommendations from existing gendered studies on relevant industries could provide important insights into what has worked in shifting policy mindsets and behaviours, for example the 2006 study on Gender Issues in the Pacific Islands Tuna Industry.[213]

- **Address the research and information gap for the link between gender equality and plastic pollution**: A major limitation picked up in moving the gender equality agenda forward in these regions (and in general) is the lack of gendered data and information on women and men's roles and impact in different relevant sectors. This has been noted for the fisheries sector,[214] and there seems to be a particular gap on information regarding the different roles and impacts of men and women in the waste management sectors in the Pacific and Caribbean.

  This data gap is also true in terms of the information needed to monitor contextual information necessary to understanding the development of gender equality in a country. For example, Vanuatu lacked key contextual sex-disaggregated metrics (e.g., numbers of female/male graduates in different educational fields, amount of public spending on family benefits), and moreover did not have the necessary data to be included in the Gender Inequality Index.[215] Samoa did not have sufficient data to be included in the Global Gender Gap report.[216]

  In the context of the information commissioned and generated by PWFI activities, there are many opportunities to mainstream considerations of gender. For example, the next round of quantitative analysis of plastic pollution on the islands could apply sex-disaggregated data, and could include nappies and sanitary items in the analysis given the importance of these consumption products to the plastic pollution and gender nexus. Additionally, a gender-sensitive policy analysis could provide further insights into the existing gaps in the policy arena in this regard.

Particular attention should be paid to understanding gender relations in the Pacific waste management sector, as this is a key gap in understanding. These gendered analyses of the plastic pollution issue would be particularly prescient in the context of regional and international policy agreements being made currently, and of which PWFI stakeholders seem to provide influential input.

- **Empower consumers, both men and women, to contribute to behaviour change**: there seems to be a strong focus on the need for individual behaviour change among Pacific and Caribbean residents. Government policy reflects this in its focus on SUP bans and encouraging re-usable products. An analysis of media articles on solid waste management in Fiji found a strong emphasis on 'microsystem' changes like raising awareness and educating people, making waste management a point of civic pride and personal responsibility, as well as relieving the perceived negligence of people with regards to littering.[217]

  Survey respondents in both regions also confirmed their perceptions of this when questioned on the main sources of plastic waste on the islands. In the Pacific, many of the comments asking respondents to elaborate on sources of plastic pollution included residents throwing rubbish around, and community institutions like schools, churches and community organisations not choosing eco-friendly products as the default.

  Behaviour change is a key piece in addressing the global plastic pollution crisis, and is very relevant in the both Pacific and Caribbean context in terms of shifting norms and managing waste disposal methods. However, there should be inclusive and measured consideration of the differences in the ways the men and women consume, dispose of and pollute plastic products, and the impact this might have on how they can realistically act as agents of change.

- **Go beyond the bags**: the AWPC data on key sources of pollution on these islands found stark differences in disposal rates per capita, showing that residents do not produce nearly as much waste as a tourist. Moreover, where residents are practicing harmful waste disposal like littering, dumping and burning, it seems that many of them have little choice given the lack of reliable and accessible waste management. The insights of the AWPC quantitative analysis could bring this to light.

  For existing and potentially expanding policies on single-use plastics, consider the issue of consumption and disposal from a gendered perspective, and how the policy might adversely impact different groups of people and different ways. From this baseline understanding, create policies that are responsive to and supportive of these differentiated needs. Consider also that while short-term impacts of SUP product bans are generally positive, sustaining plastic bag reductions over the long-term can be challenging, and have unintended negative consequences on overall material consumption and the labour force involved in plastic bag production.[218]

- **Guarantee a place at the table for women in the informal economy.** Some of the segments of tourism and waste management sectors (especially those considered "low skill" and consequently low paid) are dominated by women.[219] In fact, many of the women employed in waste management are informal workers.[220] To a great extent, SUP allows women in the waste management sector and the housekeeping and waiting segments of the tourism industry to access their right to a safe and healthy workplace. Moreover, plastic provides a valuable source of income for informal waste pickers through sales to recycling businesses.

  Therefore, policies to reduce plastic waste can affect the livelihoods and safety of women in these sectors if these policies are gender blind. This can be addressed by bringing a gendered perspective into policy making, and ensuring that the most vulnerable groups are consulted in the planning, drafting, implementation, and monitoring of policies.

- **Engage leaders working on the advancement of women's rights and opportunities and build capacity of those on the ground.** In the Pacific, for example, there could be further engagement with the PWL programme,[221] as well as the Pacific Islands Forum Women Leaders Meeting (PIFWLM), which is now held annually ahead of the Pacific Islands Forum Leaders Meeting.[222]

  Another potential opportunity for gender mainstreaming in the PWFI could be providing capacity-building opportunities among relevant waste management stakeholder groups in private sector and government. In the Pacific, this would be especially important given the lack of perceived links between gender equality, women's rights and plastic waste. Local solutions to such capacity-building would be ideal, such as the gender sensitisation training by the Fiji Women's Rights Movement.[223]

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