The United Nations Micronesia Sub-regional Study 2024/25

Palau, Federated States of Micronesia, Marshall Islands, Nauru, Kiribati

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Abbreviations and Acronyms

5Ps	5 Pillars
ABAS	Antigua and Barbuda Agenda for SIDS
ADB	Asian Development Bank
BRI	Belt and Road Initiative
CAT	Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment
CCFZ	Clarion-Clipperton Fracture Zone
CED	Committee on Enforced Disappearances
CEDAW	Convention on the Elimination of Discrimination against Women
CIP	Country implementation plan
CMW	Committee on the Protection of the Rights of All Migrant Workers and Members of their Families
CNMI	Commonwealth of Northern Mariana Islands
CoFA	Compact of Free Association
CRC	Convention on the Rights of the Child
CRDP	Committee on the Rights of Persons with Disabilities
CSO	Civil society organization
DESA	United Nations Department of Economic and Social Affairs
DRR	Disaster risk reduction
DWFN	Distant water fishing nation
EEZ	Exclusive economic zone
ESCAP	Economic and Social Commission for Asia and the Pacific
ESG	Environmental, Social and Governance
EU	European Union
FAO	Food and Agriculture Organization
FAS	Freely Associated States
FDI	Foreign direct investment
FFA	(Pacific Islands) Forum Fisheries Agency
FSM	Federated States of Micronesia
GBV	Gender-based violence
GDP	Gross domestic product
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	Greenhouse gas
GNI	Gross national income
ICCPR	International Covenant on Civil and Political Rights
ICERD	International Convention on the Elimination of All Forms of Racial Discrimination
ICESCR	International Covenant on Economic, Social and Cultural Rights
IFI	International financial institution
ILO	International Labour Organization
IMF	International Monetary Fund
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
IUU	illegal, unreported and unregulated
LDC	Less developed country
LED	Light-emitting diode
LNOB	Leave No One Behind
MBD	Multilateral developments agency
MCO	United Nations Multi-Country Office

M&E	Monitoring and evaluation
MIF	Micronesia Islands Forum
MIRAB	Migration Remittance Aid Bureaucracy
MPS	Micronesian Presidents' Summit
MVI	Multi-dimensional vulnerability index
NCD	Non-communicable disease
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
PICTs	Pacific Island countries and territories
PIDF	Pacific Island Development Forum
PIF	Pacific Island Forum
PIFS	Pacific Islands Forum Secretariat
PINA	Pacific Islands News Association
PIPA	Phoenix Islands Protected Area
PNA	Parties to the Nauru Agreement
PNMS	Palau National Marine Sanctuary
PROFIT	People Resources Overseas Management Finance Transport
PSDCF	Pacific Sustainable Development Cooperation Framework
PV	Photovoltaic
PWD	People with disabilities
REDD+	Reducing emissions from deforestation and forest degradation in developing countries
ROT	Remittance ODA Tourism
SAMOA pathway	Small Island Developing States (SIDS) Accelerated Modalities of Action pathway
SDGs	Sustainable development goals
SIDS	Small Island developing state
SIDS4	Fourth International Conference on Small Island Developing States
SITE	Small Island Tourist Economies
SMEs	Small- and medium-sized enterprises
SOEs	State-owned enterprises
SPC	The Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
TOURAB	Tourism Remittance Aid Bureaucracy
TTPI	Trust Territory of the Pacific Islands
UNCT	United Nations Country Team
UNCTAD	United Nations Conference on Trade and Development
UNCHR	United Nations Commission on Human Rights
UNSDG	United Nations Sustainable Development Group
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
UNPS	United Nations Pacific Strategy
US	The United States of America
USP	University of the South Pacific
VDS	Vessel Day Scheme
WHO	World Health Organization

Executive Summary

This sub-regional study for Micronesia addresses key issues that are crucial for the sustainable and inclusive development of the five Micronesian states: Palau, Federated States of Micronesia (FSM), Marshall Islands, Nauru and Kiribati. It assesses development issues for Micronesia as a whole, before delving deeper into more country-specific challenges and opportunities at the national level. As a basis for the structure of this sub-regional study, the five pillars (or 5Ps) of the 2030 Agenda are used, namely: people, prosperity, planet, peace and partnerships. It contains information and data available as of August 2024.

This sub-regional study highlights issues pertaining to sustainable development at the regional and sub-regional levels, spanning geographical, demographic, historical and socio-economic aspects. Various development strategies and models for the Pacific small island developing States (SIDS) are also presented. These are all crucial elements in better understanding Micronesia's present and emerging development challenges and opportunities.

While the country profiles of the five Micronesian states vary quite considerably, they share some common denominators including: relative remoteness, limited landmasses, small populations and domestic economies and elevated exposure and vulnerability to external environmental and economic shocks. They have also tended to depend on tourism, fisheries, inward remittances and development partner assistance, as well as high levels of imported food and other products. The Micronesian states are far from export markets and import resources, and must also contend with low and sometimes irregular international traffic volumes of many essential inputs.

This in turn translates into high energy, infrastructure, transportation and communication costs. Moreover, they tend to rely on exporting a few primary commodities and attracting in-bound tourists, making them highly vulnerable to external shocks, such as the recent pandemic. As a result, they tend to lack the resilience that comes from having a more diversified range of income sources, with only limited niche opportunities for private sector development. Other challenges include relatively high rates of non-communicable diseases (NCDs) and poor educational outputs, all of which impact adversely on livelihoods.

Micronesia has an overall population of roughly 300,000 people, with Kiribati hosting the highest population of 130,000, and Nauru the smallest population of 12,000, as of 2023. Kiribati is considered to be the most dispersed nation on earth, consisting of 33 atolls and islands scattered over 3.5 million square kilometres of ocean, whereas Nauru, a one-island nation, is the smallest republic in the world with an area of just 24 square kilometres. All five Micronesian states are facing the impacts of climate change, which pose existential threats to low-lying island nations like the Marshall Islands and Kiribati.

Clearly, the ocean and its resources are critical for Micronesia, accounting for the considerable economic value of marine and coastal products and services, including fisheries, tourism and carbon storage. The reliance on external aid, particularly from the United States and Australia, also remains a critical issue, as does the preservation of cultural identity in the face of globalization. Moreover, the increasing strategic geo-political importance of the region has attracted greater international involvement.

The 'blue economy' is a development concept that aims to achieve socio-economic progress simultaneously with ocean environmental protection, biodiversity and sustainable maritime resource extraction. It spans such activities as: fisheries, eco-tourism, ocean transport, aquaculture, seabed extractive activities, marine bio-technology and bio-prospecting. The blue economy's greatest

challenge is reconciling two competing interests: opportunities for local development and growth; and protection of vulnerable and threatened spaces and species.

In 2022, the *2050 Strategy for the Blue Pacific Continent* was endorsed by 18 countries and territories at the Pacific Islands Forum (PIF) and is intended to guide how the countries of the Pacific navigate various challenges confronting the region (including the impacts of climate change, slow economic growth, poor health and education outcomes and significant ocean and land-based environmental degradation) while leveraging their collective strengths.

The section on **People** spans issues pertaining to population, education, labour and migration, food and health. It puts particular focus on 'Leave No One Behind' (LNOB); a principle of the 2030 Agenda and the SDGs to eradicate poverty, end discrimination and exclusion, and reduce inequality and vulnerability. While Palau, Nauru and Kiribati have gradually increased their populations over the past decade, the Marshall Islands and FSM have seen a decrease. As birth and fertility rates decline and emigration persists, population growth is expected to slow in Micronesia, leading to an ageing society.

The labour market is a mixture of formal employment, a large informal sector and a persistent subsistence economy. There are considerable gender disparities in job opportunities and salaries. The public sector has been the primary employer for many years, while workers in the private sector typically do not receive health benefits, sick leave, family or maternity leave, and they do not participate in the social security system. Micronesians' labour outflows have been severe, particularly in the private sector and among young people, with growing outward migration. The resulting 'brain drain' may be one of the most note-worthy development challenges for Micronesia.

In Micronesia, the issue of food security requires urgent attention. Micronesia's restricted local food supplies and growing inclination towards imported food products, often lacking in adequate nutrition, have resulted in unhealthy dietary habits that then contribute to various health issues, such as obesity, anaemia and other NCDs among all age groups. The sub-region imports nearly 90 per cent of its dietary requirements, much of which is of low nutritional quality. Micronesia has shown no improvement in obesity levels and only limited progress towards achieving its diet-related NCD targets.

The section on **Prosperity** provides a macroeconomic overview and also covers fiscal management issues, select sectoral foci, as well as infrastructure and digitalization. The World Bank classifies Palau and Nauru as high-income countries, Marshall Islands as an upper-middle income country, and FSM and Kiribati as lower-middle income countries. The three compact countries (Palau, FSM and Marshall Islands) have near-equal GNI and GDP per capita figures.

The sub-region's private sector is at a nascent stage and quite fragile, obliging the respective governments to directly provide various services to citizens, often through state-owned enterprises (SOEs), in areas such as utilities, telecommunications, transportation, manufacturing, wholesale and distribution. These SOEs have tended to be inefficient and loss-making, further draining the governments' finite funds. Financial sector reforms need to be accelerated in Micronesia, to support financial deepening, enhance SMEs' capacity to absorb credit, and address the structural determinants of low credit creation.

The governments in Micronesia depend heavily on grants and other assistance from various development partners, such as the United States, Australia China, Japan, New Zealand, Republic of Korea, European Union (EU), Taiwan Province of China, the Asian Development Bank (ADB) and the World Bank. While Palau shows a large public debt relative to the national budget and GDP, others' debt levels are moderate with large reserve provisions. However, additional revenue mobilization and expenditure rationalization efforts are needed to help accommodate higher climate spending,

improving the external position, and providing an economic buffer against potentially lower grants and concessional financing.

The fishing industry contributes considerably to Micronesia's economic and food security. Under the Parties of Nauru Agreement (PNA)'s vessel day scheme (VDS), fishing license fees for tuna caught in the Micronesian nations' exclusive economic zones (EEZs) have generated substantial public revenues for Kiribati, Nauru, FSM and Marshall Islands. An immediate challenge for Micronesia is enhancing domestic value addition within fishery value chains while reducing stress on local ecosystems and biodiversity.

Agricultural products contribute to Micronesia's subsistence and formal economies while enhancing its food security. Although the sector's contributions to the economy have been restricted due to traditional land ownership systems and poor market mechanisms, and impacted by shifts towards service-driven economic development, agriculture's income redistribution mechanisms to rural and outer-island citizens are powerful. The tourism sector provides a rare opportunity to diversify national incomes in Micronesia. However, labour bottlenecks, infrastructure constraints and environmental degradation are common challenges in the pursuit of a more vibrant tourism sector in Micronesia.

Infrastructure deficits in utilities, transport and telecommunications, exacerbated by the impacts of climate change, with some critical assets unprotected from inundation and coastal erosion, are severe constraints on Micronesia's economic development. A poorly developed private sector also limits the chance to develop the country's infrastructure and deliver public services, through sub-contracting, turn-key services and public-private partnerships. The governments in Micronesia have made substantial efforts to increase the use of renewable energy sources, especially solar power, in the electricity mix, while encouraging energy efficiency measures, such as using LED lighting and adopting energy-efficient appliances.

The section on **Planet** spans the issues of climate change, bio-diversity, disaster risk reduction, the blue and circular economy, and deep-sea mining. Climate change is projected to alter Micronesia's biophysical environment, through a varying rate and distribution of rainfall, sea-level rise, storm surges, higher air and ocean temperatures, increasing ocean acidification and coral bleaching. Micronesia's population and socio-economic infrastructure are vulnerable, particularly in low-lying coastal areas where most citizens reside. For example, climate change is causing geographical shifts in high-value fish species. Ocean warming is fish redistribution and decline among some EEZs, and such spatial dynamics stemming from climate change suggest subsequent cascading impacts on local markets and jobs.

Climate change is adversely impacting biodiversity in Micronesia. Changes in water temperatures and acidity can make the environment inhabitable for many species. Those living in and around coral reefs, either permanently or in their juvenile period, and particularly for larger species, face an extinction threat. Some countries in Micronesia have taken action to try and restore fish and bird populations, and atoll ecosystems, by establishing natural environmental sanctuaries and eradicating mammalian pests, especially rats. The Palau National Marine Sanctuary and the Phoenix Islands Protected Area in Kiribati are both examples of natural environmental sanctuaries that seek to maintain oceanic coral archipelago ecosystems, underwater sea mounts and other deep-sea habitats.

Micronesia faces an uphill task in maintaining and restoring the sub-region's biodiversity damaged by human causes and climate change. By replacing and enriching lost inland, escarpment and coastal forests, including mangroves, and conserving and developing better agroforestry and food systems, Micronesia can seek to restore ecosystem services and improve the prospects for food, economic

security and health for its people.[2] However, the governments' ability to implement such policies remains challenging, primarily due to various funding and institutional capacity constraints throughout Micronesia.

The degree of disaster risk is expected to rise along with the intensification of climate change-related impacts. These kinds of natural hazards can often trigger second-order disasters, such as marine pollution, ecosystem degradation, coastal erosion, saltwater intrusion and food insecurity. Storm surges and king tides, and increasing salinity of freshwater, pose significant ongoing risks to all vegetation. Climate change also increases the possibility of outbreaks of vector-borne diseases, such as dengue fever.

The 'blue economy' is an emerging development concept that aims to achieve socio-economic progress simultaneously with environmental protection and sustainable resource extraction. Fisheries, maritime transport, climate change adaptation, renewable energy, waste management and ecotourism are typically regarded as the key components and activities of the blue economy. In recent years, governments in Micronesia have promoted the blue economy by implementing policies that strengthening regional fishery capacity to preserve tuna stocks, establishing regional fishery agreements, implementing the 'vessel day scheme' to constrain catches of target tuna species by distant water fishing nations, and as noted above, developing marine sanctuaries.

Deep-sea mining involves the extraction of minerals and resources from the ocean floor, which can include everything from precious metals to rare earth elements but is not without controversy. Many experts are concerned that the potentially harmful effect of deep-sea mining has not been fully assessed. There are significant divisions towards pursuing deep-sea mining in Micronesia. In 2018, Palau became one of the first countries in the world to ban commercial deep-sea mining within its territorial waters. Conversely, Nauru and Kiribati have expressed interest in exploring deep-sea mining as an option for economic diversification. Nauru and Kiribati plan to explore the abyssal plains of the Clarion-Clipperton Fracture Zone; a vast deep-sea plain in the North Pacific Ocean between Hawaii and Mexico, which is reported to contain billions of tons of nickel, cobalt, copper and manganese.

The section on **Peace and Partnerships** focuses on governance, gender and human rights issues, and growing geo-political tensions in the Pacific region, as well as international cooperation and the United Nations' role in Micronesia. Gender equality is one of the major challenges that intersect with almost all the SDGs. All the Micronesian nations, except Palau, have pledged to bring gender parity to their population by ratifying the Convention on the Elimination of All Forms of Discrimination against Women and endorsing the Pacific Leaders Gender Equality Declaration.

Discrimination against women is grounded in customs and traditions that have not evolved with society. Social norms and perceived gender roles underpin: reproductive health issues, early marriage and pregnancy, a higher dropout rate for girls from secondary school, the unfair distribution of assets and resources (especially land), unbalanced labour force participation and disparities in unemployment, cultural tolerance for gender-based violence, low representation of women in the government, and much greater representation in the unpaid informal economy, especially in subsistence food production and home care.

Micronesia has faced multi-faceted human rights issues, such as varying access to basic public services, child abuse and neglect, gender discrimination, forced labour and human trafficking. Micronesia also has some distinct human rights issues, including mining-related forced migrants, sea-level rise-driven

displacements and climate-induced refugees, and issues related to nuclear weapons testing. Micronesia generally has limited labour protection laws, while the right to strike and collectively bargain is not fully protected by law. On labour rights issues, such as fairness, equality, safety and security at the workplace, the countries of Micronesia have not yet fully integrated international labour principles and standards into their regulatory and policy frameworks.

Since the five Micronesian countries fully became independent (Palau in 1994, FSM in 1986, Marshall Islands in 1986, Nauru in 1974 and Kiribati in 1979), they have maintained stable relationships with their former controlling nations, so as to ensure security, aid and technical assistance. Other bilateral donors and international development agencies have also provided support to these nations. However, recent decades have seen international geo-strategic dynamics come to the fore.

The United Nations Multi-Country Office (MCO) for Micronesia, headed by the United Nations Resident Coordinator, coordinates the United Nations' system-wide development initiatives in Micronesia. Developed by the MCO and its counterparts in Fiji and Samoa, the United Nations Pacific Sustainable Development Cooperation Framework (PSDCF) 2023-27 aims to accelerate ongoing and future investments for the SDGs in the Pacific, to be funded by domestic resources, debt, bilateral or multilateral development assistance, as well as national and international private financing, congruent with the 2050 Strategy for the Blue Pacific Continent.

At the most recent SDG Summit, held in September 2023, the United Nations proposed six significant transitions in further driving progress towards the SDGs by 2030, comprising: food systems, energy access and affordability, digital connectivity, education, jobs and social protection, and climate change, biodiversity loss and pollution. Micronesia's development agenda suggests the six transitions will play a critical role in realizing the SDGs.

The United Nations has developed a multi-dimensional vulnerability index (MVI) for developing countries, intended to assess key vulnerabilities and serve as a criterion for access to, and allocation of, concessional resources. The MVI's essential dimensions are economic, environmental and social, which are categorized into two streams: structural vulnerability and lack of resilience. According to the specific findings of the MVI, in the future Micronesia should focus most on improving infrastructure, introducing essential social protection schemes and promoting the tourism sector to help enhance climate change resilience, create employment and improve livelihoods, while also securing international assistance.

The final section of this sub-regional study identifies some **crucial risks posed for Micronesia in attaining the SDGs**, and argues that the post-pandemic period provides the sub-region with an opportunity to reset some of its development priorities. As this study shows, Micronesia has faced various challenges and policy conundrums, spanning: education, healthcare, nutrition, labour, migration, infrastructure, trade and investment, tourism, finance, the private sector, climate change, natural disasters, the blue economy, biodiversity, gender and youth, the circular economy, etc. To a lesser or greater extent, all these issues stem in part from one crucial dilemma, that is: Micronesia has come to depend significantly on foreign external inputs, capital and knowledge, while at the same time steadily diminishing its valuable domestic assets to others. To foster sustainable growth, key assets should remain within Micronesia, enabling local reinvestment and fuelling a more virtuous cycle of sustainable development. The sub-region should therefore prioritize the value creation process within its oceans, which should serve to effectively halt the outflow of assets, and promote the inflow of investments and re-investments within the sub-region.

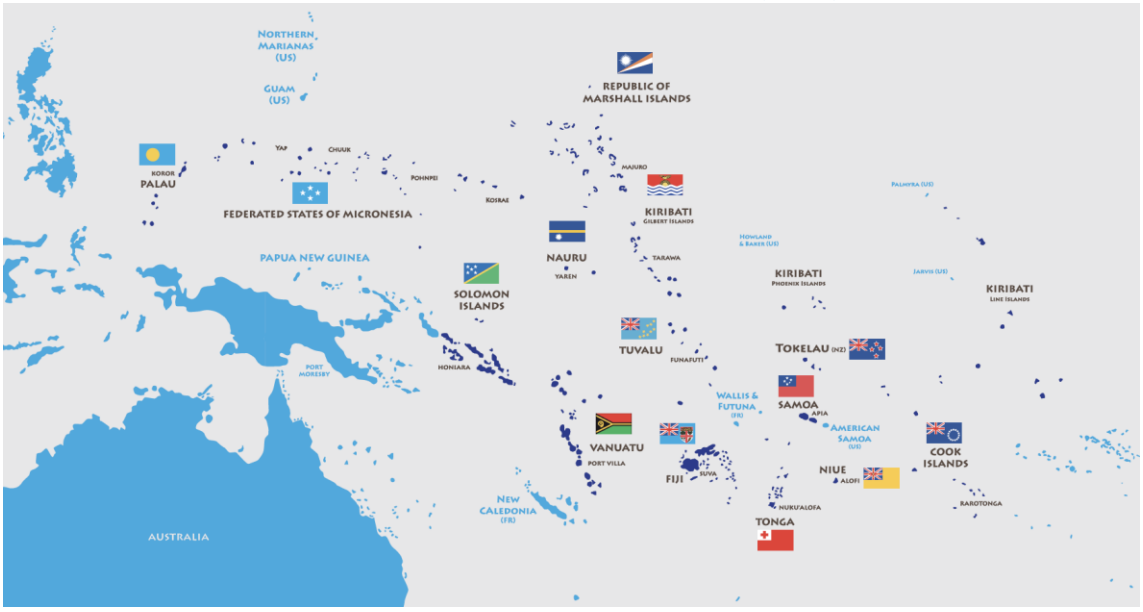
In this context, this sub-regional study concludes by humbly proposing the development of a new development model for consideration by Micronesia, and potentially adaptable to other SIDS globally,

called ‘BlueEARTH’ – denoting a [Blue] economy, [E]ducation, [A]id, [R]emittances, [T]ourism and [H]ealth. The model builds on earlier development models for small island developing States, but introduces new elements intended to cover some crucial issues and challenges that the Micronesian countries are currently contending with, as depicted in this study. These elements include education, healthcare, environmental preservation and the circular economy as key policy issues that Micronesia will need to address in the pursuit of attaining the SDGs.

