Plastics Substitution

Current Initiatives and Potential Options for the Pacific
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Plastics Substitution: Current Initiatives and Potential Options for the Pacific
United Nations Development Programme (UNDP)
UN Trade and Development (UNCTAD)

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For more information: https://unctad.org/meeting/pacific-workshop-plastic-pollution-and-material-substitutes

Acronyms and Abbreviations

ALDFG  Abandoned, Lost or otherwise Discarded Fishing Gear
EEZs  Exclusive Economic Zones
IUCN  International Union for Conservation of Nature
JACKS  Jute, Abaca, Coir, Kenaf, and Sisal
LDCs  Least Developed Countries
LOS  Large Ocean States
POLP  Pacific Ocean Litter Project
SIDS  Small Island Developing States
SPREP  Pacific Regional Environment Programme
UNCTAD  United Nations Trade and Development
UNDP  United Nations Development Programme
USD  United States dollar
Introduction

Plastic pollution is perhaps one of the most significant environmental concerns across the Pacific region. Recently, Pacific leaders noted that the challenge of plastic pollution is equivalent in impact to the challenge posed by climate change (Farrelly, Borrelle, & Fuller, 2021). Some exponents of a plastic catastrophe are already observing the phenomenon as a ‘plastics emergency’ in the Pacific (UNDP Pacific Office in Fiji, 2022). This has firmly placed the reduction of dependence on plastics in the Pacific on the agenda. In addition to the environmental concerns, there is growing awareness that reliance on imported products that are denominated in a volatile foreign currency can add to Balance of Payments fragilities, as well as the fact they potentially absorb a significant share of foreign reserves. Finally, the emerging changes in consumer preferences and trade policies with respect to plastic and high-carbon products is adding potential costs and uncertainty to “plastics as usual” practices. As a result, to reduce dependence on plastic materials and products, the focus is shifting towards the potential offered by non-plastic material substitutes such as minerals (e.g. clay, glass), natural products (e.g. coconut, cotton, jute, sisal, and natural fibres as well as other biomass sources such as bamboo), metals (e.g. especially aluminium) and marine based products such as seaweed (UNCTAD, 2023). These are also areas where the Pacific and other SIDS can already have sources of competitive and comparative advantage (Barrowclough & Eugui, 2021).

The interest in material substitutes is also growing due to the many technical uncertainties on the environmental and market performance of plastic alternatives, such as bio-based and/or biodegradable plastics (IKHAPP, 2023). For an effective material shift, both substitutes and alternatives need careful consideration when being promoted, upscaled or introduced in any market, especially in the Pacific Region where end-of-life waste management capacities are often limited. Safety considerations of these materials on human, animal and plant life also need to be incorporated.

Through its biomass and marine resource endowments, the Pacific region is uniquely positioned to offer various non-plastic substitutes through local and traditional knowledge and local practices. Fiji has also been a leader in raising international awareness of the plastics issue. This technical note provides an overview of the challenges and opportunities for plastic substitutes in the Pacific Region.
Methods

The identification of initiatives related to plastic substitution applicable to the Pacific was based on a targeted literature review to find recent studies across databases and websites. Documents were searched for using the following terms: ‘plastics’, ‘plastics substitutes’, ‘non-plastics substitutes’, ‘natural materials’, ‘natural materials substitutes’, ‘Pacific oceans economy’, ‘policy’, ‘initiatives’, ‘Pacific’, ‘SIDS’ and ‘small island developing states’. Small Island Developing States, as listed by The Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, were also used when searching. Databases searched included SCOPUS, Taylor and Francis Online, SAGE, JSTOR, Science Direct and Google Scholar.

The limited publications found in this field meant a further manual search of key journals and authors was required. Website searches of government, regional, and international agency websites were also conducted to search for grey literature and policy documents, facilitated by the UNDP Pacific office and its regional networks.

Substantial information was also obtained from discussions during the UNCTAD/UNDP Pacific Workshop on Plastic Pollution, Material Substitution and Enabling Green & Blue Finance held in Suva, Fiji on 17 – 19 October 2023.
Global plastic production has significantly increased since synthetic plastic was first invented and patented in 1862 (Pacini, Gomes & Zanolressi 2021). In 1950, annual plastics production stood just under 2 million tonnes—this has since grown exponentially and is projected to reach 1900 million tonnes by 2050 (Rhodes, 2019). Concerningly, almost 90 per cent of plastic products used are discarded and less than 10 per cent are recycled (Wani, Pathan, & Bose, 2021).