1. Introduction

This sub-regional study addresses select Micronesia-wide issues which are crucial for sustainable and inclusive development for all five Micronesian small island developing States (SIDS): Palau, Federated States of Micronesia (FSM), Marshall Islands, Nauru and Kiribati. The five SIDS are also part of 14 Pacific island countries and territories (PICTs) (figure 1).[3] This study, serving as an independent volume, is a new approach intended to assess sub-region-wide development issues for Micronesia as a whole, before delving deeper into more nation-specific challenges and opportunities at the national level.

Figure 1
Pacific island countries and territories (PICTs)



Source: United Nations.[4]

As a basis for the structure of this sub-regional study, the five pillars (or 5Ps) of the 2030 Agenda are used, namely: people, prosperity, planet, peace and partnerships. Within these five pillars, the 17 SDGs are posited (see figure 2 below). The study concludes by identifying the most likely and damaging risks to the development process, and discussing key challenges and opportunities that could have the most impact on achieving the SDGs in the sub-region. It is intended that this document will be refreshed annually to reflect evolving trends and integrate new data. This iteration contains information and data available as of August 2024. Data and information that becomes available since then will appear in the next iteration of the national studies for Palau, FSM, Marshall Islands, Nauru and Kiribati in the Micronesia sub-region (hereafter 'Micronesia').

[3] The 14 PICTs comprise: Cook Islands, FSM, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu. Papua New Guinea is sometimes included in the PICTs.
[4] United Nations in the Pacific (2022). *United Nations Sustainable Development Cooperation Framework 2023-2027*.

Figure 2
SDGs and their five pillars

Source: United Nations.[5]

Following the introduction section, this study presents the sub-regional and, and providing relevant Micronesian and Pacific comparisons. Then, Micronesia's status concerning each of the 5Ps will be assessed in turn, again showing regional and sub-regional data for context and comparison, in addition to some national details. Before concluding, crucial risks and opportunities for the sub-region to realize the SDGs will be discussed, and proposing a new development model for Micronesia and other PICTs.

Box 1
Antigua and Barbuda Agenda for SIDS (ABAS)

The fourth International Conference on Small Island Developing States (SIDS4), held in Antigua and Barbuda in late May 2024, adopted, as the outcome document of the Conference, the 'Antigua and Barbuda Agenda for Small Island Developing States (ABAS): A Renewed Declaration for Resilient Prosperity'. This global action plan will replace the 2014 'SAMOA Pathway' once it is endorsed by the United Nations General Assembly in September 2024. The ABAS' four major foci are: (i) build resilient economies; (ii) foster safe, healthy and prosperous societies; (iii) achieve a secure future; and (iii) attain environmental protection and planetary sustainability.

Specific action plans include: (a) building economic resilience; (b) scaling up climate action and support, including climate finance; (c) scaling up biodiversity action; (d) conserving and sustainably using the ocean and its resources; (e) mainstreaming disaster risk reduction; (f) developing safe and healthy societies; (g) strengthening data collection, analysis and use; (h) promoting science, technology, innovation and digitalization; (i) creating productive populations; and (j) enhancing partnerships. The SIDS4 participating member States requested all United Nations entities to integrate ABAS into their strategic and work plans, and thereby contribute to the implementation of ABAS, while addressing the issues and concerns of SIDS in all relevant major United Nations conferences and processes.

[5] United Nations Sustainable Development Group (UNSDG) (2022). *Key Features and Principles of the 2030 Agenda: Towards sustainable development for all*.

They also requested the United Nations system to ensure the country and multi-country offices of all United Nations entities operating in SIDS are well-resourced, with staff with the appropriate skills, experience, country context and capacities to operate effectively, and to avoid vacancies at the country level, particularly in Resident Coordinator Offices. They further requested the United Nations Secretary-General to present recommendations for the strengthening of the SIDS Partnership Framework and the SIDS Global Business Network.[6] Whereas ABAS fundamentally aligns with the direction that the SAMOA Pathway pursued, it also emphasizes the key role financial initiatives play in supporting SIDS' sustainable and inclusive development.

[6] Fourth International Conference on Small Island Developing States (2024). *The Antigua and Barbuda Agenda for SIDS (ABAS) – a Renewed Declaration for Resilient Prosperity*.

2. Regional context

Before assessing the status of the 5Ps in the five Micronesian countries (i.e., Palau, FSM, Marshall Islands, Nauru and Kiribati), this section highlights some issues pertaining to sustainable development at the regional and sub-regional levels, spanning geographical, demographic, historical and socio-economic aspects. Various development strategies and models for the Pacific SIDS are also presented. These are all crucial elements in better understanding Micronesia's present and emerging development challenges and opportunities.

2.1. The Pacific and Micronesia

The 14 states that comprise the PICTs have a cumulative population of slightly less than 2.5 million people (less than 0.03 per cent of the global population).[7] However, they possess territories that cumulatively span 15 per cent of the world's surface, and the Pacific region consists of thousands of islands and coral reefs, with a predominantly tropical climate that includes variations of subtropical and temperate zones in some areas.[8] While the country profiles of the 14 PICTs, including the five Micronesian countries, vary quite considerably, they also share some common denominators including: relative remoteness, limited landmasses, small populations, modest size of their economies, distance from markets and supplies, and elevated exposure and vulnerability to external environmental and economic shocks.[9] The PICTs' economies have also tended to depend on tourism, fisheries, inward remittances, and development partner assistance, as well as high levels of imported food and other products.[10] This general depiction of the PICTs is also pertinent to Micronesia.

The Pacific has a rich anthropological history, particularly with respect to unique migration patterns and cultural diversity. The common classification of the Pacific regions in traditional Western anthropology is as follows: Melanesia (Southwest), Polynesia (East) and Micronesia (Northwest). The three sub-regions share anthropological traits of ocean navigation and trade connections.[11] They also share a rich oral culture, preserving history and social identity through folklore and legends passed down through generations.[12] Melanesia was the first among the three sub-regions to host settlers, with the first human migration from South-East Asia.[13] The sub-region accepted the Lapita people around 1500 BC, and the pottery culture of the population is considered to have widely spread throughout Melanesia.[14] Polynesia's first settlement took place in around 1000 BC.[15] The initial

[7] World Bank Group (2023). "Population, total", *Data*.
[8] Chape, S. (2006). "Review of Environmental Issues in the Pacific Region and the Role of the Pacific Regional Environment Programme". Workshop and symposium on Collaboration for sustainable development of the Pacific Islands: Towards effective e-learning systems on environment.
[9] United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2022). *Asia-Pacific Countries with Special Needs Development Report 2022: Financing a Sustainable Recovery from COVID-19 and Beyond*.
[10] Tisdell, C. (2016). "Models of the International Economic Dependence of Pacific Microstates: A Critical Review with Important Implications for International Policies and Relations", *Journal of Self-Governance and Management Economics*, 4(2), 7-27.
[11] Anderson, A. and O'Connor, S. (2008). "Indo-Pacific Migration and Colonization—Introduction", *Asian Perspectives*, 47(1), 2-11.
[12] Sahlins, M. D. (1958). *Social Stratification in Polynesia*. Seattle: University of Washington Press.
[13] Bolyantz, A. (2020). "Chapter 15. Pacific Realm: Historical Geography I – Austronesian Expansion". J. and Campbell, S. (Eds.), *The Western World: Daily Readings on Geography*. Glen Ellyn: College of DuPage Digital Press.
[14] Kirch, P. V. (1984). *The Evolution of Polynesian Chiefdoms*. Cambridge: *Cambridge University Press.*
[15] Bellwood, P. (1991). "The Austronesian Dispersal and the Origin of Languages," *Scientific American*, 265(1), 88-93.

settlers were from the Taiwan Province of China through Melanesia; a part of the Austronesian expansion by the Laptia people.[16]

Notwithstanding their large offshore territories, the PICTs typically possess a very narrow resource base and host small domestic markets, with no economies of scale (although they contribute significantly to a few global food supply chains, such as tuna and copra, and minerals, such as phosphate).[17] They face a combination of being far from export markets and import resources and must also contend with low and sometimes irregular international traffic volumes of many essential inputs.[18] This in turn translates into high energy, infrastructure, transportation and communication costs (particularly when viewed on a per capita basis). Moreover, most of the PICTs tend to rely on exporting a few primary commodities (e.g., fish, copra, coffee and minerals) and attracting in-bound tourists, making them highly vulnerable to external economic shocks, such as the recent COVID-19 pandemic. As a result, they tend to lack the resilience that comes from having a more diversified range of income sources, and there are limited niche opportunities for private sector development through conventional trade and investment promotion. The PICTs typically experience pronounced volatility in their economic growth patterns, which explains in part why they have tended to suffer from a vicious cycle of low productivity and sparse resources.[19] All these characteristics act as further structural impediments to their long-term economic development.

The PICTs also tend to face numerous other challenges, such as high rates of non-communicable diseases (NCDs) and mental health problems (particularly the youth), vulnerable food systems, poor educational outputs, and face burgeoning perils posed by climate change (e.g., erratic and extreme weather-related events and sea-level rise), all of which impact adversely on livelihoods. The effect of the COVID-19 pandemic (2020-2023) – and various measures implemented to restrict its spread – were considerable for PICTs in the Pacific, leading to a near total economic paralysis for the region and far-reaching ramifications for agriculture and food security.[20] The Micronesia sub-region was no exception in this regard.

The islands of Micronesia are scattered across the Northern Pacific Ocean. Characterized by their small landmasses, these nations' exclusive economic zones (EEZs) collectively cover a significant area of the Northern Pacific Ocean, nonetheless. Micronesia has an overall population of roughly 300,000 people, with Kiribati hosting the highest population of 130,000, and Nauru the smallest population of 12,000, as of 2023.[21]

Kiribati is considered to be the most dispersed nation on earth. The state consists of 33 atolls and islands scattered over 3.5 million square kilometres of ocean, whereas Nauru, a one-island nation, is the smallest republic in the world with an area of 24 square kilometres. Comprising four states -- Yap, Chuuk, Pohnpei and Kosrae -- FSM's geography varies between high volcanic islands and coral atolls,

[16] Matisoo-Smith, E. and Robins, J. H. (2004). "Origins and dispersals of Pacific peoples: Evidence from mtDNA phylogenies of the Pacific rat," *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 101(24), 9167-9172.

[17] Although almost no cereals are grown in the PICTs, wheat-based foods and rice have come to play a significant role in the diets of their populations, substituting for traditional staple foods like taro, breadfruit and cassava.

[18] United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and United Nations Conference on Trade and Development (UNCTAD) (2022). "Analysis of maritime connectivity in the Association of Southeast Asia Nations and small island developing States in the Pacific", *Transport and Trade Facilitation Series No. 18*.

[19] Tisdell (2016).

[20] World Food Programme (WFP) (2023). *Pacific multi country strategic plan (2023-2027)*, Executive Board Annual session, Rome.

[21] World Bank (2023). *World Bank open data*.

with 607 islands and atolls covering a total land area of approximately 702 square kilometres. Palau, known for its mix of volcanic high islands and low-lying coral atolls, holds a total area of 488 square kilometres. Finally, Marshall Islands, comprising 29 atolls and five isolated islands, has a small landmass of 181 square kilometres.[22]

Micronesia has navigated complex historical trajectories, from ancient settlement patterns to colonial subjugation and now faces contemporary challenges as a group of sovereign states. The islands of Palau, FSM, Marshall Islands, Nauru and Kiribati have histories of human habitation that stretch back several millennia, with initial settlements probably established by Austronesian people, known for their advanced sailing techniques, around 2000 BCE.[23] Each of these island groups developed distinct cultural identities, with advanced navigation and seafaring technologies that facilitated extensive inter-island trade and communication. Marshallese, for instance, were renowned for their stick charts, which recorded ocean swell patterns, while Palauans were known for their intricately designed bai (meeting houses) which served as centres of social and political life.[24]

European contact in Micronesia began in the 16th century but sustained colonial influence did not take hold until the late 19th and early 20th centuries. The British initially exerted influence over Kiribati, then known as the Gilbert Islands, while Nauru was annexed by Germany in 1888. Palau, FSM and Marshall Islands were also brought under German control during this period. [25] Following Germany's defeat in World War I, the islands of Micronesia, except for Nauru and Kiribati under the United Kingdom, Australian and New Zealand administration, were transferred to Japanese control under a League of Nations mandate. Japanese administration brought infrastructural development and economic changes, particularly in agriculture, fishery, mining and military fortifications. However, these developments were often exploitative, with less regard for the well-being of the indigenous populations.[26]

World War II profoundly affected Micronesia, as many of these islands became battlegrounds in the Pacific theatre. After Japan's defeat, the islands were placed under the United States administration as part of the United Nations Trust Territory of the Pacific Islands (TTPI). This post-war period marked the beginning of a transition toward self-governance and independence for the Micronesian states.[27] Nauru and Kiribati achieved independence in 1968 and 1979, respectively. FSM and Marshall Islands followed in 1986, and Palau in 1994, all under Compacts of Free Association (CoFA) with the United States, which granted the islands self-governance while ensuring continued economic assistance and defence arrangements with the United States.[28] While these nations have successfully navigated the challenges of decolonization and established themselves as independent states, their sovereignty remains precarious.

Today, these nations face numerous challenges, including the impacts of climate change, which pose existential threats to low-lying island nations like the Marshall Islands and Kiribati.[29] The reliance on

[22] The World Factbook (2024). *The World Factbook, Australia and Oceania profile.*
[23] Bolyantz (2020).
[24] Rainbird, P. (2004) "The Archaeology of Micronesia". *Cambridge: Cambridge University Press* pp. 34-48.
[25] Hezel, F. X. (1995). Strangers in Their Own Land: A Century of Colonial Rule in the Caroline and Marshall Islands. Honolulu: *University of Hawaii Press*, , pp. 65-73.
[26] Peattie, M. R. Nan'yo: The Rise and Fall of the Japanese in Micronesia, 1885-1945. Honolulu: University of Hawaii Press, 1988, pp. 105-115.
[27] Hanlon, D. (1998)."Remaking Micronesia: Discourses over Development in a Pacific Territory, 1944-1982". Honolulu: *University of Hawaii Press* , pp. 120-132.
[28] Office of Insular Affairs, U.S. Department of the Interior, (1986). Compact of Free Association between the United States and the Federated States of Micronesia.
[29] Ferguson, R. (1991). "Environmental problems in the Pacific Island region: challenges and responses". In *The South Pacific: Problems, Issues and Prospects* (pp. 65-79). London: Palgrave Macmillan UK.

external aid, particularly from the United States and Australia, also remains a critical issue, as does the preservation of cultural identity in the face of globalization. Moreover, the increasing strategic geo-political importance of the region has attracted greater international involvement, particularly considering rising tensions in the Pacific.[30]

2.2. Pacific development strategies and models

Scholars have proposed numerous development strategies and socio-economic models to overcome the challenges PICTs face.[31] Earlier, some strategies were proposed to enhance PICTs' self-sufficiency (e.g., securing external funds or earning adequate incomes to sustain lifeline and imports and develop the provision of modern infrastructure), as they are too small to capture economies of scale in their domestic markets.[32] Other strategies put emphasis on diversifying PICTs' revenue sources to enhance their long-term sustainability (e.g., tourism incomes and private sector activities and investment). More recently, development models have tended to pivot towards addressing sustainability issues (e.g., dealing with climate change impacts and maintaining maritime ecosystems), in line with the implementation of the SDGs.[33]

Perhaps the most oft-recounted development model is the so-called MIRAB, proposed in the 1980s, which has four main components: migration (MI); remittance (R); foreign aid (A); and public bureaucracy (B).[34] The MIRAB model proposes two distinct revenue sources. The first source depends on the provision of foreign aid, mainly used to fund the government bureaucracy, leading to a local multiplier effect on incomes and employment. The second revenue source involves remittances from emigrants to people remaining at home, again leading to the multiplier effect. However, the import leakage from these effects is typically high, so the multiplier effect may not be attained as desired. In the mid-1990s, the TOURAB (tourism, remittance, aid and bureaucracy) model focused on tourism for foreign exchange revenues, supplemented with aid and remittance inflows. There has also been the ROT (remittance, official development assistance (ODA) and tourism), SITE (small island tourism economies) and PROFIT (people-resources-overseas management-finance-transport) development models.[35] Table 1 summarizes these development models for PICTs. In addition, attempts have been made to generate economic revenues from providing offshore services, such as offshore private banking, vessel registration, and digital residency, among others.[36]

[30] Barnett, J., & Campbell, J.(2010) Climate Change and Small Island States: Power, Knowledge, and the South Pacific. London: Earthscan, , pp. 75-83.
[31] Tisdell (2016).
[32] Baldacchino, G. (2006). "Managing the hinterland beyond: Two ideal-type strategies of economic development for small island territories", *Asia Pacific Viewpoint*, 47(1), 45–60.
[33] United Nations Conference on Trade and Development (UNCTAD) (2022b). *Note by the UNCTAD secretariat, TD/B/C.II/EM.6/2*, at the Expert Meeting on Revisiting Development Strategies for Small Island Developing States in the Post-Pandemic Competitive Landscape, Trade and Development Board, Investment, Enterprise and Development Commission, Geneva.
[34] Tisdell (2016).
[35] Ibid.; and Kakazu, H. (2019). "*Nissology*". Tokyo: *Kokin Publishing.*
[36] Refer to various IMF Article IV Staff Reports. Visit: https://www.imf.org/en/Publications/SPROLLs/Article-iv-staff-reports#sort=%40imfdate%20descending.

Table 1
Taxonomy of development models for PICTs

Models	Key elements	Income sources	Enablers	Past studies
MIRAB	[MI]gration [R]emittance [A]id [B]ureaucracy	International remittances and foreign aids	Migration and public bureaucracy	Bertram and Watters (1985 and 1986)[37]
TOURAB	[TOU]rism [R]emittance [A]id [B]ureacracy	Tourist receipts, international remittances and foreign aids	Tourism specialization, dynamic private sector, migration and public bureaucracy	Guthunz and von Krosigk (1996)[38]
ROT	[R]emittance [O]DA [T]ourism	International remittances, foreign aid and tourist receipts	Migration, public bureaucracy, tourism	Kakazu (2019)[39]
SITEs	[S]mall (warm water) [I]sland [T]ourist [E]conomie[s]	Tourist receipts	Tourism specialization and foreign direct investment	McElroy (2006); Oberst and McElroy (2007)[40]
PROFIT	[P]eople (migration) [R]esources [O]verseas management (diplomacy) [FI]nance [T]ransport	Various	Enabling domestic policy framework, dynamic private sector and strategic diversification	Baldacchino (2006)[41]

Sources: Various sources, as indicated in the right-hand column of the table.

More recently, the 'blue economy' is a development concept that aims to achieve socio-economic progress simultaneously with ocean environmental protection, biodiversity and sustainable maritime resource extraction.[42] It spans: fisheries, eco-tourism, ocean transport, aquaculture, seabed extractive activities, marine bio-technology and bio-prospecting.[43] The blue economy's greatest challenge is reconciling two competing interests, namely: (i) opportunities for local development and growth; and

[37] Bertram, I. G. and Watters, R. F. (1985). "The MIRAB Economy in South Pacific Microstates", *Pacific Viewpoint*, 26(3), 497-519; Bertram, I. G. and Watters, R. F. (1986). "The MIRAB Process: Earlier Analyses in Context", *Pacific Viewpoint*, 27(1), 47-59.
[38] Guthunz, U. and von Krosigh, F. (1996). "Tourism Development in Small Island States: From 'MIRAB' to 'TOURAB'", in Briguglio, L., Archer, B., Jafari, J., Wall, G., Harrison, D. and Filho, W. L. (eds.*), Sustainable Tourism in Islands and Small States: Issues and Policies*. London: Pinter, 18–35.
[39] Kakazu (2019).
[40] McElroy, J. L. (2006). "Small Island Economies across the Life Cycle", *Asia Pacific Viewpoint*, 47(1), 61–77; Oberst, A. and McElroy, J. L. (2007). "Contrasting Socio-Economic and Demographic Profiles of Two, Small Island, Economic Species: MIRAB versus PROFIT/SITE", *Island Studies Journal*, 2(2), 163-176.
[41] Baldacchino (2006).
[42] Srinivasan, M., Kaullysing, D., Bhagooli, R. and Pratt, S. (2022). "Marine tourism and the blue economy: Perspectives from the Mascarene and Pacific Islands", in Urban, E. R. and Ittekot, V. (eds.), *Blue Economy*, 153-189. Singapore: Springer.
[43] For details, visit: https://www.theblueeconomy.org/en/the-blue-economy/.

(ii) protection of vulnerable and threatened spaces and species (both animal and plant).[44] In recent years, numerous PICT governments and agencies have been increasingly dedicated to promoting the blue economy, and pursuing various proactive policies and programmes.[45]

As a major step in such a trajectory, the *2050 Strategy for the Blue Pacific Continent* was endorsed by 18 countries and territories at the Pacific Islands Forum (PIF) in 2022.[46] The strategy consists of seven themes: (i) political leadership and regionalism; (ii) resources and economic development; (iii) climate change; (iv) oceans and natural environment; (v) people-centred development; (vi) technology and connectivity; and (vii) peace and security. The strategy is intended to guide how the countries of the Pacific navigate various challenges confronting the region (including the impacts of climate change, slow economic growth, poor health and education outcomes and significant ocean and land-based environmental degradation), while leveraging their collective strengths (including cultures and traditions, a youthful population and important island and ocean resources). The ocean and its resources are critical for Micronesia, accounting for the considerable economic value of marine and coastal products and services, including fisheries, tourism and carbon storage.[47]

As noted above, numerous development strategies and models have been proposed for PICTs, including the five countries in Micronesia. However, any one strategy or model is unlikely to effectively cover all countries' needs, due to their diversified and distinct characteristics. Here, policymakers may need to combine select policy options from different strategies and models, congruent with the specificities of their own country, while continuously searching for new and innovative development approaches that best suit PICTs under changing conditions.

Box 2
Assessing the Pacific development models

Although the post-pandemic recovery in GDP growth has been quite robust for PICTs, at 9.1 per cent in 2022, the overall growth rate appears to have slowed down since 2023.[48] PICTs have also struggled with relatively low rates of growth during the majority of the 21st century, when compared to most other peer groups and regions.[49] This underlines the importance of understanding the underlying factors driving (or constraining) growth in the Pacific, including Micronesia, so as to effectively pursue further development of the region.

The random effects model below examines economic growth determinants in 10 PICTs (Fiji, Kiribati, FSM, Marshall Islands, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) from 2002 to 2020 with robust standard errors, using unbalanced data from the World Bank. Dependent variables were chosen based on various development models outlined in section 2.2. (e.g., MIRAB, TOURAB and blue economy). To ensure linearity and address non-stationarity, per capita logarithms of first differences are used for all variables.

[44] Srinivasan, *et al.* (2022); Lee, K., Noh, J. and Khim, J. S. (2020). "The Blue Economy and the United Nation's sustainable development goals: Challenges and opportunities", *Environment International*, 137, 105528.
[45] Pacific Islands Forum Secretariat (PIFS) (2022). *2050 Strategy for the Blue Pacific Continent*. Suva.
[46]Pacific Islands Forum Secretariat (PIFS) (2022). The 18 countries and territories comprise: Australia, Cook Islands, FSM, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.
[47] Rouatu, I., Leport, G., Pascal, N., Wendt, H., Abeta, R., Brander, L., Fernandes, L., Seidl, A. and Salcone. J. (2017). *National Marine Ecosystem Service Valuation: Kiribati.* Suva, Fiji: MACBIO (GIZ/IUCN/SPREP).
[48] World Bank (2024). *Pacific Economic Growth Slowing After Post-Pandemic Rebound*, 5 March.
[49] Kronenberg, R. P. (2016). "Chapter 1. Economic Growth in the Pacific Island Countries—Challenges, Constraints, and Policy Responses". In *Resilience and Growth in the Small States of the Pacific*. Washington D.C.: International Monetary Fund.

$$ln\Delta GDP_{it} = c_0 + ln\Delta F_{it} + ln\Delta R_{it} + ln\Delta T_{it} + ln\Delta G_{it} + ln\Delta ODA_{it} + ln\Delta FDI_{it} + e_{it}$$

GDP denotes gross domestic production, *F* is total fisheries production, *T* is international tourism receipt, *R* is remittance, *G* is government expenditure, *ODA* is net official development assistance received and *FDI* is net foreign direct investment inflows.

The regression results in table 2 reveal that among the variables analyzed, "tourism receipts" and "government expenditure" are significant determinants of GDP growth, indicating strong positive relationships. In contrast, "remittances", "total fisheries production", "overseas development aid" and "FDI" are not significant. It is worth noting that these results describe short-term relationships between the dependent and independent variables. It is possible that variables, such as FDI, could have a more significant relationship with GDP growth under a longer time frame. The adjusted *R^2* value is fairly high in the model at 0.39, indicating that a substantial part of the economic growth in the PICTs is explained by the model.

Table 2
The random effects model and its results

Variable	Coefficient	Std. error	t-ratio	*p*-value	
Constant	0.0286964	0.00494322	5.805	0.0011	***
ld_Total fisheries production	−0.00611290	0.0168322	−0.3632	0.7289	
ld_Remittance	0.00125910	0.0134182	0.09384	0.9283	
ld_Tourism receipt	0.0340106	0.00396468	8.578	0.0001	***
ld_Government expenditure	0.327280	0.110843	2.953	0.0255	**
ld_Overseas development aid	−0.00564773	0.0234586	−0.2408	0.8178	
ld_Foreign direct investment	0.00943526	0.00585726	1.611	0.1583	

Within R-squared: 0.394801

Notes: ***, ** and * mean significance at 1%, 5% and 10%. ld stands for the natural logarithm of first differences.

Tourism receipts and government expenditure emerge as the statistically most relevant factors for short-term GDP growth in the Pacific. Tourism receipts are more significant, while government expenditure potentially has a larger impact. Thus, directing government expenditure towards prospects that could potentially promote tourism in PICTs, such as improved infrastructure, accommodation and transport capacity, is one way in which GDP growth could be further pursued in the region. Although overseas development aid does not exhibit a direct relationship with economic growth, it remains a critical source of funding for government expenditure in PICTs, and plays a key role in shaping fiscal policy, as nine out of the 16 most aid dependant countries in the world belong to the Pacific.[50] Therefore, maintaining adequate levels of aid is essential to enable these governments to pursue growth-enhancing projects.

Total fisheries production in PICTs is not significantly linked to economic growth in the region, which may prompt the consideration of promoting domestic value addition in the fisheries sector and the diversification of industries that could drive growth in the Pacific. Remittances doe not prevail in growth contributions, which may suggest different socio-economic trends in emigration from the Pacific. FDI inflows are also not a significant contributor to growth either, possibly due to having a relatively nascent private sector in the Pacific, unable to leverage these inflows into business linkages and opportunities for increased revenues, job growth, etc.

[50] Dayant *et al.* (2023). *Pacific Aid Map 2023 Key Findings Report*. Sydney: Lowy Institute.

Table 3 provides a statistical overview of PICTs' positions regarding the above development strategies and models, and shows the diversified profiles of the PICTs and their respective development trajectories. While the five Micronesian countries (i.e., Palau, FSM, Marshall Islands, Nauru and Kiribati) show distinct characteristics, the data indicates that they commonly rely on the fisheries and/or tourism sectors, while depending heavily on foreign aid and the government's economic activities (predominantly in the services sector). Inward remittances to Micronesia are relatively modest. This would suggest that the five Micronesia countries conform more to the MIRAB/TOURAB models, notwithstanding the more recent pivot towards the blue economy development strategy.

Table 3

A statistical overview of PICTs' development

Country	Population 2023 data (Niue: 2022, Tokelau: 2019)	Migration Stock (% of Population) Indicates what percentage of the population is represented by immigrants who entered (immigrant) and left (Emigrant) the country. (2020 data) |1-2| >=15%		GDP (Current US$)		Remittance (%) Indicates the percentage of GDP overseas remittances represent Remittance>=15%		Aid (%) Indicates what percentage of the government budget the amount of foreign aid corresponds to. Aid>=35%		Bureaucracy It shows how many times GDP is the national budget. The higher this number, the larger the private sector. Bureaucracy<3		GNI/capita (Atlas Method US$)		Tourism It shows how many times the number of tourists per year is compared to the country's population. Tourism>=1		Composition of GDP by sector of origin (%) Agriculture>=15% Industry >=20% Service >=70%				EEZ sizes (square KMs)	Tuna Fisheries (caught by national waters) (2021 data)	
		Immigrant	Emigrant		Year		Year		Year		Year		Year		Year	Agriculture	Industry	Service	Year		Tonnes	Value (US$)
Papua New Guinea	10,329,931	0.35	0.68	30,932,496,250	2023	0.01	2023	12.64	2019	4.82	2019	2,840	2023	0.00	2021	22.1	42.9	35.0	2017	2,396,575	511,967	791,034,875
Fiji	936,375	1.91	15.20	5,494,797,541	2023	9.10	2023	12.79	2020	2.96	2020	5,580	2023	0.03	2021	13.5	17.4	69.1	2017	1,281,703	6,916	31,065,987
Solomon Island	740,424	1.39	0.63	1,631,286,701	2023	5.18	2023	41.69	2019	3.02	2019	2,270	2023	0.00	2021	34.3	7.6	58.1	2017	1,596,464	120,212	211,743,394
Vanuatu	334,506	0.67	3.33	1,126,313,359	2023	15.68	2023	36.79	2019	2.64	2019	3,660	2023	0.07	2020	27.3	11.8	60.8	2017	827,626	2,431	10,138,440
Samoa	225,681	3.08	53.23	934,100,336	2023	28.36	2023	63.41	2020	3.30	2020	4,020	2023	0.01	2021	10.4	23.6	66.0	2017	131,535	1,306	5,068,045
Kiribati	133,515	2.23	12.56	279,034,355	2023	5.38	2023	37.63	2017	0.92	2017	3,730	2023	0.00	2021	23.0	7.0	70.0	2016	3,437,132	359,353	533,967,800
FSM	115,224	2.76	13.45	460,000,000	2023	5.07	2023	67.00	2018	1.67	2018	4,150	2023	0.16	2019	26.3	18.9	54.8	2013	2,992,415	125,724	211,554,847
Tonga	107,773	1.53	43.61	500,274,898	2022	45.03	2022	55.08	2019	2.61	2019	4,930	2022	0.00	2021	19.9	20.3	59.8	2017	664,751	1,629	9,010,347
Marshall Islands	41,996	2.98	11.00	284,000,000	2023	10.56	2023	43.12	2019	1.52	2019	7,570	2023	0.00	2021	4.4	9.9	85.7	2013	1,992,022	69,050	128,083,869
Palau	18,055	31.82	92.15	263,020,734	2023	0.38	2023	20.62	2019	2.30	2019	14,250	2023	1.00	2020	3.0	19.0	78.0	2016	604,253	502	4,187,450
Cook Islands	17,761	13.53	103.41					1.14	2016					1.59	2020	5.1	12.7	82.1	2010	1,960,027	6,499	24,045,438
Nauru	12,780	43.69	14.71	154,127,798	2023	4.99	2018	17.88	2020	0.79	2020	22,090	2023			6.1	33.0	60.8	2009	308,506	152,641	225,220,929
Tuvalu	11,396	2.11	35.66	62,280,312	2023	4.82	2023	41.45	2019	0.62	2019	7,550	2023	0.00	2021	24.5	5.6	70.0	2012	751,672	79,484	119,173,977
Niue	2,000	18.41	292.29											0.00	2021	23.5	26.9	49.5	2003	316,584	25	91,343
Tokelau	1,647							62.74	2017							NA	NA	NA		319,049	5,662	12,712,842

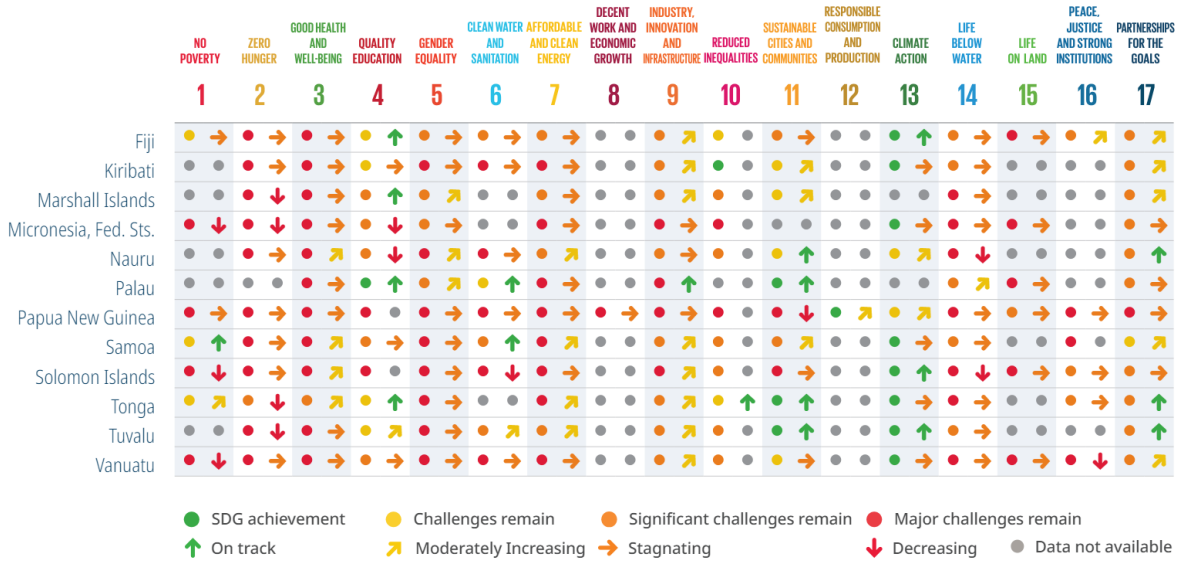
Sources: World Bank (2023). *DataBank: World Development Indicators*; and various others. Note: The countries highlighted in blue are those within the Micronesia sub-region.

2.3. Implementing the SDGs in the Micronesian sub-region

The most recent (2024) iteration of the *Sustainable Development Report* tracks the progress of the 17 SDGs across the Pacific.[51] While the region varies quite widely in SDG implementation, it broadly performs well in achieving SDG13 "Climate action". On the other hand, the region poorly performs on multiple other SDGs, including SDG1 "No poverty", SDG2 "Zero hunger", SDG3 "Good health and well-being", SDG5 "Gender equality", SDG7 "Affordable and clean energy", SDG9 "Industry, innovation and infrastructure" and SDG14 "Life below water". The five Micronesian countries also broadly conform to these Pacific region trends (see figure 3 below).

Figure 3

The Pacific's progress in SDG implementation



Source: Sachs, *et al*.[52]

One crucial issue in monitoring SDG implementation in the region is the lack of data. In particular, SDG1 "No poverty", SDG8 "Decent work and economic growth", SDG10 "Reduced inequality", SDG12 "Responsible consumption and production", SDG 15 "Life on land" and SDG 16 "Peace justice and strong institutions" commonly face this data issue across the Pacific region, including in Micronesia. This issue may also suggest a legitimate doubt about the quality of the entire dataset available in the Pacific, which could potentially mislead decision-making and policy recommendations for the region in the past.

[51] Sachs, J. D., Lafortune, G. and Fuller, G. (2024). *Sustainable Development Report 2024: The SDGs and the UN Summit of the Future: Includes the SDG Index and Dashboards.* Dublin: Dublin University Press.
[52] Ibid (2019).

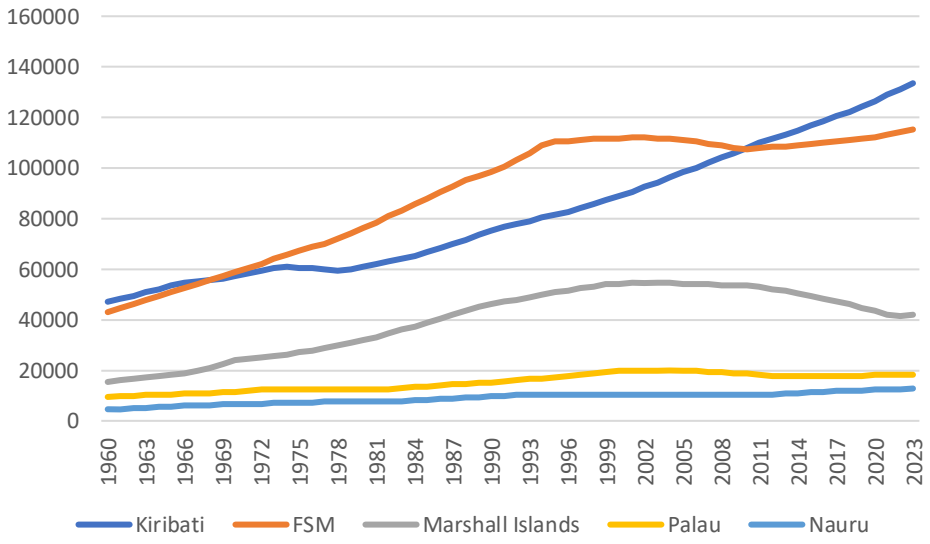
3. People

This section of the sub-regional study assesses the crucial components of the SDG's people pillar in Micronesia, and spans: (i) population; (ii) education; (iii) labour and migration; (iv) food; and (v) health. The section places a particular focus on "Leave No One Behind (LNOB)", a principle of the 2030 Agenda and the SDGs to eradicate poverty, end discrimination and exclusion, and reduce inequality and vulnerability.[53]

3.1. Population

While Palau, FSM, Nauru and Kiribati have gradually increased their populations over the past decade, Marshall Islands has seen a decrease of over 20 per cent in the past two decades (see figure 4). However, FSM recently disclosed a 30 per cent decline in its population from 2011 to 2021 according to its preliminary census results, which is not reflected in the figure.[54] Whereas birth and fertility rates have declined steadily, they are kept at a high level relative to international standards, except for Palau whose rate is markedly lower than its neighbours (figure 5). Experts claim that Marshall Islands and FSM's declining populations are mainly due to emigration flows to the United States under the Compact agreement, while Palau has experienced a similar trend in the past.[55] As birth and fertility rates decline and emigration continues, population growth is expected to slow in Micronesia, leading to an ageing society.

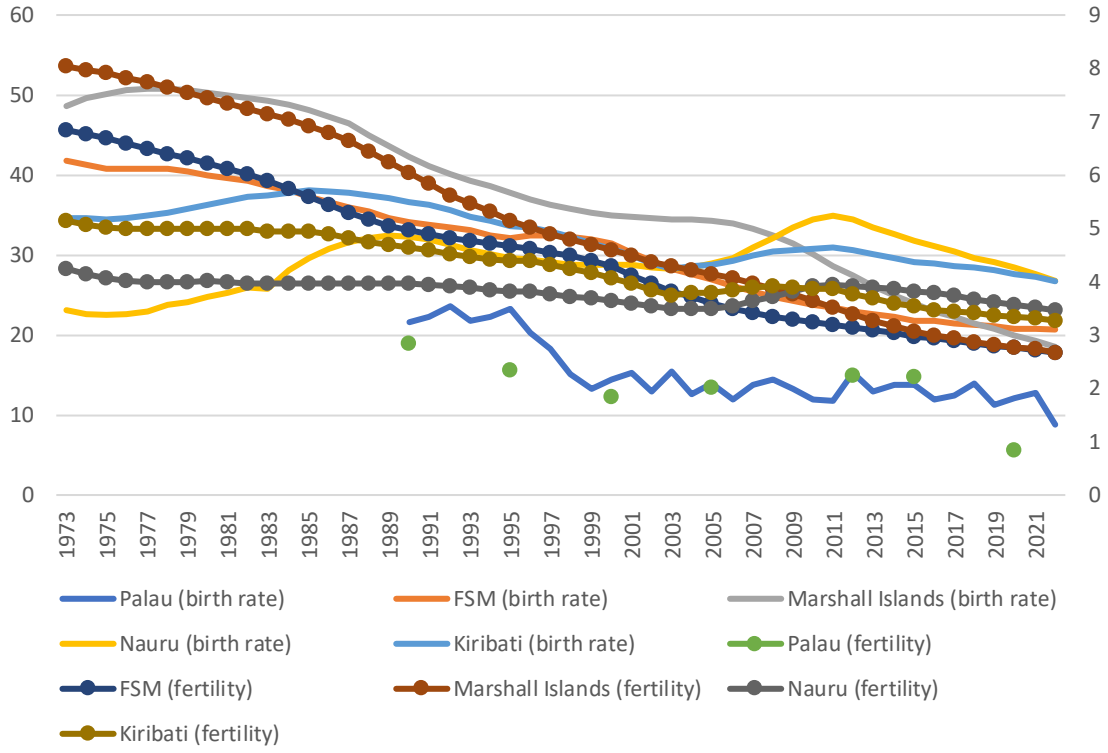
Figure 4
Populations in Micronesia



Source: Developed based on The World Bank Group.[56]
Note: The figure does not reflect FSM's reported population decline (30 per cent from 2011 to 2021).

[53] UNSDG (2024). *Leave No One Behind, Universal Values Principle Two: Leave No One Behind*, see: https://unsdg.un.org/2030-agenda/universal-values/leave-no-one-behind.
[54] Polland, S. (2024). "The Pacific economic malaise", *Island Times*.
[55] Abe, M. and Wang, A. (forthcoming). "Migration among the freely associated states in Micronesia: Trends, drivers, and implications". In Monaco, E. and Masato Abe, M. (eds.), *Sustainable Development across Pacific Islands: Lessons, Challenges, and Ways Forward*. Singapore: Springer.
[56] World Bank Group (2023). "*Population, total*", Data, *see:* https://data.worldbank.org/indicator/SP.POP.TOTL.

Figure 5
Birth and fertility rates in Micronesia



Source: Developed based on The World Bank Group.[57]
Note: The birth rate is per 1,000 people, and the fertility rate is the number of births per woman.

[57] World Bank Group (2023). "*Fertility rate, total (births per woman)*", Data, *see:* https://data.worldbank.org/indicator/SP.DYN.TFRT.IN.