The popularity of plastics has been largely due to their strong, light, durable, low production costs and non-biodegradable properties (Ayana et al., 2022; Shafqat et al., 2020). However, this non-biodegradable nature has resulted in plastic being especially persistent in causing widespread land and water-based pollution. In particular, the consumption of single-use plastic bags, plastic food packaging and plastic bottles has, until very recently, grown substantially into a de-facto status quo of retail markets.

Globally, regulating plastic products sales and consumption, including bans, are the most used intervention strategies, particularly in SIDS and in the Pacific (Barrowclough & Eugui, 2021). Other measures include targeted levies and taxes on single-use plastic bags, education and behaviour change to reduce dependence on plastic, and encouraging end-of-life services such as higher rates of recovery and recycling in communities. Evidence from users indicates that several complementary approaches are the most effective (O’Brien & Thondhla-na, 2019).

Solving the plastics problem requires a mix of innovation and industrial processes as well as traditional knowledge. This means there must be efforts to reuse and recycle materials and reduce reliance on plastics. As momentum to find ways and solutions to mitigate production of large volumes of plastics, concerns surrounding the impacts of plastic products on the environment and economy grew, especially since the 1970s when the globe saw a dramatic increase in the production of plastics and associated pollution. This period also provided the impetus for the proponents of plastic alternatives and substitutes to further their cause. For this paper, we define plastics alternatives as plastics that are not made with conventional fossil fuel-based polymers (such as bio-based plastics or biodegradable plastics) Plastic substitutes on the other hand constitute all other non-plastic materials that may be used to replace fossil fuel-based polymers which include glass, silk, paper, wood, ceramics, and metals, among others (UNCTAD, 2023).

Across the Pacific, illegal dumping of household wastes is not rare, as observed in the picture above. Ethnographically collected information in Fiji reveals that households do not have access to waste collection services, as the area falls out of municipal boundaries. A deeper conversation with households however also uncovered that they would like to keep their compounds clean and tidy and are aware of the consequences of the impacts of their behaviour, but do not have proper mechanisms available to them for disposal of their waste. From a behavioural science lens, it can be deduced that local governments will need to revisit their policies and plans to move beyond regular waste collection serviced areas to include ranges not currently serviced.
It is worth noting that there exist differing views in literature on what constitutes plastic alternatives and plastic substitutes. During discussions on material options to shift away from plastics, there is often confusion between the different categories of materials that allow replacement. To facilitate understanding around the consequences of material-shift, UNCTAD (2023) structured products in two major categories, namely plastic substitutes and plastic alternatives.

Plastic alternatives use materials or products that look and feel just like conventional plastics, but have some additional, potentially advantageous characteristics, such as being bio-based, biodegradable or compostable. This includes bioplastics. These could be seen as ‘better’ plastics, in that they can be produced from renewable materials, and/or possess biodegradation, erodibility or compostability characteristics that make them less persistent in nature. Bioplastics and biodegradables, however, are currently subject to intense examination given their life-cycle footprints are still debated, and some can generate microplastics which persist on the environment upon end-of-life (IKHAPP, 2023). On the other hand, substitutes perform the same or very similar function as plastics but use non-plastic materials such as natural or animal fibres, minerals, ceramics, metals, agroforestry residues or marine-based materials to create products that look and feel substantially different from plastics (Hira et al., 2022).

In the Pacific, although not fully documented by the scientific community, ethnographically collected information and data reveals the availability of several plastic substitutes, and their historical utilization among indigenous peoples. These alternatives are observed to emerge from Pacific peoples’ reliance on nature, their indigenous structures, systems, and practices, with the aim to ensure that their environment and resources remain protected.

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1 At the Intergovernmental Negotiating Committee (INC), this is referred to as “non-plastic substitutes”.

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**Figure 2. Proposed definition of Plastic Alternatives vs Plastic Substitutes**

Source: UNCTAD (2023)

<table>
<thead>
<tr>
<th>Plastic substitutes</th>
<th>Plastic alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral, plant, marine or animal</td>
<td>Bioplastics or Biodegradable plastics</td>
</tr>
<tr>
<td>Recyclable, reusable, biodegradable, compostable, or erodable</td>
<td>Recyclable, biodegradable, or compostable (end of life)</td>
</tr>
<tr>
<td>Should have lower environmental impact along their life cycle</td>
<td>Should have lower GHG lifecycle emissions when compared to plastics</td>
</tr>
<tr>
<td>Should not be hazardous for human, animal or plant life</td>
<td>Should not be hazardous for human, animal or plant life</td>
</tr>
</tbody>
</table>

**Non-plastics**

**Potentially better plastics**
The Pacific Islands, comprising 22 countries and territories across Micronesia, Melanesia and Polynesia, are home to approximately 12.7 million people (Asia Pacific Waste Consultants, 2021). Only two per cent of the area is land mass, meaning these countries are Large Ocean States (LOS), with a significant portion of their exclusive economic zone comprising ocean territory.