Box 3
An ageing society and its implications for Micronesia

Populations are ageing rapidly. The global elderly is increasing both in absolute numbers and as a proportion of the total population.[58] From 1974 to 2024, the global percentage of people aged 65 and older will have almost doubled, rising from 5.5 per cent to 10.3 per cent.[59] In the Pacific, Micronesia is ageing most rapidly, along with Polynesia, due to its mortality and fertility transitions.[60] In 2023, the 60-plus age group comprised 10.1 per cent of the total population of Micronesia.[61] International migration has also contributed to the ageing process in Micronesia, as most emigrants are of working age, while those returning are often near or past retirement age. The ageing population presents additional challenges for healthcare delivery and social services as Micronesia faces issues of both resurgent infectious diseases and the growing burden of NCDs, which disproportionately affect the elderly.[62]

The above notwithstanding, the rise in the ageing population in Micronesia can also create opportunities. The older generation in Micronesian communities has traditionally been given held in high regard. This cultural respect can be leveraged to enhance inter-generational assistance and knowledge transfer.[63] Countries in the sub-region could potentially reap a "silver dividend", whereby the rise in productivity from elderly individuals would enhance Micronesia's socio-economic development.[64]

Policies that support and strengthen elderly care systems, recognizing the cultural importance of extended families, should be developed. Policies that promote healthy ageing through adopting proper lifestyles and preventive health care should also be encouraged.[65] Given the rapid feminization of ageing in Micronesia, the development of gender-sensitive policies for elderly care and assistance is recommended. Lastly, policy-making must be adaptive and flexible to the changing needs of an ageing population and account for the specific contexts of different Micronesian islands and communities, recognizing the diversity that exists within the sub-region.

FSM presents a critical case concerning poverty and inequality in the population that merits immediate interventions. The nation shows the highest poverty rate and inequality level in Micronesia according to the international poverty headcount ratio (16 per cent of the population living on less than $2.15 USD per day) and GINI index (40.1).[66] Marshall Islands, Nauru and Kiribati have moderate poverty and inequality levels, although their data are relatively old. Palau does not disclose relevant data.[67] While

[58] United Nations, Department of Economic and Social Affairs (2019). *World Population Ageing 2019 Highlights*, see: https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Highlights.pdf.
[59] United Nations Population Fund (UNPF) (2024). *Ageing*, see: https://www.unfpa.org/ageing.
[60] United Nations Population Fund (UNFPA) (2010). *Population Ageing in the Pacific Islands: A situation analysis*, see: https://pacific.unfpa.org/sites/default/files/pub-pdf/Ageingpopulation20.10.10.pdf.
[61] Economic and Social Commission for Asia and the Pacific (ESCAP) (2023), *see:* https://www.population-trends-asiapacific.org/data/FSM.
[62] Ibid.
[63] Ibid.
[64] Asian Development Bank (ADB) (2024). *Developing Asia and the Pacific Unprepared for Challenges of Aging Population*, see: https://www.adb.org/news/developing-asia-and-pacific-unprepared-challenges-aging-population.
[65] Ibid.
[66] World Bank Group (2023). "*Poverty*," Data, *see:* https://data.worldbank.org/topic/poverty.
[67] Ibid.

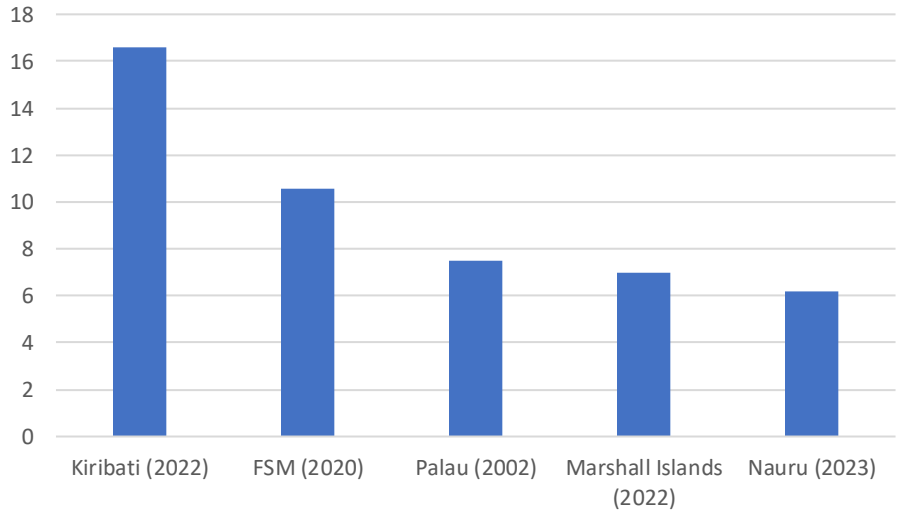
the subsistence economy and traditional community support prevalent in Micronesia could alleviate the impacts of poverty and inequality, some interventions may need to be implemented along with improved data collection and evidence-based research.

Although official figures are unavailable for all Micronesian countries, their crime levels are modest. The majority are felony crimes, mostly for misconduct (such as burglary, fraud or sexual assault crimes), and the rest were misdemeanour crimes (such as traffic violations, road accidents, drunk and disorderly conduct). The Global Initiative Against Transnational Organized Crime's index ranks FSM 176th out of 193 countries, Palau 183rd, Marshall Islands 186th, Kiribati 187th and Nauru 191st.[68]

3.2. Education

In Micronesia, education outcomes have been mediocre. While the five countries invest substantial funds in their respective education sectors (figure 6) and provide compulsory universal education services up to secondary education, their performances are regarded as low.[69] Palau, FSM and Marshall Islands follow the American academic curriculum, while Nauru and Kiribati adopt the British and Australian equivalents. National assessments commonly suggest low academic performance, the lack of adequate and well-trained teachers, sub-standard facilities and limited administrative capacity at all levels.[70] Public schools tend to exhibit lower academic performance than private schools, leading to a significant discrepancy in the quality of education offered. The dropout rates are high, particularly at the secondary level, although gender disparities are relatively less severe compared with neighbouring countries.[71]

Figure 6
Education expenditure
Percentage of GDP, latest years

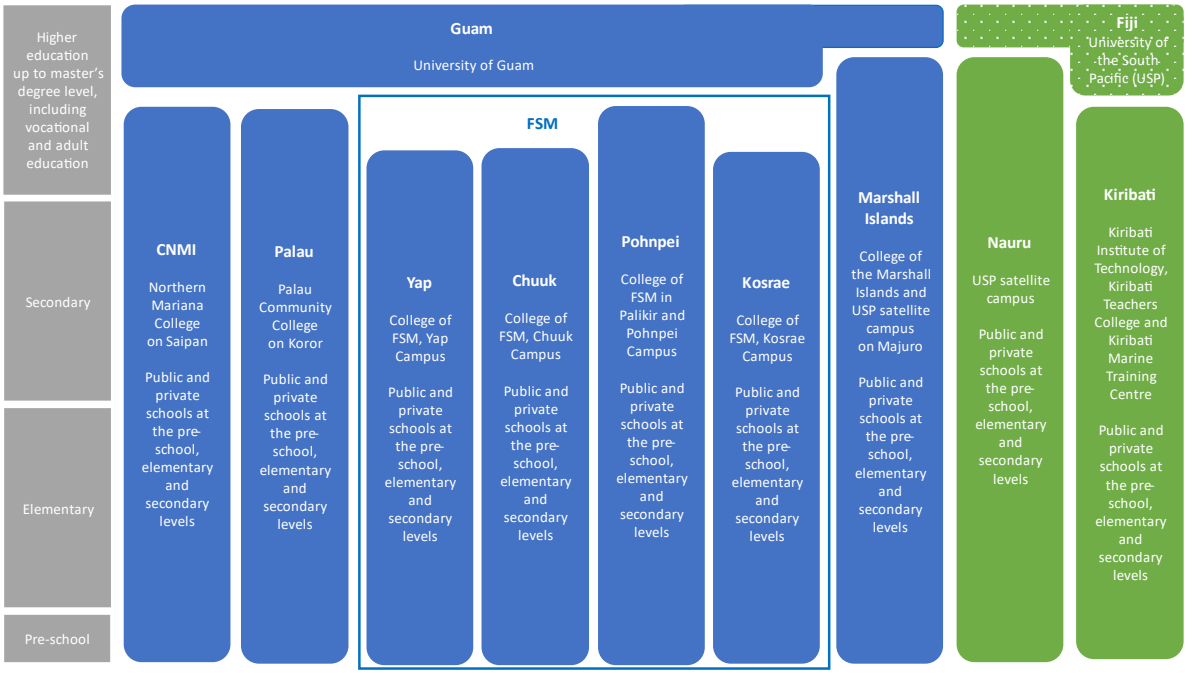


Source: Developed based on The World Bank Group.[72]

[68] For further details on the Global Organized Crime Index, see: https://ocindex.net/.
[69] Pacific Community (SPC) (2018) *Pacific Islands Literacy and Numeracy Assessment (PILNA)*, see: https://eqap.spc.int/PILNA.
[70] Pacific Community (SPC) (2023). *Student retention and attrition: Insights into factors affecting cohort survival rates, drop-out rates, and re-entry rates in selected Pacific Islands countries*. Suva: SPC Suva Regional Office.
[71] Ibid.
[72] World Bank Group (2023). "*Government expenditure on education, total (% of GDP)*", *Data*, see: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS.

The lack of fully-fledged higher education obliges many Micronesian students to go abroad for their advanced studies. Figure 7 gives an overview of the current education structure of Micronesia, as well as two US territories, i.e., Guam and the Commonwealth of Northern Mariana Islands (CNMI)). The structure was designed and initiated before their independence.[73] The academic programmes of their colleges are still limited to the associate degree level, except for a few joint bachelor degrees in association with foreign universities in such fields as teaching, nursing and business. Hence, wealthier students often choose to study abroad, usually at universities in Guam, Hawaii and the mainland United States for those who studied under the American curriculum (shaded in blue in the figure), and Fiji, Australia and New Zealand for those who studied under the Australian curriculum (shaded in green). High-performing students can also apply for various bilateral and private scholarships and training programmes sponsored by Australia, China, Japan, New Zealand, Republic of Korea, the United States, Taiwan Province of China and others. Some of these overseas students opt to stay and work abroad after graduation.[74]

Figure 7
The structure of education systems in Micronesia



Sources: Authors' illustrations based on various sources.

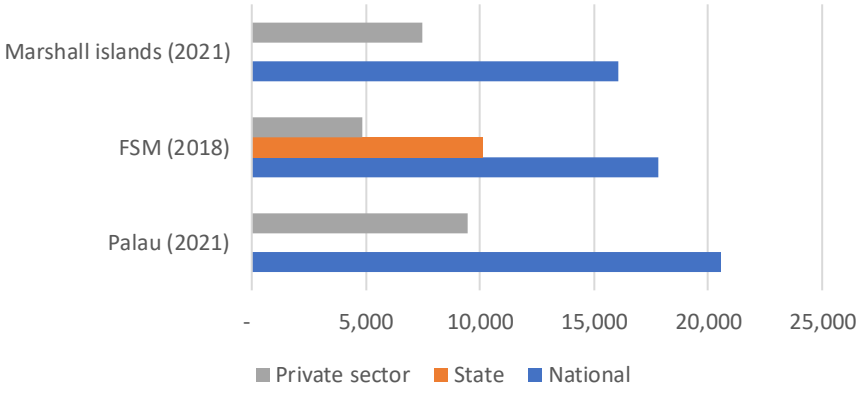
Notes: CNMI stands for Commonwealth of Northern Mariana Islands. Countries and territories in blue adopt the American curriculum, while those in green follow the British and Australian curriculum. Fiji is not part of Micronesia, but Melanesia. Guam only shows its four-year public college, the University of Guam, which offers limited undergraduate and graduate degrees. The University of Guam neither has professional schools (e.g., medicine and law) nor offers doctorate degrees, for which students must attend schools in Hawaii and mainland United States. Guam's other small private colleges – Guam Community College and Pacific Islands Bible College – are excluded. The University of Guman recently launched its first doctorate programme in education (see https://www.uog.edu/news-announcements/2024-2025/2024-uog-doctoral-program-set-to-launch-in-fall-2024.php).

[73] For example, since its establishment in 1952, the University of Guman, a US public university, has been a focal point higher education institution as the regional university for Micronesia while the community colleges on other Micronesian islands have sent their well-performing students to Guam and other US territories.
[74] Hezel, F. X. (2013). *Micronesians on the move: eastward and upward bound*. Honolulu: East-West Center.

3.3. Labour and migration

The Micronesia labour market has three distinct characteristics. First, it is a mixture of formal employment (i.e., salaried jobs with various benefits and protection in both public and private sectors), a large informal sector (such as part-time or seasonal jobs without benefits and security) and a persistent subsistence economy (frequently drawing on non-paid family or kinship labour). Such a structure cannot be changed quickly, as it is rooted in socio-cultural norms and values.[75] Secondly, there are considerable gender disparities in job opportunities and salaries (e.g., numbers, quality and skill requirements). Often, women undertake unpaid and traditionally assigned family care obligations and responsibilities, while remaining under-represented in the national congress, cabinet and senior leadership positions. Women tend to earn less than men and have limited career choices.[76] [77] Thirdly, while the government has been the primary employer for many years, significant sectoral disparities exist between government offices, businesses and others (e.g., non-governmental or civil society organizations). The government's pay is estimated to be two to three times higher than that of the private sector, given relatively abundant aid money (figure 8).[78] Workers in the private sector typically neither receive health benefits nor take sick, family or maternity leave, and they do not participate in the social security system. Raising the minimum wage would appear to be desirable policy option; however, the nascent private sector impedes the success of such an intervention.

Figure 8
Latest average wages in the public and private sectors, Palau, FSM and Marshall Islands



Source: Authors' illustration based on Graduate School USA.[79]

[75] Hezel (2013).

[76] Palau is an exception regarding salary equality. According to the census, women earn six per cent more than men in higher positions and eight per cent more in medium-level positions. Pacific Community (SPC) (2023). *Palau gender factsheet*. See: https://spccfpstore1.blob.core.windows.net/digitallibrary-docs/files/e1/e1a4a1fc3740bb29583349c896e79520.pdf?sv=2015-12-11&sr=b&sig=%2FFKnJmZ0QIv1ukufq4S%2B%2BATnAbzB4C99wH347Aw%2BLQQ%3D&se=2024-05-09T13%3A39%3A04Z&sp=r&rscc=public%2C%20max-age%3D864000%2C%20max-stale%3D86400&rsct=application%2Fpdf&rscd=inline%3B%20filename%3D%22Palau_2023_Gender_factsheet.pdf%22.

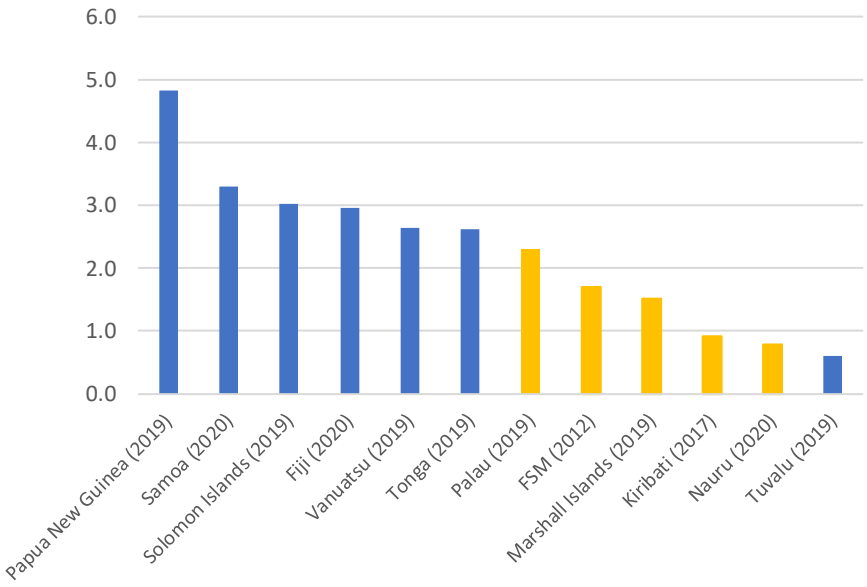
[77] UN Women (United Nations Entity for Gender Equality and the Empowerment of Women) (2022a). *Gender equality brief for Federated States of Micronesia*; UN Women (2022b) *Gender equality brief for the Republic of Marshall Islands*; UN Women (2022c) *Gender equality brief for Palau*; UN Women (2022d) *Gender equality brief for Nauru*; UN Women (2022e) *Gender equality brief for Kiribati.*

[78] In the United States, federal workers earned nearly a quarter less than their private sector counterparts in 2021 (Wagner, 2022).

[79] Graduate School USA (2019). *Federated States of Micronesia: fiscal year 2018 statistical appendices*; Graduate School USA (2021). *Republic of the Marshall Islands: fiscal year 2021 statistical appendices (preliminary)*; Graduate School USA (2023). *Palau FY22 economic statistics (preliminary)*.

In Micronesia, the public sector dominates the labour market and formal employment, making it difficult to foster a vibrant private sector that can create jobs in the economy. The paucity of formal wage jobs has been the single most significant factor driving emigration, predominantly to the United States, as well as some other countries. Figure 9 illustrates this trend by comparing the government's contribution to the economy with that of neighbouring countries in the Pacific, including Papua New Guinea, Samoa, Solomon Islands, Fiji and Tonga. Understandably, given its vital tourism sector, Palau has more active private sector activities than the Micronesian states.

Figure 9
The government's contribution to the economy

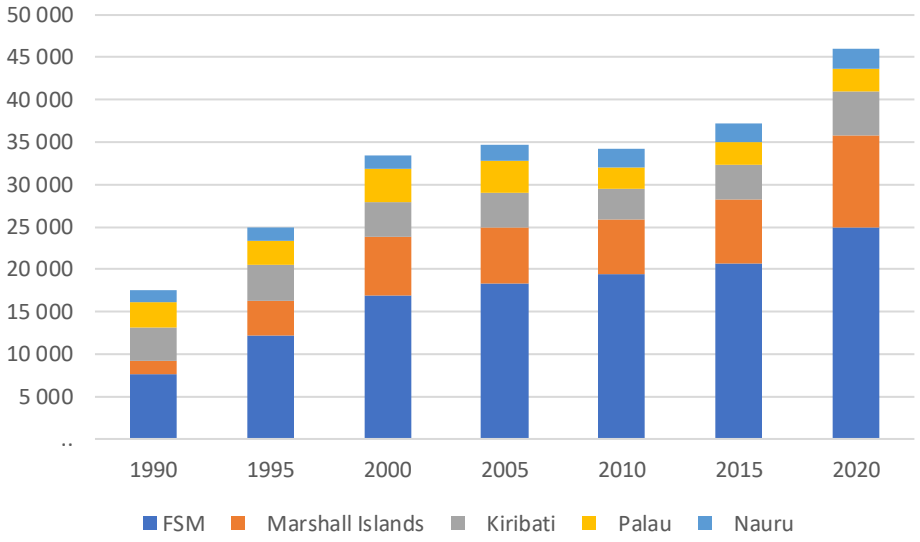


Source: Authors' illustration based on World Bank (2023).[80]
Note: The figure shows the relative size of the pubic contribution to the national economy (i.e., how many times is GDP larger than the national budget?). The higher this number is, the larger the private sector is.

Micronesians' labour outflows have been severe. Well-paying jobs and decent work are insufficient, particularly in the private sector and contribute significantly to growing outward migration in Micronesia. Figure 10 presents the emigration stock of the five Micronesian countries, illustrating the gradual growth of outward migrants since the early 1990s, with a further surge in the last decade. The 2020 figures suggest that nearly 15 per cent of Micronesian people live abroad.

[80] World Bank Group (2024). Databank: *World Development Indicators; and various others, data, see: https://databank.worldbank.org/source/world-development-indicators.*

Figure 10
Micronesia's emigration stocks



Source: Authors' illustration based on UNDESA Population Division.[81]

It is predominantly young people who migrate from Micronesia. In 2020 and 2021, the average age of emigrants from FSM was 25 and the median was 28.[82] In 2019, 66 per cent of survey participants at the College of Micronesia-FSM expressed a desire to migrate.[83] Also in 2019, 44 per cent of students at the University of the South Pacific (USP) campus in Marshall Islands indicated an aspiration to move abroad.[84] This desire to migrate among the younger generation is particularly worrisome for Micronesia, and the resulting 'brain drain', or loss of many of the most productive citizens as they move and remain overseas, may be one of the most note-worthy development challenges for Micronesia.[85] [86]

One apparent reason for increasing emigration is the Compact of Free Association (CoFA) agreements held by three Micronesian countries -- Palau, FSM and Marshall Islands -- and the United States since the late 1980s. Under the CoFAs, Micronesian people can freely move to the United States, without a requirement to obtain a visa, and access study and employment on par with American citizens. Once this arrangement was in place, a considerable number of people quickly took the opportunity to

[81] United Nations Department of Economic and Social Affairs (UNDESA), Population Division (2020) *International migrant stock 2020*. See: www.un.org/development/desa/pd/content/international-migrant-stock.

[82] Government of FSM (2023). "Address by H.E. David W. Panuelo, on the occasion of the State of the Nation", *FSM Information Services Press Release*, 13 January.

[83] The survey included approximately 200 respondents. Moriya, K. (2019)." *Motivations for students in the Republic of the Marshall Islands and the Federated States of Micronesia to emigrate abroad", Journal of Disaster Research*, 14(9), 1293–1296.

[84] Yoshioka, N., Taafaki, I., and McKay, J (2019). "*Higher education and destination of the youth in the Republic of the Marshall Islands: implication for climate-induced migration*", *Journal of Disaster Research*, 14(9), 1287–1292.

[85] Grieco, E. (2003). *The Federated States of Micronesia: the 'push' to migrate*. Washington, DC: Migration Policy Institute.

[86] Brain drain occurs when migrants take their skills and initiative to their new countries of residence. However, Micronesian migrants' profile suggests that there is not a brain drain. An estimate shows that almost 30 per cent of them had no diploma, while only 12 per cent held associate's, bachelor's, graduate or professional degrees. US Government Accountability Office (2020). *Compacts of Free Association: Populations in US Areas Have Grown, with Varying Reported Effects*. Washington, DC: Government Accountability Office.

migrate to the United States and pursue a life there, with remittances being sent back to their families at home.[87] Given the traditionally close family ties that exist in Micronesia, family-led chain migration has further exacerbated such a trend.[88]

It is expected that the third CoFAs (2023–2043) will maintain the present outward migration levels, and increasing inflows of foreign workers.[89] This is because: (i) the newly agreed Compact assistance is expected to increase the number of government-related formal wage jobs; (ii) such new jobs will require skilled labour that cannot be promptly filled locally; (iii) the Compact assistance (both financial and technical) will not greatly impact real economic or private sector growth and development, but further expand the government's role in the economy, something which has been observed in Micronesia in the past 40 years; and (iv) as a result, freely associated states' (FAS) citizens in disadvantaged positions (e.g., people in rural and outer islands and low education attainers) will continue to face relative poverty and widening inequality, which will drive outward migration. There is an urgent need to try and break such a vicious cycle under the CoFAs.

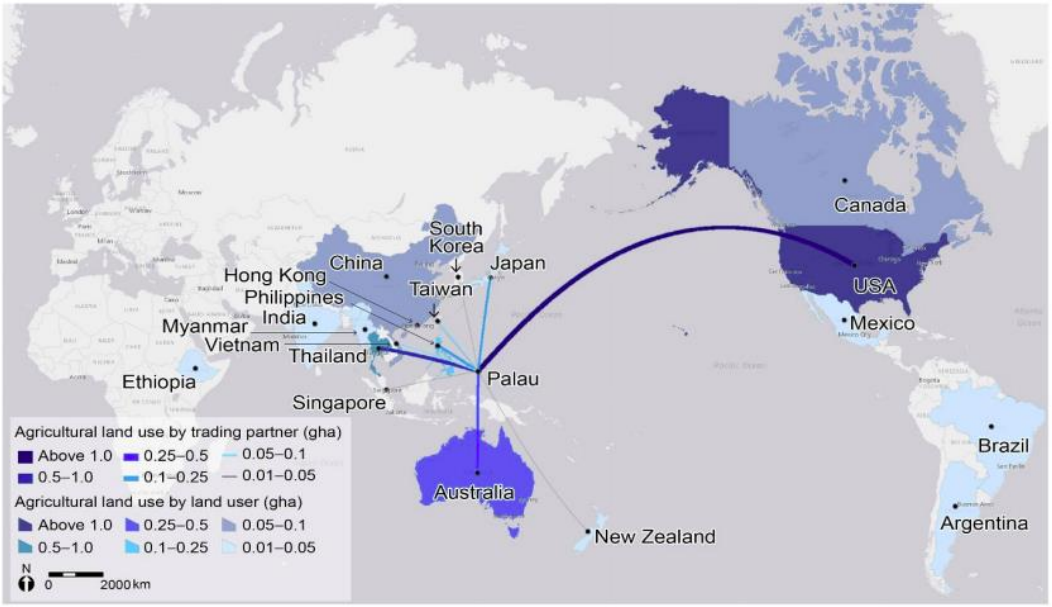
3.4. Food

In Micronesia, the issue of food security requires urgent attention. Micronesia's restricted local food supplies and growing inclination towards imported food products, which often lack adequate nutrition, have resulted in unhealthy dietary habits that then contribute to various health issues, such as obesity, anaemia and NCDs among all age groups.[90]

The sub-region imports nearly 90 per cent of its dietary requirements, much of which is of low nutritional quality.[91] The main food import categories are rice and poultry, as well as processed foods made from meat, fish and cereals.[92] [93] Even a short disruption in shipping can result in rapid depletion of food stocks, while a lengthier disruption, such as one arising from conflict, pandemic or natural disaster, could be potentially catastrophic. Figure 11 presents Palau's food supply chains as an illustration of the situation in Micronesia.

[87] US Government Accountability Office (2020).
[88] Keck, V. and Schieder, D. (2015). "Contradictions and Complexities—Current Perspectives on Pacific Islander Mobilities", *Anthropological Forum*, 25(2), 115–130.
[89] Asian Development Bank, 2023a; 2023b; 2023c.
[90] World Bank (2021). *Climate Risk Country Profile: Micronesia*. Washington, D.C.: World Bank. See: https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15818-WB_Micronesia%20Country%20Profile-WEB.pdf.
[91] FAO, International Fund for Agricultural Development (IFAD), UNICEF, WFP and World Health Organization (WHO) (2022). *The State of Food Security and Nutrition in the World 2022: Repurposing food and agricultural policies to make healthy diets more affordable*. Rome: FAO.
[92] Ibid.
[93] Global Nutrition Report (2022). *Micronesia (Federated States of)*. See: https://globalnutritionreport.org/resources/nutrition-profiles/oceania/micronesia/micronesia-federated-states/.

Figure 11
Food supply chains of Palau



Source: Nakamura, *et al.*[94]

Micronesia's dietary practices are problematic. The sub-region faces a "triple burden" of malnutrition, whereby under-nutrition, micronutrient deficiencies obesity simultaneously exist within a population.[95] People's typical diet is low in protein, grains, fruits, vegetables, legumes and nuts, with limited diet diversity and inadequate micronutrient intakes.[96] Household meals rarely contain fresh vegetables due to a combination of three influences: (i) food security-related challenges (e.g., low availability of vegetables due to poor growing conditions and high market prices of fresh foods in the urban area); (ii) habits (e.g., eating carbohydrates- and protein-based meals); and (iii) convenience of procurement and preparation (e.g., labour-intensive local foods to procure and prepare).[97] Imported processed foods are cheap and convenient sources of energy, preferred by younger generations, and easier to prepare than locally grown products (e.g., breadfruits, pandanus fruit and giant taro).

To address food security, a means of increasing local food production needs to be established.[98] [99] In this vein, Micronesian nations recognize that there is a need to promote "food import substitution" by expanding the agriculture and aquaculture industries.[100] However, Micronesia's potential in food production faces some constraints, mainly because of the restricted supply of arable land and water, and difficulty in accessing forests, coupled with restrictive traditional land tenure systems. Climate change also poses a challenge to the sub-region's food security, despite efforts to rehabilitate

[94] Nakamura, S. Iida, A., Nakatani, J., Shimizu, T., Ono, Y., Watanabe, S., Noda, K. and Kitalong, C. (2021). "Global land use of diets in a small island community: a case study of Palau in the Pacific", *Environmental Research Letters*, 16(6), 1-9.
[95] FAO, IFAD, UNICEF, WFP and WHO (2022).
[96] Ibid.; Eme, P. E., Kim, N. D., Douwes, J., Burlingame, B., Foliaki, S. and Wham, C. (2020). "Are Households in Kiribati Nutrition Secure? A Case Study of South Tarawa and Butaritari", *Food and Nutrition Bulletin*, 41(1), 131-46; KNSO (2019b). *Kiribati Social Development Indicator Survey 2018-19, Snapshot of Key Findings*. South Tarawa, Kiribati: National Statistics Office; Global Nutrition Report (2022).
[97] FAO, IFAD, UNICEF, WFP and WHO (2022).
[98] Republic of Nauru (2021a). *Nauru National Agriculture Strategy*.
[99] Republic of Nauru (2021b). *Nauru National Food Systems Pathway. United Nations Food Systems Summit 2021*. Department of Commerce, Industry, Trade and Environment.
[100] SGRIC International (1996).

farmlands and promote salt- and drought-resistant crops.[101] Healthy diet education and awareness raising are also considered a society-wide issue that touches all ages, genders and social groups, and will be central to changing food consumption patterns. In the near term, the priority focus will need to be on the mitigation of food security shocks, by boosting production and market-oriented initiatives, ensuring that:

(i) Both food producers and consumers have equitable access to improving their food security and livelihoods;
(ii) Increases in productivity are not achieved at the expense of the environment; and
(iii) Food import substitutions are taken, where possible, as the first option, considering healthcare-related cost implications.

Yet, there is much that Micronesia can do to expand its agricultural sector on an environmentally sustainable basis, including focused efforts and interventions around contract farming, atoll fishing, aquaculture and agri- and aqua-tech, and by participating more actively in a range of innovations intended to bring about a carbon neutral agriculture, forestry and fisheries sector. There is also a need to invest in the necessary supporting "soft" and "hard" infrastructure of domestic markets for the sale and consumption of local produce. Land ownership reform is necessary to free up more land for onshore agriculture, and other food-related activities merit greater effort. If the right policies and economic incentives are pursued, possible interventions may include local farming, pastoral, fishing and food preservation based on traditional knowledge and practices.[102] [103] However, the loss of traditional knowledge and conservation practices is a concern as more Micronesians move to live in urban centres, away from their conventional agroforestry systems, and are losing an understanding of how to manage them.[104] [105] [106]

Another major challenge is protecting the genetic diversity of crops and plant species from pests and diseases, and the effects of extreme weather events like droughts, high tides and severe cyclones. The most serious of these include insect pests such as the breadfruit mealybug, coconut scale and spiralling whitefly, which can cause severe damage to food crops and seriously affect productivity and food security.[107]

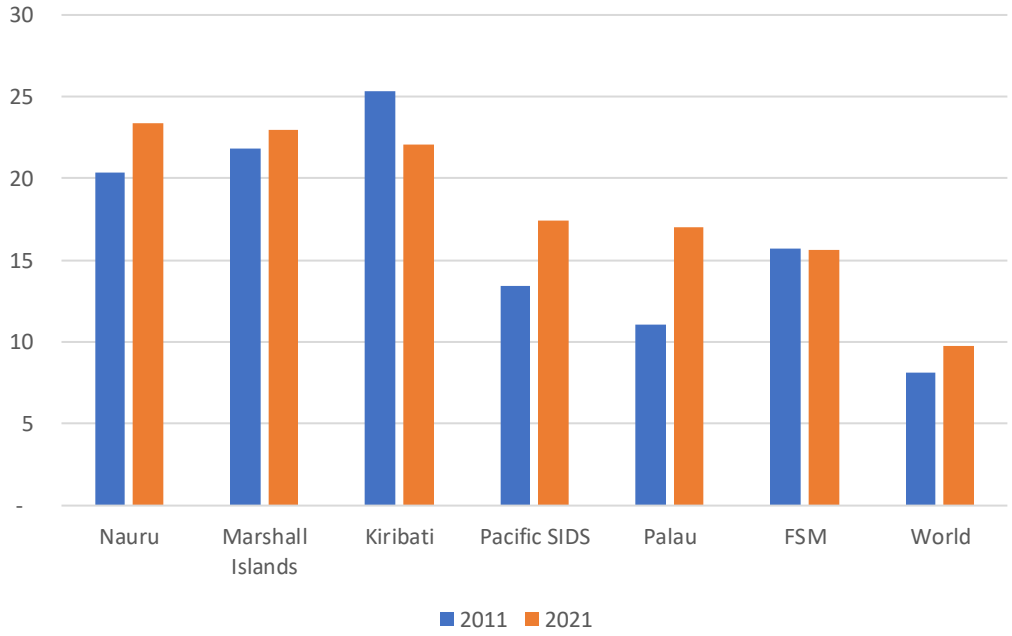
3.5. Health

Micronesia has shown no improvement in obesity and limited progress towards achieving its diet-related NCD targets.[108] [109] The sub-region's diabetes prevalence is high, as Nauru, Marshall Islands and

[101] Office of Environmental Response and Coordination, Republic of Palau (2001). *Current and Projected Impacts of Climate Change*, see: https://www.sprep.org/att/IRC/eCOPIES/Countries/Palau/1.pdf.
[102] The United Nations Educational, Scientific and Cultural Organization (UNESCO) (2003). *Convention for the Safeguarding of the Intangible Cultural Heritage*, 17 October.
[103] Nauru Bureau of Statistics (2019).
[104] SPC (undated), *Nauru Training Needs and Gap Analysis Report*, European Union Pacific Technical and Vocational Education and Training Project, see: https://prdrse4all.spc.int/sites/default/files/nauru_0.pdf.
[105] Global Nutrition Report (2022). *Country Nutrition Profiles - Nauru*, see: https://globalnutritionreport.org/resources/nutrition-profiles/oceania/micronesia/nauru/
[106] Government of Marshall Islands (2021). "Transforming the Marshall Islands Food System by 2030", *Technical Note*, September, the United Nations Food Systems Summit.
[107] Muniappan, R. (2002). "Pests of Coconut and Their Natural Enemies in Micronesia," *Micronesia,* Supplement 6, 105–110.
[108] World Population Review, (2023), *Obesity Rates by Country*, see: https://worldpopulationreview.com/country-rankings/obesity-rates-by-country.
[109] The Government of the Marshall Islands (2018). *Republic of the Marshall Islands Hybrid Survey Final Report*. Majuro.

Kiribati are ranked sixth, seventh and ninth, respectively, in the world (figure 12). Factors behind the high degree of obesity include socio-cultural issues and practices, such as insufficient physical activity, high-salt and fat food imports, and less fruit and vegetable consumption.[110] This, in turn, results in high incidences of disabilities, type 2 diabetes, heart disease and other associated NCDs.[111] [112] Physical inactivity, alcohol consumption and smoking also affect poor health, while there are significant gaps in administrative, clinical and support services to address the NCDs.[113] The increasing prevalence of chronic diseases has put additional strains on the fragile healthcare systems in Micronesia.[114] The relative high suicide rate among the youth is another crucial challenge for the states of Micronesia.[115]

Figure 12
Diabetes prevalence in the world
Percentage of the population ages 20 to 79



[110] World Obesity (2023). *Global Obesity Observatory Drivers: Nauru*, 27 July. See: https://data.worldobesity.org/country/nauru-150/drivers.pdf; WHO (2023). *Body Mass Index (BMI)*, https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/body-mass-index?introPage=intro_3.html; Global Nutrition Report (2022). *Country Nutrition Profiles, Palau*, https://globalnutritionreport.org/resources/nutrition-profiles/oceania/micronesia/palau.

[111] Blankenship, J. L., Rudert, C. and Aguayo, V. M. (2020). "Triple trouble: Understanding the burden of child undernutrition, micronutrient deficiencies, and overweight in East Asia and the Pacific", *Matern Child Nutr*, 16(2), e12950.

[112] For a profile of disabilities in Palau, see: UNICEF Pacific, Office of Planning and Statistics and the Pacific Community (2017). *Palau Disability Report: An analysis of 2015 Census of Population, Housing and Agriculture*, Suva.

[113] UN Women (2022). *Gender Equality Brief for Federated States of Micronesia*. See: https://asiapacific.unwomen.org/en/digital-library/publications/2022/12/gender-equality-brief-for-federated-states-of-micronesia.

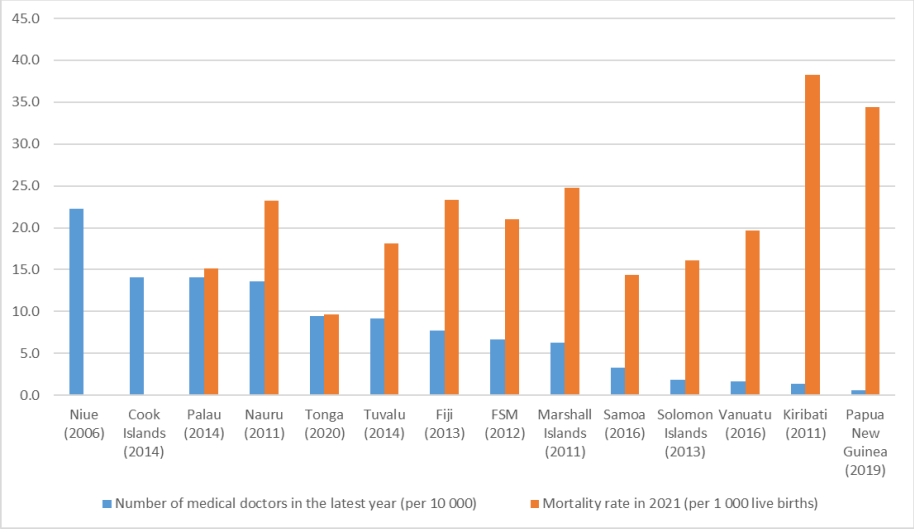
[114] Henry, I., deBrum, I., *et al*. (2013). *An Assessment of Non-Communicable Diseases, Diabetes, and Related Risk Factors in the Republic of the Marshall Islands, Majuro Atoll: A Systems Perspective*. May. Hawaii J Med Public Health.

[115] Mathieu, S., de Leo, D., Koo, Y. W., Leske, S., Goodfellow, B. and Kõlves, K. (2021). "Suicide and suicide attempts in the Pacific Islands: A Systematic Literature Review", *The Lancet Regional Health - Western Pacific*, 17(December), 100283.

Source: World Bank.[116]

In Micronesia, a shortage of funds to implement programmes, combined with the low absorptive capacity of development assistance, contributes to the fragmentation of health service delivery. The islands' healthcare systems comprise fragmented hospitals, healthcare centres and pharmacies in the main and outer islands and atolls.[117] Healthcare provision requires considerable upgrading and renovations with more space and new equipment. Medical supplies are permanently constrained due to the islands' remoteness, high logistical costs and lack of infrastructure, such as cold storage warehouses and specialized transportation. Isolated outer islands and atolls escalate the difficulties of these issues as their extreme remoteness poses a significant challenge when accessing hospitals and other healthcare service providers. Figure 13 illustrates Micronesia's healthcare services, compared with other PICTs, with regard to the number of medical doctors and the mortality rate. A key challenge is setting policy priorities for developing and implementing programmes to address critical health issues, given the considerable financial, technical and human resource constraints that exist.[118]

Figure 13
The status of healthcare services in the Pacific



Source: Developed based on World Bank.[119]
Note: The years of data are the latest available.

Citizens of Micronesia often seek healthcare services in Fiji, Guam, Hawaii, the Philippines and Australia, depending on their illnesses, budgets, convenience and, most importantly, access to public health insurance, such as under the US Patient Protection and Affordable Care Act.[120] Some medical procedures, such as dialysis or some specialist care, must be sought outside Micronesia.

[116] World Bank Group (2024). "*Diabetes prevalence (% of population ages 20 to 79)*", *Data*, see: https://databank.worldbank.org/source/health-nutrition-and-population-statistics/Series/SH.STA.DIAB.ZS.
[117] Pacific Basin Telehealth Resource Center (2023). *Republic of the Marshall Islands Resources. University of Hawaii at Mānoa*. see: https://www.pbtrc.org/resources/republic-of-the-marshall-islands-resources/.
[118] Green Climate Fund and World Health Organization (WHO) (2021). "Enhancing the resilience of the health systems to climate change and emerging pandemics in the Republic of Marshall Islands", *Readiness Proposal, December*. GCF Readiness and Preparatory Support Programme.
[119] World Bank Group (2024). "*Number of medical doctors*" and "*Mortality rate*", *Data*, see: https://databank.worldbank.org.
[120] Ng Kamstra, J. S., Molina, T. and Halliday, T. (2021). "Compact for care: how the Affordable Care Act marketplaces fell short for a vulnerable population in Hawaii", *BMJ Global Health*, 6(e007701), 1-6.

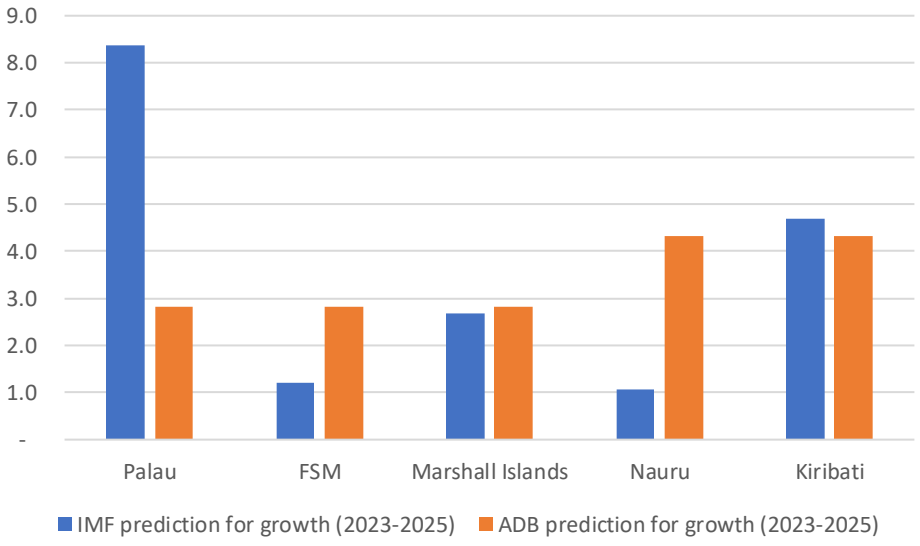
4. Prosperity

The economic conditions of Micronesia are shaped by their geographical characteristics, such as remoteness, small size, dispersed landmass and limited resources. They rely heavily on external funding, have a high degree of natural resource and sector-specific dependence, and are vulnerable to global economic trends under ever-changing geo-political conditions. Micronesia's economic outlook remains challenging and subject to uncertainty and risks, and there is a need for the sub-region to develop a more robust and diversified economic profile, including a vibrant private sector, that makes the countries less reliant on external assistance, and, thereby become more sustainable and resilient to external shocks, such as pandemics and global economic shifts. However, this needs to be pursued in tandem with strategic investments in sectoral diversification and infrastructure, solutions to environmental concerns and mitigatiing the impacts of climate change. This section on the "prosperity" pillar covers: (i) a macro-economic overview; (ii) fiscal management issues; (iii) sector foci; and (iv) infrastructure and digitalization.