While the Pacific contributes to less than two per cent of the plastic pollution, it is one of the main recipients of its impact (Tudor & Williams, 2021). Nonetheless, rapid globalisation in the Pacific has seen a shift from locally sourced products and materials rooted in traditional and local knowledge and practices to a reliance on imported goods, including large quantities of plastics and plastic products.

To this extent, in 2020, 43,316 tonnes of plastics were imported into the region. In value terms, they have also increased significantly over the last decade.

The lack of recycling facilities has meant that a significant proportion of the plastics imported end up in landfills or leaked into waterways and oceans. To illustrate, although none of these states have plastic recycling facilities, Samoa generates 2,380 tonnes of plastic waste per year (O’Brien & Thondhlana, 2019), while Vanuatu generates 2,026 tonnes yearly (Rhodes, 2019), and Fiji generates 14,875 tonnes yearly (IUCN, 2023). The most common types of plastic waste are those involved in consumer goods, mainly in the form of PET bottles, single-use plastic packaging and takeaway containers.

The geographic dispersion, coupled with a high proportion of the country’s sovereignty being ocean-based, poses unique challenges to managing plastic pollution. However, international treaties such as the United Nations High Seas Treaty (also referred to as Biodiversity Beyond National Jurisdiction) and regional agreements such as the Cleaner Pacific 2025: Regional Waste and Pollution Management Strategy 2016-2025, are guiding concerted action around ocean and waste management, with some emphasis on the need to reduce plastic pollution (Asia Pacific Waste Consultants, 2021; Gautreau & Correa, 2023). Still, many of the Pacific regional strategies and action plans around waste management and plastic and marine litter do not include specific provisions for promoting plastic substitutes and could benefit from more targeted initiatives such as through the development of national action plans for plastic waste management.

Figure 3. Map of the Pacific Region

There is, however, a policy focus on reducing, reusing, and recycling plastics. 14 countries have plastic bans (IUCN, 2023a, 2023b), 12 have banned single-use plastic shopping bags, three have levied on single-use plastic shopping bags, and several have supported the use of alternatives. In 2023, the Solomon Islands gazetted a regulation to ban certain types of single-use plastics. The country is being supported by the Pacific Ocean Litter Project (POLP), under the Secretariat of the Pacific Regional Environment Programme (SPREP), in the development of the national plastics regulation which will also support introduction of alternative products that can replace certain plastic products (SPREP, 2023). However, to fully achieve the Cleaner Pacific targets, additional measures may be necessary. Complementary measures such as stimulating adoption of non-plastic material substitutes can potentially reduce the reliance on plastics and turn the region from a net importer of plastics to one with a more balanced commercial metabolism in materials.

“We should promote alternatives to plastics, such as using traditional and local products, thereby helping to turn off the tap. We support the use of the best available science and scientific information, complemented by traditional knowledge of Indigenous Peoples and local communities, with their free, prior, and informed consent, as an integral part of ending the plastic pollution crisis.”

H.E Ambassador Fatumanava Samoan Ambassador to the United Nations

Figure 4. Plastics imports in the Pacific region, $USD

Source: UNCTAD
Challenges

Addressing plastic pollution in the Pacific is inherently complex and needs a transboundary approach. More than this, approaches need to take an intersectoral approach, given the economic, social, cultural and health implications of plastic pollution in the Pacific; and also the inter-related nature of its causes. This level of commitment is often hard to achieve, and innovation in developing substitutes remains under-subscribed. This is unsurprising, given that the trend has evolved over decades and plastics are now deeply embedded into the production and consumption supply chain; it is also presumably profitable. This means that policies and economic regulations such as taxes and levies are often not enough to induce innovation and risk-taking by entrepreneurs to enable a shift to large-scale implementation of non-plastic substitutes, limiting current substitutes to community-based approaches such as bags, dishes, and utensils made out of natural materials – the ‘Project 2Mile’ initiatives (expanded on in the opportunities section) in Papua New Guinea (Barrowclough & Birkbeck, 2022) is an example in the Pacific from which other countries in the region can take inspiration.