4.1. Macroeconomic overview

In the post-COVID-19 pandemic era, the five Micronesian nations are predicted to enjoy steady economic growth, while containing high inflation caused by globally increased consumption and supply chain disruption, mainly due to the Russo-Ukrainian conflict (figures 14 and 15). However, their economic prospects hinge on developing Micronesia-specific development strategies, having effective fiscal management, a diversification of income sources, and making strategic investments in sustainable infrastructures for climate adaptation and resilience.

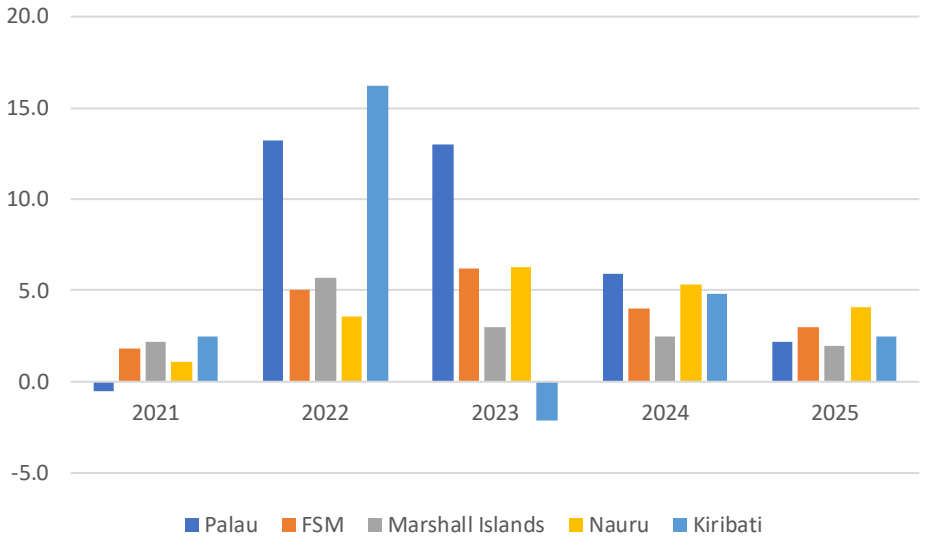
Figure 14
Growth predictions, 2023-2025



Sources: ADB and IMF.[121]

[121] Asian Development Bank (ADB) (2024). *Asian Development Outlook, July 2024*; various IMF Article IV Staff Reports. See: https://www.imf.org/en/Publications/SPROLLs/Article-iv-staff-reports#sort=%40imfdate%20descending.

Figure 15
Inflation in Micronesia
End of period

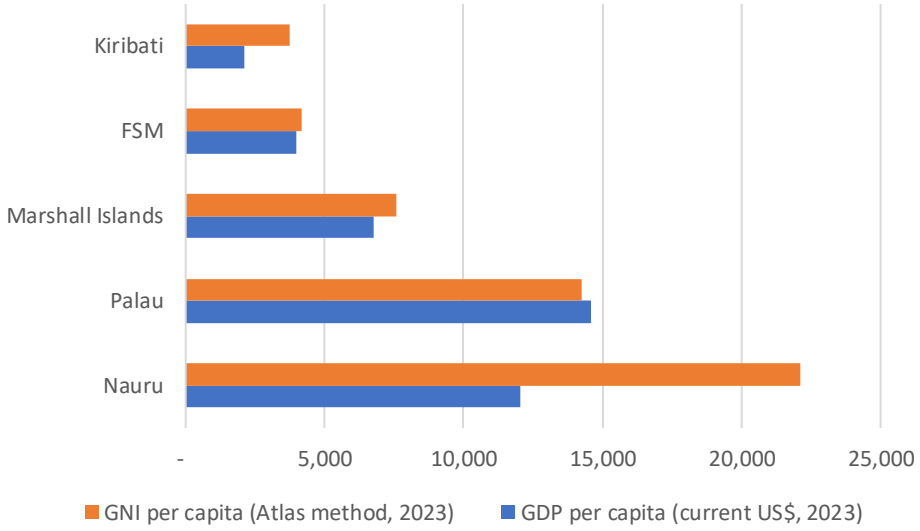


Source: IMF.[122]

The development of Micronesia presents diverse pictures. According to the latest income level, (i.e., the 2023 GNI per capita), the World Bank classifies Palau and Nauru as high-income countries, Marshall Islands as an upper-middle income country, and FSM and Kiribati as lower-middle income countries.[123] The United Nations secretariat classifies Kiribati as a least developed country (LDC). Figure 16 shows that three compact countries (i.e., Palau, FSM and Marshall Islands) have near-equal GNI and GDP per capita figures.[124] At the same time, Nauru and Kiribati show significant divergences between GNI and GDP. The gaps are attributable in part to the important economic contribution of overseas migrants, driven out of the country by the lack of economic opportunities.[125] This phenomenon is typical of SIDS where limited domestic production capacities are complemented by substantial imports of goods and services, which often far outweigh exports and the resulting foreign exchange earnings (see figure 17).[126]

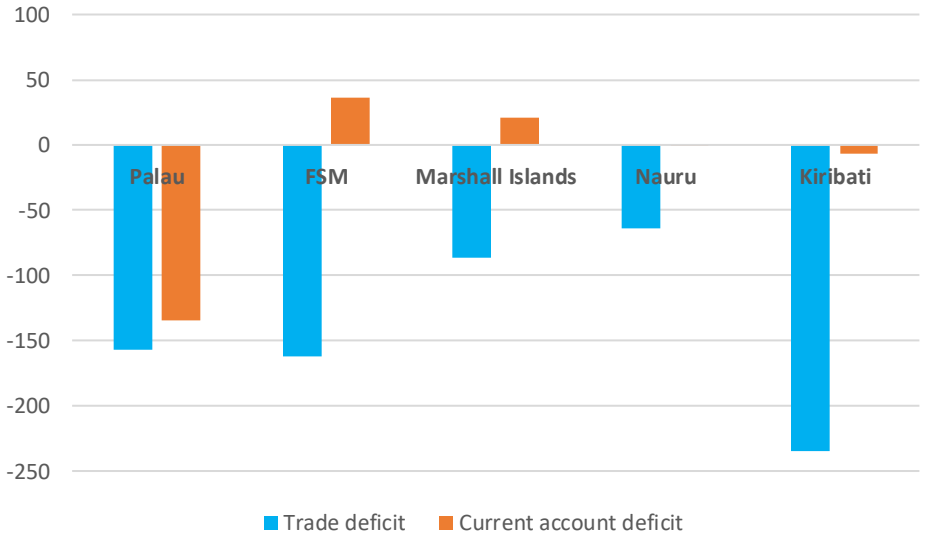
[122] Various IMF Article IV Staff Reports, as of August 2024. See: https://www.imf.org/en/Publications/SPROLLs/Article-iv-staff-reports#sort=%40imfdate%20descending.
[123] World Bank (2024). "*Country income Classification*."
[124] Gross national income (GNI) is based on ownership, while gross domestic production (GDP) is based on location. In other words, whereas GNI is the value of goods and services produced by all citizens regardless of where they operate, GDP is the value produced within a nation's borders. Webb, J. R. (2020) "Kiribati economic survey: Oceans of opportunity," *Asia and the Pacific Policy Studies*, 7(1), 5–26.
[125] The case of Kiribati is affected by the now-abandoned "migration with dignity" policy spearheaded by the Anote Tong presidency. See Kupferberg, J. S. (2021) "Migration and dignity – relocation and adaptation in the face of climate change displacement in the Pacific – a human rights perspective," *The International Journal of Human Rights*, 25(10), 1793–1818.
[126] In this regard, Palau is an exception, due to its strong tourism sector.

Figure 16
GNI versus GDP



Source: World Bank.[127]

Figure 17
Trade and current account deficits in Micronesia
In 2022, million US dollars



Source: Developed based on IMF and the World Bank.[128]
Notes: Nauru's trade deficit data is from 2018 (ie. prior to the pandemic). Palau's large current account deficit is mainly due to a slow recovery in the tourism sector during the pandemic.

[127] World Bank (2024). "GNI per capita, Atlas method (current US$)", *Data,* see: https://data.worldbank.org/indicator/NY.GNP.PCAP.CD; World Bank (2024). "GDP per capita (current US$)", *Data*. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD.
[128] Various IMF Article IV Staff Reports, as of August 2024, see: https://www.imf.org/en/Publications/SPROLLs/Article-iv-staff-reports#sort=%40imfdate%20descending; World Bank (2024). "Net trade in goods and services (BoP, current US$)", *data*. https://databank.worldbank.org/reports.aspx?source=2&series=BN.GSR.GNFS.CD&country=USA#.

Government activities dominate the Micronesian economies (see figure 9 again). The sub-region's private sector is at a nascent stage and quite fragile, obliging the respective governments to provide various services to citizens, often through state-owned enterprises (SOEs), in areas such as utilities, telecommunications, transportation, manufacturing, wholesale and distribution. These SOEs have tended to be inefficient and loss-making, further draining the governments' finite funds. It has been recommended that they improve productivity, while they must also play an important role in supporting private sector development in Micronesia where entrepreneurs depend on SOEs' financial, business and technical assistance.[129] Foreign investors are not active in Micronesia due to its small and remote markets, with various entry barriers, including local business practices, government intervention, the lack of investor protection, limited human capital and traditional land ownership practices, among other constraints.[130] Financial sector reforms also need to be accelerated in Micronesia, to support financial deepening, enhance small- and medium-sized enterprises (SMEs)' capacity to absorb credit, and address the structural determinants of low credit creation.

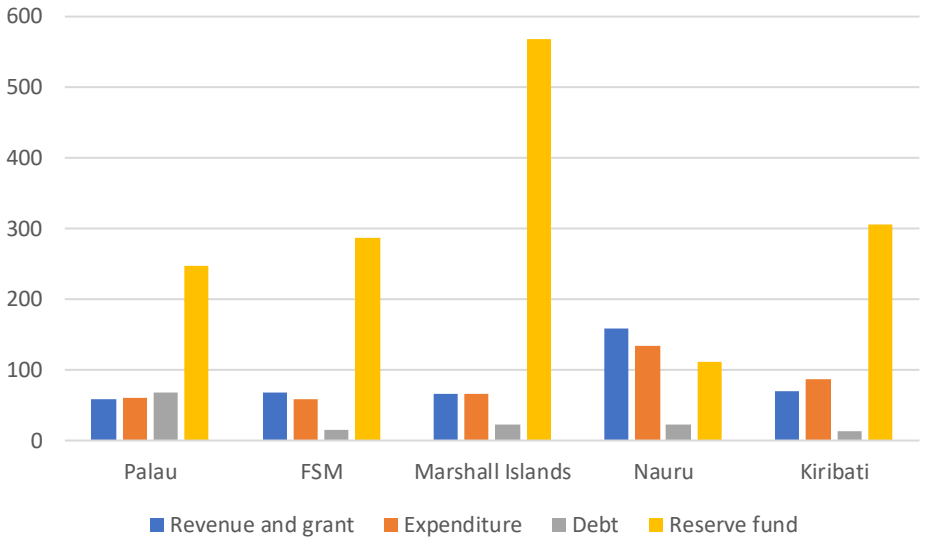
4.2. Fiscal management

The governments in Micronesia depend heavily on grants from traditional donors, such as the United States and Australia, to meet their revenue needs. The renewed Compact agreements between the United States and three Micronesian countries -- Palau, FSM and Marshall Islands -- have increased financial and other in-kind assistance, while easing challenges in fiscal management.[131] [132] In addition to the support of traditional donors', Micronesia countries rely on financial and technical assistance from other development partners, such as China, Japan, New Zealand, Republic of Korea, European Union (EU), Taiwan Province of China, ADB and the World Bank, all of whom are large sources of funding assistance to the sub-region.[133] [134]

The COVID-19 pandemic's socio-economic fallout and response costs led to relatively large fiscal deficits and a rapid increase in Micronesia's public debt.[135] Figure 18 presents a snapshot of the sub-region's fiscal management situation. While Palau shows a large public debt relative to the national budget and GDP, others' debt levels are moderate with large reserve provisions. Nauru's challenges are to continuously secure the flow of public revenues and foreign grants, and increase the reserve fund. In addition to donor assistance, Kiribati also heavily relies on fishing licence fees for its fiscal balance. One crucial consideration is utilizing the large reserve provisions to improve infrastructure and institutional capacities against external economic shocks, such as pandemics and climate change, and enhance sectoral diversification for sustainable income generation.

[129] Asian Development Bank (ADB) (2017). *Private Sector Assessment for Palau. Policies for Sustainable Growth Revisited*, see: https://www.adb.org/sites/default/files/institutional-document/230131/palau-psa-2017.pdf.
[130] World Bank (2024). *EnterpriseSurveys: What Businesses Experience*, see: https://www.enterprisesurveys.org/en/enterprisesurveys.
[131] Congressional Research Service (2023). *The Compacts of Free Association,* see: https://crsreports.congress.gov/product/pdf/IF/IF12194.
[132] Under the Compact agreements, reserve funds were established to assist in the fiscal management of Palau, FSM and Marshall Islands.
[133] Direct United States' assistance to Nauru is restricted based on the latter's recognition of Abkhazia and South Ossetia.
[134] Lowy Institute (2023). *Pacific Aid Map*, see: https://pacificaidmap.lowyinstitute.org/.
[135] Various IMF Article IV Staff Reports, see: https://www.imf.org/en/Publications/SPROLLs/Article-iv-staff-reports#sort=%40imfdate%20descending.

Figure 18
Fiscal management snapshot in Micronesia
Percentage of GDP in 2022



Source: IMF.[136]

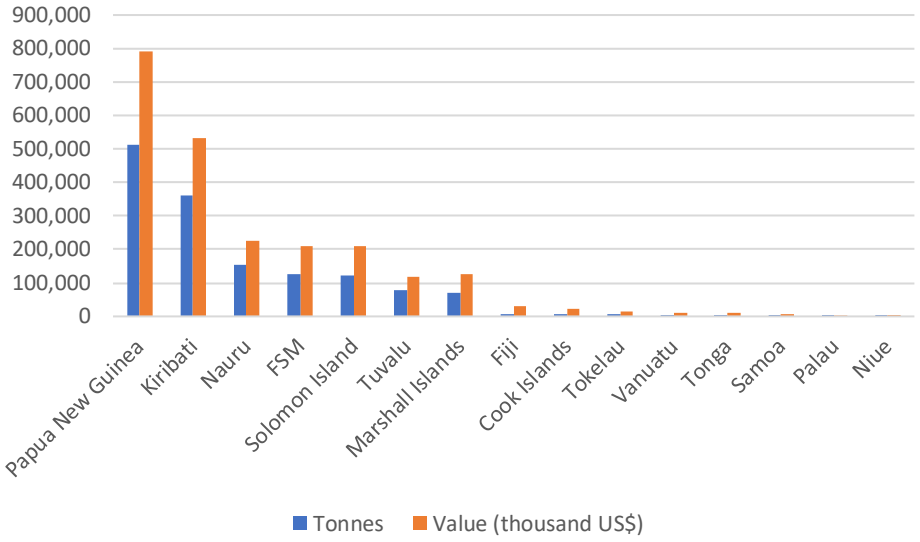
Palau and Nauru's impending graduation from the Organisation for Economic Co-operation and Development's (OECD) list of countries eligible for official development assistance (ODA) could lead to lower concessional financing, including the end of grant support.[137] Additional revenue mobilization and expenditure rationalization efforts are needed to help accommodate higher climate spending, improving the external position, and providing an economic buffer against potentially lower grants and concessional financing.

4.3. Sectors

The fishing industry contributes considerably to Micronesia's economic and food security. Under the Parties of Nauru Agreement (PNA)'s vessel day scheme (VDS), fishing license fees for tuna caught in the Micronesian nations' exclusive economic zones (EEZs) have generated substantial public revenues for Kiribati, Nauru, FSM and Marshall Islands. Figure 19 illustrates the overview of tuna fishing in the Pacific. An immediate challenge for Micronesia is to enhance domestic value addition within fishery value chains. Small-scale artisanal fishing and still-nascent aquaculture can also enhance food security and boost exports. Other challenges include reducing stress on local ecosystems and biodiversity while eradicating uncertainty for sustainable fisheries, including the rise of illegal, unreported and unregulated (IUU) fishing.

[136] Ibid.
[137] Organisation for Economic Co-operation and Development (OECD) (2024). *DAC List of ODA Recipients*, see: https://www.oecd.org/en/topics/sub-issues/oda-eligibility-and-conditions/dac-list-of-oda-recipients.html.

Figure 19
Tuna caught in the Pacific EEZs, 2021



Source: Data are extracted from the Food and Agriculture Organization of the United Nations (FAO).[138]

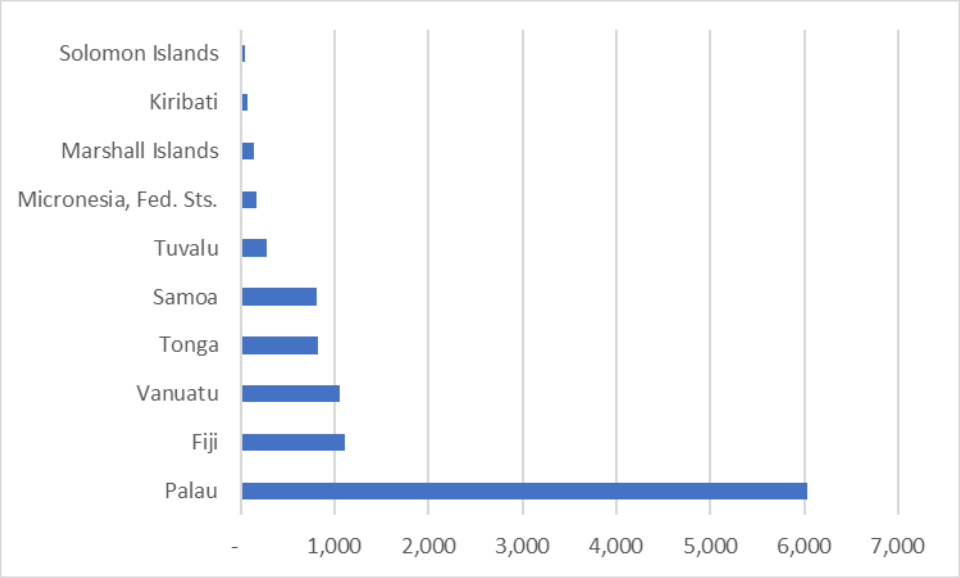
Agricultural products contribute to Micronesia's subsistence and formal economies while enhancing its food security. Although the sector's contributions to the economy have been restricted due to traditional land ownership systems and poor market mechanisms, and impacted by shifts towards service-driven economic development, agriculture's income redistribution mechanisms to rural and outer-island citizens are powerful. In this vein, copra subsidy schemes have been used as an applicable industrial and anti-poverty policy in FSM, Marshall Islands and Kiribati, promoting light manufacturing, such as crude coconut oil and copra meat.[139] The schemes have transferred fishing license revenues and foreign aid to low-income and outer island communities where the subsistence economy still dominates, and multiplier effects have been created from cash income distribution. However, several problems have been observed, including: (i) the weight-based subsidy has encouraged the focus on quantity instead of quality; (ii) the rapid hike in copra production often exceeded the processing capacity, resulting in excess and unprocessed copra; and (iii) the copra subsidies have also impacted fiscal management with increased programme and logistics costs. The governments are therefore recommended to improve this scheme's efficiency by fine-tuning the entire supply chain and moving up to more value-added processes, while considering whether other agro-products are applicable for similar income redistribution schemes.

The tourism sector provides a rare opportunity to diversify national incomes in Micronesia. Figure 20 presents the trends of international tourist arrivals in Palau and other select PICTs before the COVID-19 pandemic. Palau attracted the largest number of tourists compared with its population size, and the tourism sector has largely driven Palau's economy. Note that the PICTs in the South Pacific (i.e., Fiji, Vanuatu, Tonga, Samoa and Tuvalu) have tended to receive more tourists than their North Pacific counterparts (i.e., FSM, Marshall Islands and Kiribati). Nauru does not provide data. Palau is the most successful PICT, following the MIRAB and SITE development models (see section 2.2 again). Micronesia should consider focusing on more niche, eco- and cultural tourism and higher-yield visitors, somewhat akin to the approach taken by countries like Bhutan, rather than mass-market tourism, which places a much heavier burden on the local environment and biodiversity. However, labour bottlenecks,

[138] Food and Agriculture Organization of the United Nations (FAO) (2023). *FishStatJ*, see: https://www.fao.org/fishery/en/collection/capture.
[139] Webb, J. (2020). "Kiribati economic survey: Oceans of opportunity", *Asia and the Pacific Policy Studies*, 7, 5–26.

infrastructure constraints and environmental degradation are common challenges in the pursuit of a more vibrant tourism sector in Micronesia.

Figure 20
Pre-pandemic tourist arrivals in the PICTs
Three-year average of per 1,000 citizens, 2017-2019



Source: Developed based on The World Bank Group.[140]

4.4. Infrastructure and digitalization

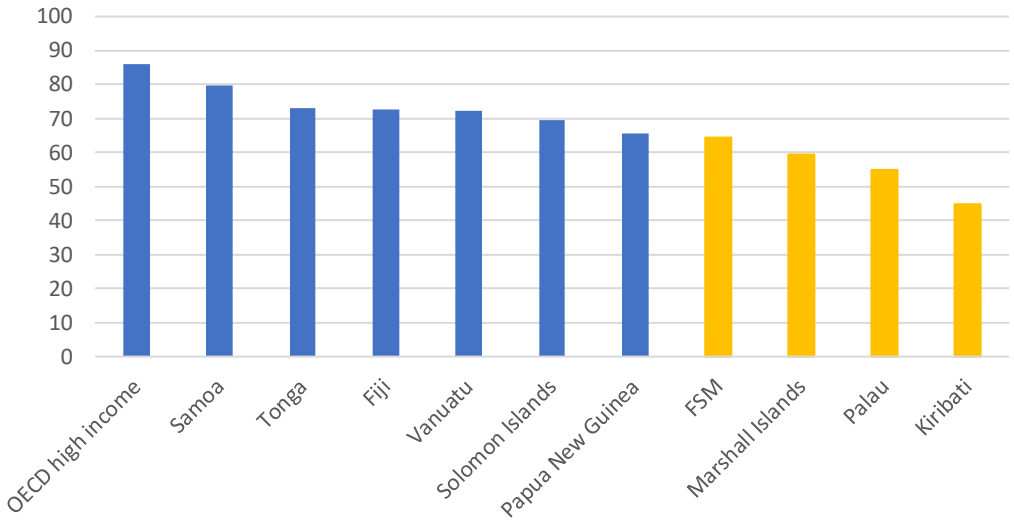
Infrastructure deficits in utilities, transport and telecommunications, exacerbated by the impacts of climate change, with some critical assets unprotected from inundation and coastal erosion, are severe constraints on Micronesia's economic stability and development. A poorly developed private sector also limits the chance to develop the country's infrastructure and deliver public services, through sub-contracting, turn-key services and public-private partnerships while bringing down operational costs.[141] Increased demand in infrastructure points to where improvements are being focused, financed and executed the most: sustainable and digital infrastructure.[142] It makes sense to improve upon infrastructures that will be most compatible with future needs, where feasible, such as minimizing carbon emissions, utilizing energy-saving technologies and renewables, and connecting Micronesia thoroughly through submarine Internet cables.

The electricity sector in Micronesia is primarily based on diesel generators, which are the main source of power for the sub-region at present (and for the immediate future). Because of the geographic isolation and dispersed populations, a conventional electrical grid infrastructure is not well-suited to the Pacific region.[143] There is still a large disparity in electrification rates between urban and rural regions, while access to electricity is also one of the most severe constraints for businesses in

[140] World Bank (2023g).
[141] Office of the Pacific Ocean Commissioner (OPOC) (2021). *Blue Pacific Ocean Report: A Report by the Pacific Ocean Commissioner to the Pacific Islands Forum Leader*.
[142] United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2019). *Infrastructure financing for sustainable development in Asia and the Pacific*, Bangkok, see: https://www.unescap.org/publications/infrastructure-financing-sustainable-development-asia-and-pacific.
[143] Dornan, M. (2014). Access to electricity in Small Island Developing States of the Pacific: Issues and challenges. Renewable and Sustainable Energy Reviews, 31, 726-735.

Micronesia (figure 21). Diesel power generation will need to be maintained and upgraded in order to secure adequate power supplies for people's lives and activities.

Figure 21
Businesses' access to electricity, 2020



Source: Developed based on The World Bank Group.[144]
Note: Nauru is not in the figure as no data is available.

The governments in Micronesia have also made substantial efforts to increase the use of renewable energy sources, especially solar power, in the electricity mix while encouraging energy efficiency measures, such as using LED lighting and adopting energy-efficient appliances.[145] They will need to utilize emerging energy technologies and innovative approaches to financing renewable energy projects, as well as the adoption of functional operation systems to provide affordable, reliable and sustainable energy.

Box 4
Renewable energy developments in Micronesia

There are large gaps between the targets and the actual renewable energy share of the total energy supply in Micronesia (table 4). Palau, Marshall Islands and Kiribati have targeted ambitious goals to achieve 100 per cent electricity generation from renewable energy, by the earliest of 2025 and the latest by 2050. FSM and Nauru have set renewable energy targets at 30 per cent and 50 per cent, respectively. However, as of 2020, the share of renewable energy in their total energy supply remained as low as just one per cent. To address these gaps, it is essential to significantly scale up renewable energy facilities and improve access to finance, particularly from private sources, to support rapid future development.

[144] The World Bank Group (2024). "Getting Electricity", *Doing Business Archive*, see: https://archive.doingbusiness.org/en/data/exploretopics/getting-electricity.
[145] Ibid.

Table 4
Renewable energy targets

Country	Target*	Target data	Renewable energy share of total energy supply (%)
Palau	100%	2050	1 (2021)
FSM	30%	2020	2 (2020)
Marshall Islands	100%	2050	100 (2020)
Nauru	50%	2020	2 (2021)
Kiribati	100%	2025	37 (2021)

Source: International Renewable Energy Agency, Energy Transitions Initiative, RMI National Energy Office.
Note: *Target refers to electricity generation.

All five countries are rich in renewable energy sources, especially solar, and the utilization of other advantageous renewable sources is also accelerating (table 5). This progress in renewable energy also presents opportunities to bridge the gap in electricity access between urban and rural areas and eradicate poor access to electricity for business. However, due to the intermittent nature of renewable energy, especially solar energy, integrating it into the power grid efficiently necessitates advanced energy storage systems.

Table 5
Renewable energy potential in Micronesia

Economy	Solar	Wind	Hydropower	Geothermal	Ocean	Biomass
Palau	High	Unknown	Low	Low	Unknown	Low
FSM	High	Medium	Medium	High	Medium	Low
Marshall Islands	High	High	Low	Low	Medium	Medium
Nauru	High	Unknown	Unknown	High	Low	Low
Kiribati	High	Medium	Unknown	Low	Unknown	Low

Source: International Renewable Energy Agency and National Renewable Energy Laboratory (NREL).[146][147]

A significant improvement in renewable energy generation requires supportive legal and regulatory frameworks to create a conducive environment for growth. The development of renewable energy also hinges on three other factors: (i) technological advancement; (ii) investment and finance; and (iii) a well-designed master plan (e.g., aligning it with grid development plans). When setting renewable energy targets, governments must develop incremental short-term goals to make them more actionable and achievable. Also see section 5.1 Climate change of this sub-regional study, below.

Micronesia's low level of maritime connectivity is another major obstacle to economic development since the sub-region consists of remote and dispersed islands and atolls, and maritime transport is the main option for moving cargo internationally and domestically. The limited size of Micronesia's markets leaves little room for competition between maritime companies, resulting in high transport costs. Figure 22 illustrates one example of service capacities and ocean routes provided between

[146]The National Renewable Energy Laboratory (NREL), a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy (2017). *Energy Snapshot Republic of the Marshall Islands. See: https://www.energy.gov/eere/articles/energy-transitions-initiative-energy-snapshot-republic-marshall-islands*.
[147] International Renewable Energy Agency (2013). *Pacific Lighthouses: Renewable energy opportunities and challenges in the Pacific Islands region*.

Micronesia and the Pacific Rim countries, e.g., neighbouring PICTs, Australia, China, Japan, New Zealand and the United States. A limited number of small shipping lines and consortia carry mediocre transport flows across Micronesia, either directly or via trans-shipment ports in ocean transport hub countries or territories, such as Australia, Fiji, Guam, Hawaii, New Caledonia, New Zealand, Papua New Guinea, Samoa and Solomon Islands.[148] The current situation limits the potential for greater regional trade.

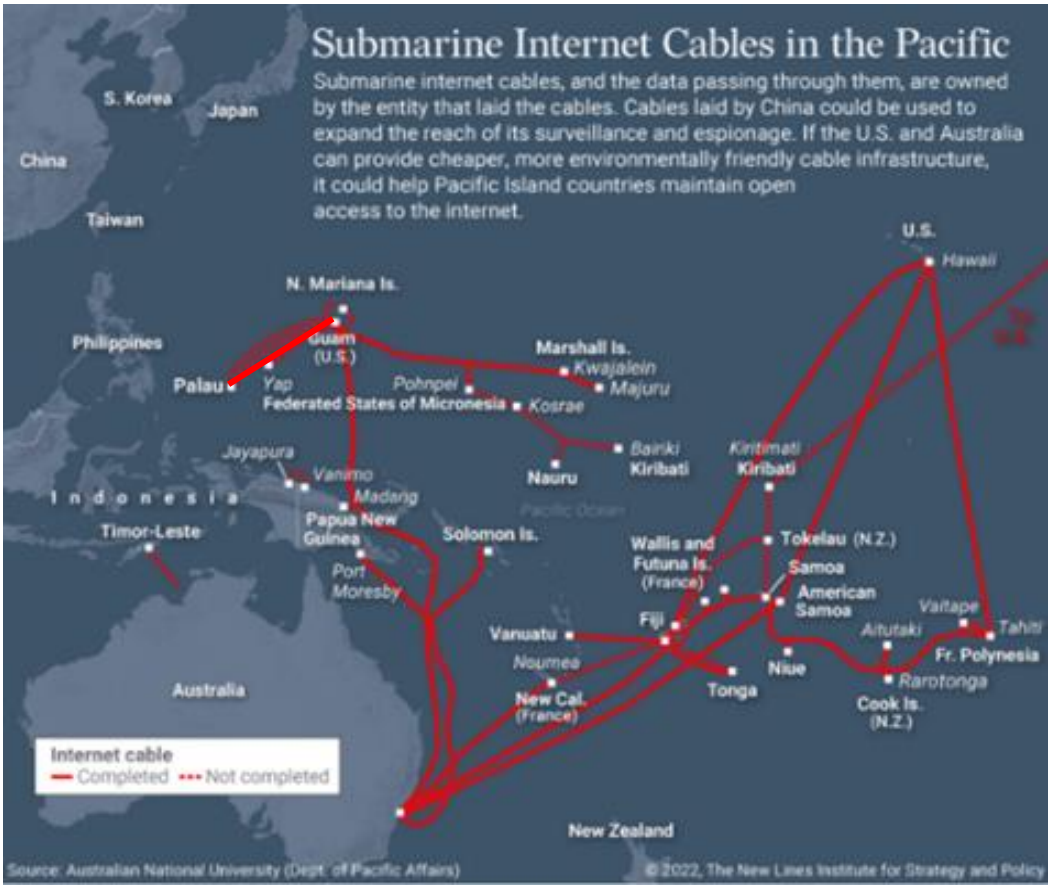
Figure 22
Regional shipping routes and capacities

Source: Matson Shipping.[149]

Micronesia remains one of the least connected countries digitally in the world, where much of the population has no access to information and communication technologies (ICTs). Even if citizens live within range of the existing, often unreliable, networks, many are unable to afford the services. Digital infrastructure in Nauru and Kiribati (and FSM's Kosrae State) is particularly fragile, mainly due to the lack of undersea Internet cable connections, resulting in a dependence on less reliable satellite connections. Australia, Japan and the United States have financially supported a new submarine line connection from Pohnpei through Kosrae to Tarawa. Figure 23 illustrates the planned connection lines (dotted lines) and the existing ones (solid lines).

[148] ADB (2020). *Trade and Maritime Transport Trends in the Pacific,* November.
[149] Matson, Inc., "About Us," See: https://www.matson.com/corporate/about_us/index.html.

Figure 23
Submarine Internet cable connection in the Pacific



Source: The New Lines Institute for Strategy and Policy (2022).[150]

[150] Dionne, A. and Sparling, M. (2022). *"A New U.S. Approach to the Pacific Island Countries"*, *New Line Institute for Strategy and Policy Blog,* 13 October.

5. Planet

In Micronesia, the risks posed by climate change are existential and growing, as one of the world's most vulnerable sub-regions. Micronesia's island nations face a threat of sea level rise impacting low-lying atolls, reefs and coastal areas, fresh-water farming and people's health and livelihoods, and intensified by the more frequent occurrence of droughts, extreme heat and high tides. [151] Strengthening resilience to climate change and other environmental issues is essential for Micronesia's sustainable development. Such an aim requires the timely implementation of the sub-region's adaptation and mitigation strategies, sufficient and timely financing and effective governance. This section of the sub-regional study addresses the key development issues in Micronesia under the planet pillar of the SDGs, spanning: (i) climate change; (ii) bio-diversity; (iii) disaster risk reduction; (iv) blue and circular economies; and (v) deep-sea mining.

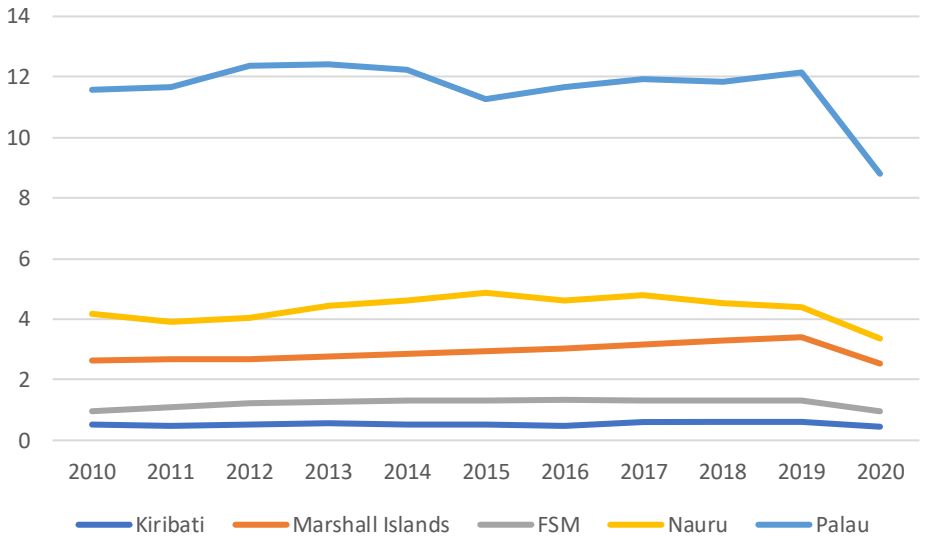
5.1. Climate change

Climate change is projected to alter Micronesia's biophysical environment, through a varying rate and distribution of rainfall, sea-level rise, storm surges, higher air and ocean temperatures, increasing ocean acidification and coral bleaching.[152] Consequently, Micronesia's population and socio-economic infrastructure are vulnerable, particularly in low-lying coastal areas where most citizens reside.

Despite being significantly impacted by climate change, Micronesia is one of the world's least responsible regions for its human cause, with low greenhouse gas (GHG) emissions (figure 24).[153] Although they have limited natural resources and economic options, the nations in Micronesia have pledged to reduce carbon-dependent power generation by transitioning from imported fossil fuels to clean renewable sources.[154] The aim is to replace the existing diesel generation capacity with a large-scale grid-connected solar photovoltaic (PV) system which would assist in reducing CO_2 emissions.[155] However, the solar PV system requires a large landmass and frequent technical maintenance for mass and consistent power generation, which is challenging for Micronesia. Diesel power facilities are therefore expected to play a continued role in generating energy in Micronesia, and so advanced technology to upgrade diesel power facilities is required to enhance energy efficiency.

[151] Global Facility for Disaster Reduction and Recovery (GFRDD) ThinkHazard! (2023). *Kiribati*. The GFDRR is an initiative of the World Bank.
[152] Australian Government (2012). *Pacific Climate Change Science. Report: Climate Change in the Pacific: Scientific Assessment and New Research. Volume 2. Chapter 8. Nauru.*
[153] Ritchie, H. and Roser, M. (2020). "CO_2 and Greenhouse Gas Emissions," *Our World in Data.*
[154] Economic and Social Commission for Asia and the Pacific (ESCAP), United Nations Environment Programme (UNEP), UN Women and the greenwerk; Climate Advisory Network, Germany (2021). *Is 1.5°C within Reach for the Asia-Pacific Region? Ambition and Potential of NDC Commitments of the Asia-Pacific Countries*, United Nations and the greenwerk.
[155] Republic of Nauru (2015). *Intended Nationally Determined Contribution (iNDC) Under the United Nations Convention on Climate Change*.

Figure 24
GHG emissions per capita of Micronesian countries
Metric tons

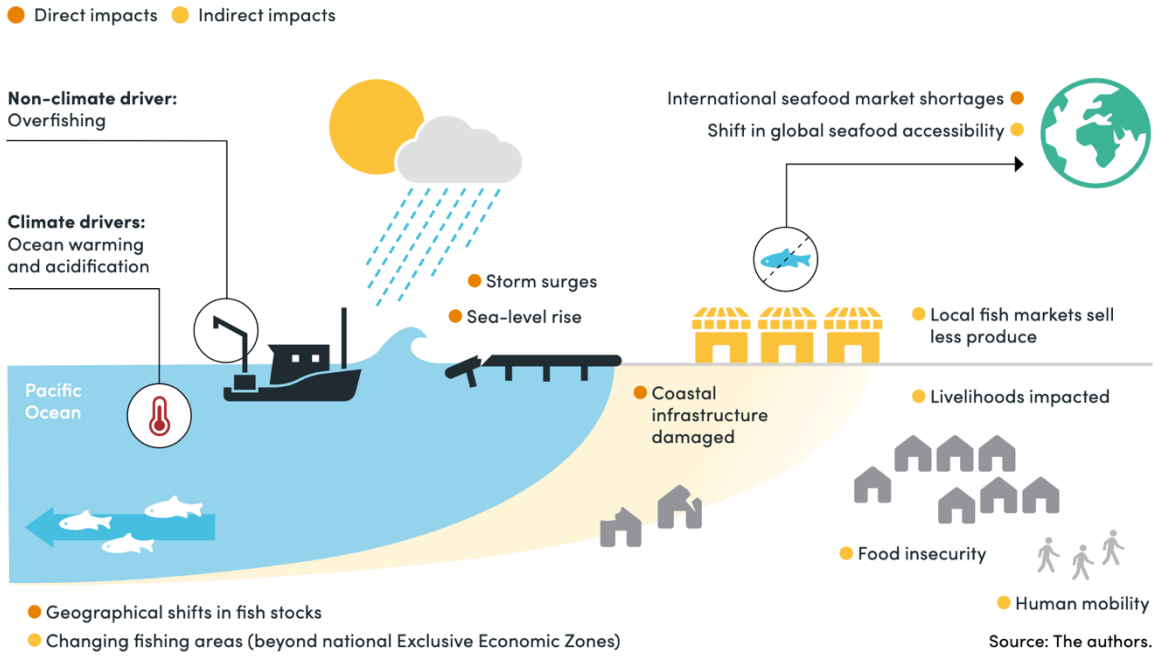


Source: World Bank.[156]
Note: The outbreak of COVID-19 markedly reduced the emissions levels in 2020.

Micronesia's priority actions to increase resilience to climate change also cover various trans-boundary issues, such as food production. For example, climate change is causing geographical shifts in high-value fish species. Ocean warming is driving tuna further east, leading to fish redistribution and decline among some EEZs.[157] These spatial dynamics stemming from climate change suggest subsequent cascading impacts on local markets, jobs and industries, while impacting international seafood value chains (see figure 25). The modest agriculture sector can also help to build up Micronesia's resilience to climate change, including improved food security.

[156] CO2 emissions (metric tons per capita), The World Bank Group (2023).
[157] Kroodsma, D. A., *et al.* (2018). "Tracking the global footprint of fisheries," *Science,* 359(6378), 904-908; Pinsky, M. L., *et al.* (2018). "Preparing ocean governance for species on the move," *Science*, 360(6394), 1189-1191.