Substitutes have been noted to be more expensive to produce. For example, manufacturing bamboo straws instead of plastic straws is more costly, which often deters large-scale adoption. Similarly, paper, cloth and other natural material bags are more expensive and require 40 per cent more energy to produce. Additionally, import tariffs on substitutes are often higher than their plastic counterparts, deterring their wider use. Overall, plastic products face import tariffs, on a global average, below 10 per cent, while tariffs for substitutes range from 5 to 25 per cent. For example, plastic takeaway containers have a global average tariff rate of 9 per cent, while paper containers have a global average tariff rate of 15 per cent. Similarly, paper straws have a global average tariff rate of 13 per cent, while plastic straws’ global average tariff is 8 per cent (UNCTAD, 2023).

Moreover, the low-price of plastic benefits from the high levels of subsidies that are still paid to fossil fuel producers and consumers – estimated at more than $1.3 trillion per annum for explicit subsidies alone in 2023 (TDR 2023) – and keeping prices lower than they would be otherwise. Nonetheless, global plastic substitute exports are valued at 258 billion dollars (USD). Exports of plastic substitutes by Pacific nations are also increasing. In 2021, Papua New Guinea exported 312 million dollars (USD) of raw natural fibre materials, while Fiji exported 17 million dollars (USD) (Vivas & Pacini, 2023).

In the same vein, developing countries are increasingly aware of the potential of increasing production, use and export of natural fibre-based substitutes for plastics using inputs such as jute, abaca, coir, kenaf, sisal (collectively known as JACKS) (Barrowclough & Deere Birkbeck, 2022). However, without access to finance for small and medium enterprises to upscale, non-plastic substitution ideas cannot affect a wider impact beyond localised initiatives. During the UNCTAD/UNDP Pacific workshop on plastic pollution and material substitutes held in Suva, Fiji in October 2023, participants highlighted the need for special financial support to Least Developing Countries (LDCs) and Small Island Developing States (SIDS) to encourage a just transition for private sector to greener practices, including small businesses, exploring how to increase investment in and production of non-plastic material substitutes. Since many Pacific Island countries have a thriving tourism industry, there were also discussions on how investing in the development of a green tourism industry that focused on high-yield and low-impact travellers may be a catalyst for start-up businesses specializing in green products, including non-plastic material substitutes (UNCTAD & UNDP, 2023).

In some instances, there is also a lack of consumer awareness around the issue of plastic pollution and the availability of environmentally friendly plastic substitutes, indicating a need for more consumer awareness and education, specifically on non-plastic substitutes. This will require a thorough mapping of non-plastic substitutes available, and expert scrutiny and experimentation to evaluate the economic and environmental value they have to offer.

Concerns about the unintended consequences of producing raw materials for substitutes exist. Notably, these are changes to land use, increases in greenhouse emissions, increases in nutrient demand, contamination of waste streams and impacts on human health (International Resource Panel, 2021). Therefore, substitution requires careful consideration of the entire product-level life cycle.

“We are drowning in plastics but depend on it, and many areas are now plastic junkyards: every oceanic division, all five major subtropical gyres, and iconic beaches of the world are all impacted.”

Tudor et al, 2021
Public consciousness about plastic pollution has also shifted over the last several decades, particularly with younger population groups (Pasifika Environews, 2023; Loop Pacific, 2023). This presents an opportunity to capitalise on this shift in mindset, attitude, perceptions, and behaviour. However, this will require the Pacific region to explore operable solutions at the intersections of science, policy, and practice.
Opportunities for Substitutes in the Pacific

By closely living with nature and interacting and observing their natural environment, the Pacific communities have developed skills and experiences that enable them to build strategies for environmental conservation and protection. To this respect, traditional and local knowledge in the Pacific can be leveraged to reduce dependence on plastics and bioplastics. Substitutes for plastics such as seaweed, wood and banana leaves are readily available, and local knowledge exists to convert these into plastic substitutes (IKHAPP, 2023). However, these opportunities remain largely untapped, due to lack of economies of scale, limited access to infrastructure, technology, specialized technical expertise, and limited financial opportunities for de-risking the operation of start-ups.

Increasingly, single-use plastic bags in the Pacific are being banned or heavily levied. For example, Samoa introduced a single-use plastic bag ban in 2018, followed by Fiji and Vanuatu in 2019. Moreover, Pacific nations have incrementally increased the scope of their bans. This can be seen in the case of Fiji, where single-use plastic bans (2019) were subsequently complemented with polystyrene product bans (2020) and bans on single-use containers, straws, and utensils (2021).

Alternatives such as bioplastics are more common, though they still contribute to plastic pollution as some commonly used materials such as Polylactic Acid (PLA)-based bags often do not biodegrade at ambient temperature. Traditional bags and baskets have the potential to offer cleaner substitutes. Two examples are illustrated in Boxes 1 and 2.

Box 1. Kete

In New Zealand, traditional bags, known as kete, woven from flax leaves, have been used for centuries to carry items. The New Zealand flax is particularly durable, and bags woven from this material are long-lasting. New Zealand’s ban the use of single-use plastic bag in 2018 has seen the uptake of the kete as a practical substitute to plastic bags.

Figure 5. Kete Bags

Source: Kura Gallery (2024)
Plastic food containers are also a significant cause of plastic pollution. The 3rd Clean Pacific Roundtable (SPREP, 2021) emphasised using nature-based packaging as a substitute and highlighted that traditional knowledge embodies circular economy approaches needed to respond to the plastic pollution challenge. This call to tap into and sometimes revive traditional and local knowledge resonates with Pacific history, culture and life. For example, in Fiji, traditional pottery was used as vessels to store and transport water and food. With minor modifications, such traditional technology can be adjusted to construct ceramic gravity filters to purify water, which help displace plastic water bottles from local markets (IWAPOnline, 2015). Moreover, banana and coconut fronds were traditionally used in the Pacific for food packaging. In its simplest form, the fronds are wrapped around the food item, allowing food to be carried. Examples of this substitute can be observed in Samoa, where they are used for packaging take-home food (Dawkins & Wellington, 2022).

However, there are also broader applications, such as making leaf crockery and cutlery (Dheeshma, 2019). India offers lessons for the Pacific in developing this substitute further, where banana fronds have been widely used to create plates and bowls. Like the Pacific, banana leaves are abundant in India, making them a relatively cheap product to import. Moreover, evidence suggests that banana frond products have proven to enhance the shelf life of food products by creating a physical shield and a semi-permeable barrier to gases and water vapour and offer protection against physical and biological contaminants, which may also reduce food waste (Arumugam, Pugazhenthhi & Selvaraj, 2023).

Box 2. Bilums

Bilums are bags unique to Papua New Guinea and Vanuatu and are hand-woven mainly by women using natural fibres from the bark of trees using techniques passed down through generations. The process of creating a bilum includes beating the barks into loose strips, drying them in the sun, and hand-twisting the barks to form long threads which are then woven into bilum bags.

Traditionally bilums were used to transport goods, crops, and other items. Today, bilums have broader use and are being used as alternatives to plastic bags while shopping and as general-purpose bags.

Figure 7. Bilum bags
Source: Papua New Guinea UNFPA (2024)
Another food packaging substitutes are made from wood. Several wood-based solutions, namely wood-based composite products, have existed. However, there are concerns about the carbon footprint of manufacturing wood-based composites (refer Fig 9). Traditionally, wood-based crockery and food packaging have been used in the Pacific for centuries, offering clean substitutes for plastic crockery and food packaging.

With the assistance of technology, there are avenues to scale up natural products as a plastic substitute. Seaweed is abundant in the Pacific and has been an important source of food. With technology, seaweed-derived bioactive compounds can be extracted to form substitutes for plastic packaging (UNCTAD, 2023). This has been a high-profile innovation by entrepreneurs in Europe, for example. Similarly, there are applications for cassava, taro, potato and pineapple stem starch to serve as plastic substitutes (Cataquis et al., n.d.; Thongphang et al., n.d.). These starches have been used to make biodegradable single-use plastic bags. Moreover, the pineapple leaves have also been used as plastic substitutes. For example, the Philippines can offer lessons for the Pacific in using pineapple leaves to create leather substitutes to make bags, shoes, furnishings, and textiles for automobile interiors (UNCTAD, 2021).

In addition to packaging materials, one growing area of concern in Pacific Island Countries is abandoned, lost or otherwise discarded fishing gear (ALDFG), also known as ghost fishing gear. Evidence shows that approximately 70% of marine animal entanglements are due to ALDFG, and about 46% of plastic pollution in the Great Pacific Garbage Patch is made up of fishing nets. While there are efforts to pilot biodegradable fishing nets (for example, the current pilots being carried out in South Africa and Kenya under the Sustainable Manufacturing and Environmental Pollution programme) (SMEP, 2023), there is room to explore this in the Pacific, where the fishing industry is very important to the region and a significant part of the economy. With Pacific Island Countries being custodians of large areas of Exclusive Economic Zones (EEZs), the fishing industry is attracting more attention in terms of testing innovative ways to transition to more sustainable or green practices. For example, the UNDP Pacific Accelerator Lab in Samoa is piloting the use of fish waste (fish skin) to manufacture fish leather – which could replace existing apparel products in Samoa such as wallets, business card holders, key chains, jewellery, and other popular souvenirs (UNDP, 2023).

Figure 9. Villagers from Vusama, Fiji use mangrove fronds to weave carry baskets to transport their traditionally crafted salt blocks.
Source: Dean M. (2023), UNDP Pacific (2020).
Innovative initiatives using non-plastics substitutes are also being identified in the textile industry, as it is well known that it is one of the largest contributing industries to microplastics in the environment, because of the wearing and washing of textiles made from synthetic plastic fibers. In Kenya, under the Sustainable Manufacturing and Environmental Pollution Programme, the use of pineapple waste for fibre (through decortication) in the textile value chain is being piloted (SMEP, 2023). While this is a relatively new pilot, there is potential to test this and other organic waste upcycling trials at the Pacific’s agricultural sectors. In Fiji and Samoa, traditional materials such as tapa or masi (cloth made from the bark of the paper mulberry tree) (Museum of New Zealand, n.d.) are more commonly being used outside of traditional ceremonies or settings. For example, an increasing number of people are using tapa to tailor outfits for weddings, parties, other special occasions (Fiji Village, 2023).

While these developments are encouraging for the reduction of plastic dependence and pollution, at the same time it will be critical to conduct a thorough life cycle analysis on the substitutes that are being promoted as solutions to plastics to ensure the use of these do not cause further environmental harm.

**Box 3. Manamo’ui Bowls**

The manamo’ui bowl is an initiative that is not unfamiliar to many Pacific, Asian, and African countries. Presented at the Samsung Solve for Tomorrow innovation challenge, this youth-led Tongan initiative aims to tackle plastic pollution by tapping into traditional and local knowledge and frugal innovation capabilities. High school students of Tonga High Atele presented this solution as a substitute to the plastic bowls that were being used in the school to serve lunch.

**Figure 10. Manamo’ui Bowls**

**Figure 11. Coasters and jewellery made from fish leather**

Source: UNDP Accelerator Lab Samoa/ Kaisarina Salesa (2023)
Recommendations and Conclusion

The exponential growth of plastic pollution has significant environmental, economic, social, and health implications. An estimated 11 million tonnes of plastic enter the oceans annually, and current pollution growth of petroleum-based polymer trends are incompatible with achieving the Paris Agreement to limit global warming to 1.5°C. Given that 98 per cent of the Pacific is ocean, there is a need to look beyond traditional approaches to managing the plastic pollution challenge. In addition to efforts to reduce plastic pollution through production, consumption and trade measures, there is an emerging opportunity for the development of plastic substitutes to complement existing initiatives to reduce the reliance on plastic products, particularly for Pacific countries who are disproportionately affected by plastic pollution.

Existing substitutes such as pottery, bilums/ woven bags, wooden products have seen both small scale and commercial success – indicating a potential market for plastics substitutes in the Pacific, with the appropriate support. This potential can be enhanced through national plans for incentivizing and de-risking development of substitutes based on suitable local agricultural, mineral and marine-based materials. Additionally, as many Pacific Island Countries have thriving tourism and hospitality industries, there is also potential for tapping into niche markets such as the growing eco/ green/ sustainable hospitality markets, where promotion of use of plastic substitutes in these industries will not only act as a pull factor for eco-conscious travellers, but also provide economic opportunities for local eco/ green businesses.

A search for literature and assessments on substitutes and their regional potential reveals a scarcity of publications in this area. Similarly, while many traditional and innovative plastic substitutes, such as woven bags and reusable containers, are used in the Pacific, these are not well documented, and efforts to modernize and improve them further are not widely reported. Future research is needed to document perceptions and practices around plastic substitutes in the Pacific region; and to identify major obstacles and challenges. Increasing the pool of evidence has the potential to inform policy on substitutes, strengthen interventions and shape advocacy, education, and awareness activities conducive of behaviour change, market redesign and increased investment.
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