Figure 25
Climate change's impacts on seafood value chains



Source: Anisimov and Magnan.[158]

Climate change's impacts on human health are also expected to become more prevalent.[159] Climate change-driven hazards, water shortages, extreme temperatures and frequent droughts are compounded by weak utility management, low storage capacities and urbanization stress in some areas. Poor water supply and sanitation represent a risk to health, hygiene and community life, and there is a significant need for increased water storage capacity in all islands, as well as safe water management.[160] For example, a longer period of drought will worsen sanitation, a driver of increased rates of diarrhoea. Further, mosquito-borne disease outbreaks, such as dengue fever and lymphatic filariasis, have increased in the last 50 years due to the warmer and wetter conditions of Micronesia.[161]

Climate change is not only causing health impacts but also other socio-economic consequences. In the past 30 years, people have been displaced because of the impact of climate change, with over 50,000 people in the Pacific annually forced to move due to the devastating impacts of climate change.[162] [163] Rising sea levels and more frequent natural disasters are expected to increase such displacement and migration, particularly on low-lying atolls, although more scientific and socio-economic studies are required to better understand these issues. Climate change and natural disasters impact the lives and workloads of women and men in Micronesia differently, echoing gender-based differences in the burden of household care responsibilities, and differences in access to and control of resources and

[158] Anisimov, A. and Magnan, A. K. (2023). *The Global Transbound-Any Climate Risk Report*. Institute for Sustainable Development and International Relations (IDDRI) and Adaptation Without Borders. P.42
[159] Interview with the WHO Kiribati in October 2023.
[160] Bündnis Entwicklung Hilft (2021). *World Risk Report (WRR)*. Ruhr University Bochum. Institute for International Law of Peace and Armed Conflict (IFHV).
[161] The United Nations Office for Disaster Risk Reduction (2020) . *Disaster Risk Reduction in the Republic of Kiribati: Status Report 2019*. Bangkok, The United Nations.
[162] Yates, O. E. T. (2020). "Stories of Neighbours and Navigators: Perceptions and Implications of Climate Mobility from Tuvalu and Kiribati to Aotearoa New Zealand", doctoral dissertation the University of Auckland.
[163] The United Nations Secretary-General's High-Level Panel on Internal Displacement, *Pacific Regional Consultation on Internal Displacement (2021)*. The United Nations.

decision-making.[164] Women have unequal access to and control over financial, natural, human and physical assets, due to social and gender norms.[165] Women typically control fewer and lower-value assets than men, which are more likely to be lost during climate-related shocks. Household resources, such as coconuts for firewood, pandanus for handicrafts, gardens for food security and clean water for cooking, are all more vulnerable to climate change.[166]

Micronesia's dispersed geography constrains government's ability to manage and respond to the risks. This highlights the need for pooling resources through a cross-sectoral approach to risk management, as risks in Micronesia do not exist in isolation from one another, and are often inter-connected and systemic, with compound and cascading impacts.[167] Multi-stakeholder engagement and processes that enable the exchange of risk information across administrative levels and societal sectors are pivotal for identifying and managing risks to safety. Access to adequate funding has also constrained Micronesia's ability to introduce the desired climate change adaptation measures. In this vein, achieving sufficient climate change adaptation, mitigation and resilience requires innovative approaches and funding mechanisms. Emerging ideas may include, among others, blue carbon credits, vertical farming and floating cities/towns with solar generator farms.

Box 5
The first climate justice case on the ocean

In September 2023, a group of SIDS – Antigua and Barbuda, Bahamas, Niue, Palau, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Tuvalu and Vanuatu – threatened by rising sea levels, took on high-emitting countries in a landmark hearing in Hamburg, Germany. The prime ministers of Tuvalu and Antigua and Barbuda were among those providing evidence at the International Tribunal for the Law of the Sea (ITLOS). It was the first climate justice case centred on the ocean. The ITLOS will consider whether carbon emissions absorbed by the sea should be regarded as marine pollution, and what obligations those high-emitting nations have to protect the marine environment.[168]

5.2. Biodiversity

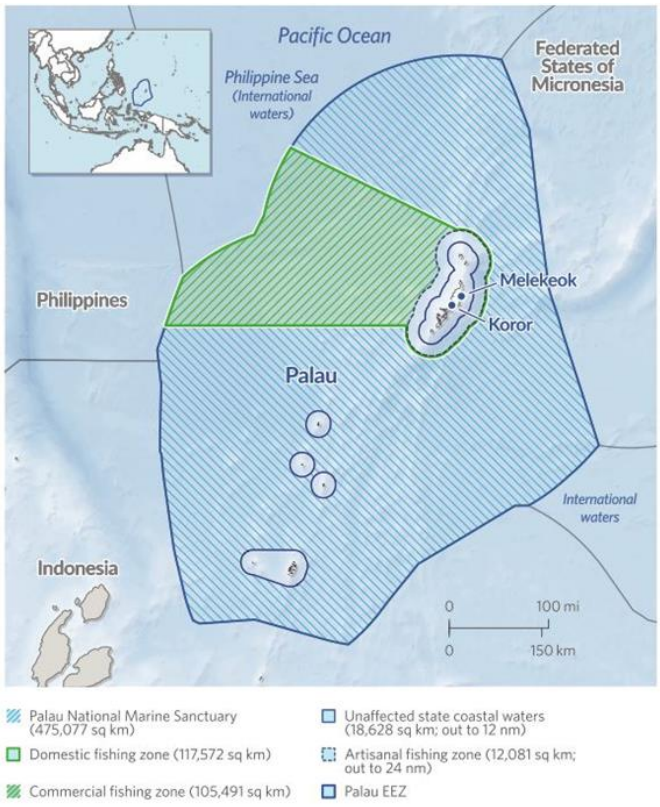
Climate change is adversely impacting biodiversity in Micronesia. Changes in water temperatures and acidity can make the environment inhabitable for many species. Those living in and around coral reefs, either permanently or in their juvenile period, and particularly for larger species, face an extinction threat.[169] Due to changes in average temperatures, dissolved oxygen and levels of acidity, the maximum catch potential of currently resident species is likely to be negative in Micronesia, but

[164] Economic and Social Commission for Asia and the Pacific (ESCAP) (2021). *Inequality of Opportunity: Who are Those Left Behind? Kiribati*. ESCAP Social Development Division, United Nations
[165] Australian government Australian Bureau of Meteorology and Commonwealth Scientific and Industrial Research Organisation (CSIRO (2011).). *International Climate Change Adaptation Initiative. Pacific Climate Change Science Climate Change in the Pacific: Scientific Assessment and New Research. Volume 2: climate change in the pacific, Country Reports. Chapter 6: Kiribati*.
[166] ESCAP (2021).
[167] Ibid.
[168] McVeigh, K. (2023). "Small island nations take high-emitting countries to court to protect the ocean: Countries threatened by rising sea levels are asking a tribunal to decide on responsibility for pollution of the marine environment", *The Guardian*.
[169] Mellin, C., Mouillot, D., Kulbicki, M., McClanahan, T. R., Vigliola, L., Bradshaw, C. J. A. and Caley, M. J. (2016). "Humans and seasonal climate variability threaten large-bodied coral reef fish with small ranges," *Nature Communications*, 7(1), 10491.

research specifically focusing on the islands' local fish population is currently limited.[170] Some countries in Micronesia have taken action to try and restore fish and bird populations, and atoll ecosystems, by establishing natural environmental sanctuaries and eradicating mammalian pests, especially rats.[171] They also recognize that land use change directly affects biodiversity through degrading natural habitats, and species diversity existing within them. Increased change in land use has mainly occurred in the sub-region's urban and growth centres.

The Palau National Marine Sanctuary (PNMS) (figure 26) and the Phoenix Islands Protected Area (PIPA) in Kiribati are both examples of a natural environmental sanctuaries, which seek to maintain oceanic coral archipelago ecosystems, underwater sea mounts and other deep-sea habitats.[172] The banning of international fishing fleets from the zones has resulted in an improvement in fish stocks. While the areas preserve many diverse species of fishes and marine mammals, they also support breeding colonies of seabird species, many threatened and/or globally significant. Such actions strengthen the biosecurity of Micronesia, undertaking surveillance of any illegal aggressions and species that might breach the biosecurity, and implementing emergency response procedures.[173]

Figure 26
Palau National Marine Sanctuary



Source: The Pew Charitable Trusts.[174]

[170] Asch, R. G., Cheung, W. W. L. and Reygondeau, G. (2018). "Future marine ecosystem drivers, biodiversity, and fisheries maximum catch potential in Pacific Island countries and territories under climate change," *Marine Policy*, 88, 285–294.
[171] Eco Oceania Pty. Ltd. (June 2010). *Biosecurity Guidelines for the Phoenix Islands, Kiribati. Report for Government of Kiribati and Critical Ecosystem Partnership Fund*.
[172] Lewis, S. A., *et al.* (2020). "Conservation policies informed by food system feedbacks can avoid unintended consequences", *Nature Food*, 1(12), 783–786.
[173] On 15 November 2021, however, Kiribati lifted the closure of the PIPA as a no-take zone.
[174] Heaton, T. (2022). "Palauans Are Protesting A Plan To Roll Back Their National Marine Sanctuary", *Honolulu Civil Beat*.

However, fisheries and tourism-based commercial activities frequently challenge these objectives and outcomes, such as resulting in the closure of the no-take zone within the Phoenix Islands Protected Area (PIPA) in Kiribati.[175] The situation in Micronesia also remains complex due to variations in the institutional and legal frameworks related to biodiversity preservation across the five nations. Micronesia should seek to optimize the utilization of the ocean, strengthen fisheries management and develop marine industries, while ensuring the sustainable use of marine resources for economic growth and improved livelihoods, and protecting the health and productivity of ocean biodiversity: a challenging brief for any government.

Micronesia faces an uphill task in maintaining and restoring the sub-region's biodiversity damaged by human causes and climate change. By replacing and enriching lost inland, escarpment and coastal forests, including mangroves, and conserving and developing better agroforestry and food systems, Micronesia can seek to restore ecosystem services and improve the prospects for food, economic security and health for its people.[176] However, the governments' ability to implement such policies remains challenging, primarily due to various funding and institutional capacity constraints throughout Micronesia.

Box 6
Coconut rhino beetle

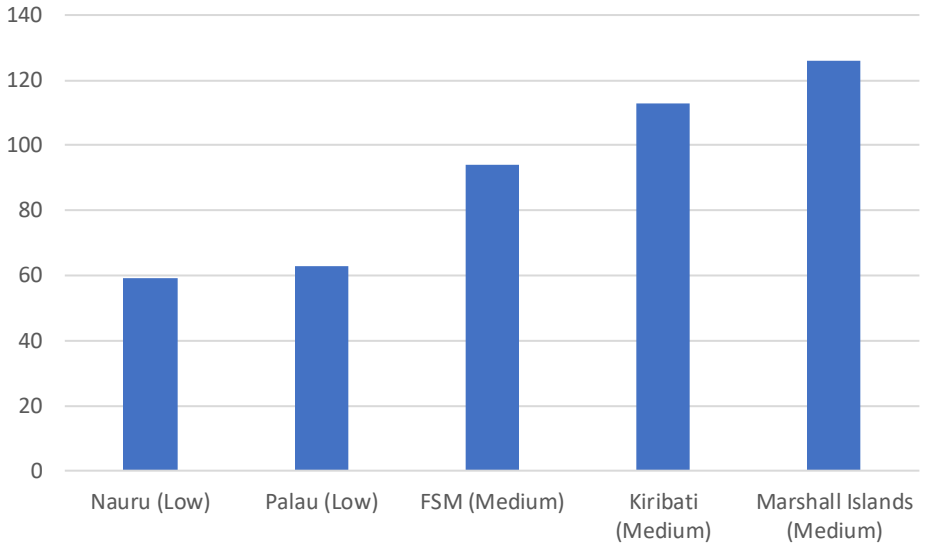
Coconut rhino beetles are a new invasive pest to Palau and Marshall Islands and other PICTs, such as Fiji, New Caledonia, Papua New Guinea, Samoa, Solomon Islands, Vanuatu, as well as US territories, such as Hawaii, Guam and the Commonwealth of the Northern Mariana Islands. The beetles have the potential to devastate any island's coconut industry, as well as the livelihoods of thousands of people who depend on it. Marshall Islands has been battling the spread of the destructive beetles for years. In September 2023, the government confirmed the presence of the beetles on Majuro. In October of the same year, a State of Emergency was proclaimed to implement an emergency response against the destructive beetles.[177]

5.3. Disaster risk reduction

Micronesia is broadly assessed as being from low to medium risk regarding natural disasters and associated humanitarian crises (figure 27). The major threats include coastal flooding and tsunamis, although earthquakes are not seen as significant disasters in the sub-region (table 6). Extreme heat or drought is also seen as a relatively high risk. Cyclones and water scarcity are predicted to provide other risks, although the relevant data is not fully available in the sub-region. The degree of disaster risk is expected to rise along with the intensification of climate change-related impacts, requiring additional research with empirical data as evidence.[178]

[175] Stone, G. S. and Obura, D. (eds.) (2012). *Underwater Eden: Saving the Last Coral Wilderness on Earth*. Chicago: University of Chicago Press.
[176] Ibid.
[177] Various news sources.
[178] De Souza, M. (2017). ""I Don't Want to Leave My Country for Anything": Making the Decision to Migrate in the Marshall Islands", *New Security Beat Wilson* Center.

Figure 27
Disaster risks in Micronesia



Source: European Commission.[179]
Notes: The ranking is out of 191 countries.

Table 6
Micronesia's Climate Risk Projection

Hazard	Palau	FSM	Marshall Islands	Nauru	Kiribati
Coastal flooding	Medium	Medium	High	High	High
Cyclone	No data	High	No data	No data	Low
Earthquake	Very low	Low	No data	No data	No data
Extreme heat	Medium	Medium	Medium	No data	Medium
Landslide	Medium	Low	Very low	Very low	Very low
River flooding	No data	No data	No data	Very low	Very low
Tsunami	Medium	Medium	Medium	Medium	High
Urban flooding	No data	No data	No data	Low	Very low
Volcano	No data	No data	No data	No data	No data
Water scarcity	No data	No data	No data	No data	No data
Wildfire	Very low	Very low	Very low	Very low	Very low

Source: Developed based on the latest data of GFDRR.[180]

These kinds of natural hazards can often trigger second-order disasters, such as marine pollution, ecosystem degradation, coastal erosion, saltwater intrusion and food insecurity.[181] Atolls with insufficient rainwater storage capacity are more vulnerable to water shortages during a high-heat season. Storm surges and king tides, and increasing salinity of freshwater, pose significant ongoing risks to all vegetation.[182] Climate change also increases the possibility of outbreaks of vector-borne

[179] European Commission (EC) (2024). *DRMKC – INFORM, INFORM Risk: Results and Data*.
[180] Global Facility for Disaster Reduction and Recovery (GFDRR) (2024). *Think Hazard!* World Bank.
[181] World Bank Group (2021). "Marshall Islands Climate Change Overview, Country Summary", *Climate Change Knowledge Portal*.
[182] Office of Te Beretitenti. (2019). *Situation Report No# 1: Impact of Tropical Cyclone Sarai in the Southern Islands of Gilbert Group*.

diseases, such as dengue fever. Transboundary risk analyses to identify the areas of shared risks and common vulnerabilities in Micronesia merits further work.[183]

The governments in Micronesia have taken several steps to address disaster risk reduction (DRR), typically developing a comprehensive national DRR framework for all phases of the disaster management cycle, from prevention and preparedness to response and recovery.[184] [185] The governments have typically established a national focal point office to coordinate disaster responses and management efforts and promote DRR initiatives, working closely with other government agencies, relevant United Nations entities and other international organizations.[186] Another strategic focus is to bolster resilience to natural disasters in infrastructure and utilities provision, such as building codes and coastal protection measures (e.g., seawalls and dykes).[187] Despite these efforts, however, nations in Micronesia remain vulnerable to natural hazards, and further investment in DRR management and infrastructure is essential to ensure the safety and well-being of their citizens.[188] [189] [190] [191] [192]

5.4. Blue and circular economies

The "blue economy" is an emerging development concept that aims to achieve socio-economic progress simultaneously with environmental protection and sustainable resource extraction.[193] Although the blue economy concept has yet to be fully concretized, it is widely accepted as the "sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem".[194] Fisheries, maritime transport, climate change adaptation, renewable energy, waste management and ecotourism are typically regarded as the key components and activities of the blue economy.

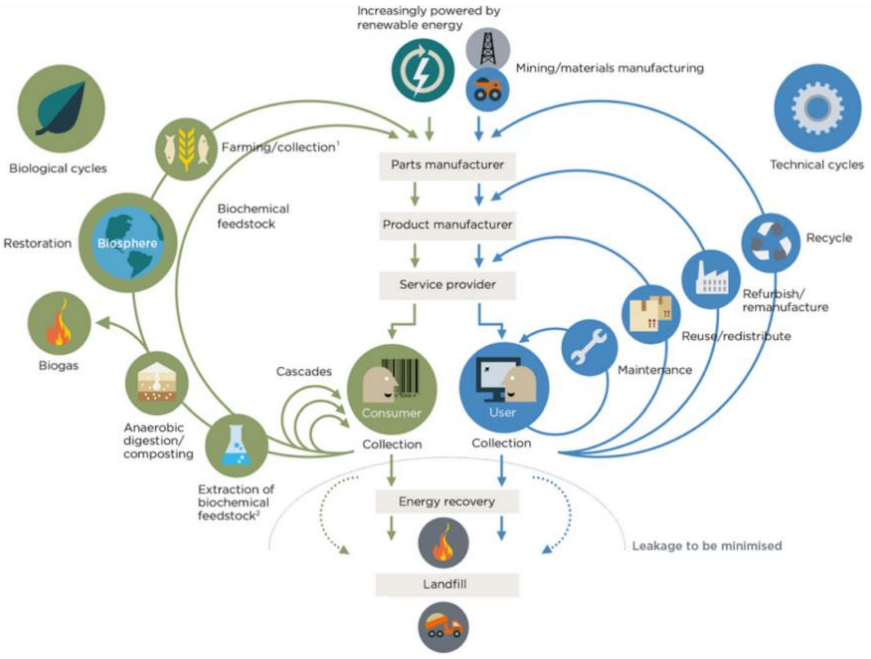
In recent years, the governments in Micronesia have promoted the blue economy by implementing proactive policies and programmes. Those blue economy policies include, among others: (i) strengthening regional fishery capacity building and cooperation, mainly for preserving tuna stocks (e.g., activities under the Pacific Islands Forum Fisheries Agency (FFA);[195] (ii) establishing regional fishery agreements, like the Nauru Agreement for implementing fish conservation measures; (iii) implementing the vessel day scheme (VDS) to constrain catches of target tuna species and increase the rate of return from fishing activities through access fees paid by distant water fishing nations (DWFNs), such as China, Japan and Republic of Korea; and (iv) developing marine sanctuaries like

[183] The Government of Kiribati (2018).
[184] Center for Excellence in Disaster Management and Humanitarian Assistance (2023). *Palau Disaster Management Reference Handbook.*
[185] *United Nations Development Programme (*UNDP) (undated). *Republic of the Marshall Islands Pacific Adaptation to Climate Change Country Brief: Pacific Adaptation to Climate Change*.
[186] Ibid.
[187] PRIF and Palau Ministry of Finance (2021).
[188] Inter-Agency Standing Committee and the European Commission (2022). *Inform Report 2022; Shared evidence for managing crises and disasters*. Luxembourg: Publications Office of the European Union.
[189] Government of Marshall Islands and Pacific Humanitarian Team (2017). *Republic of the Marshall Islands Country Preparedness Package*. The Chief Secretary's Office and National Disaster Management Office.
[190] United Nations Office for Disaster Risk Reduction (UNDRR) & Asian Disaster preparedness centre (2022). Disaster Risk Reduction in the Republic of Palau status report 2022.
[191] The Global Facility for Disaster Reduction and Recovery (GFDRR) (2023), *Think Hazard – Nauru Profile*.
[192] Barnes, P (2020), *A Pacific Disaster Prevention Review*. Australian Strategic Policy Institute (ASPI).
[193] Mridula, *et al.* (2022).
[194] For further details on the definitions of the blue economy, see: https://www.un.org/regularprocess/sites/www.un.org.regularprocess/files/rok_part_2.pdf.
[195] For more details about the Pacific Islands Forum Fisheries Agencies see: https://www.ffa.int/.

Palau's PNMS and Kiribati's PIPA for improving fish stocks and reducing the pressure on biodiversity, such as the loss of seabirds, turtles, sharks and billfishes that are currently vulnerable to "by-catch" by industrial vessels (see figure 26 again).[196]

Waste is generated from household, commercial, agricultural, domestic, municipal and industrial activities. The environmental implications of this waste are witnessed globally in terms of air, land and water pollution, including ocean plastics. "Circular economy" and sustainable economic practices with circular waste management is a crucial part of the blue economy, but particularly challenging for the five Micronesian nations due to their high per-capita infrastructure costs, remoteness, narrow resource bases and high dependence on fossil fuels and tourism. Moving away from the linear economy (sometimes referred to as an "extract-produce-use-discard" model), the circular economy promotes reuse, remanufacturing and recycling, in order to lessen waste volumes. There is a need to adopt the circular economy in Micronesia to reduce waste and contribute to the implementation of the SDGs.[197] Figure 28 illustrates a typical circular economy model.

Figure 28
Circular economy model



Source: Halog and Anieke.[198]

[196] Cirilla, A. (2020). *Palau National Marine Sanctuary Goes Into Effect*, The Pew Charitable Trusts.. The PNMS has not been without controversy. For example, see: Carreon, B. (2020). *Palau's marine sanctuary backfires, leading to increased consumption of reef fish,* the guardian.

[197] Fuldauer, L., Ives, M. C., Adshead, D. Thacker, S. and Hall, J. W. (2019). "Participatory planning of the future of waste management in small island developing states to deliver on the Sustainable Development Goals", *Journal of Cleaner Production*, 223, 147-162; and Wiebe, K. S., Harsdorff, M., Montt, G., Simas, M. S. and Wood, R. (2019). "Global Circular Economy Scenario in a Multiregional Input–Output Framework", *Environmental Science and Technology*.

[198] Halog, A. and Anieke, S. (2021). "A Review of Circular Economy Studies in Developed Countries and Its Potential Adoption in Developing Countries", *Circular Economy and Sustainability*, 1, 209–230.

Box 7
Circular economy for e-waste in Micronesia

Electronic waste – often referred to as e-waste – is produced from electrical and electronic products, including batteries, plugs, cords, computers, mobile phones, whiteware, home appliances and children's toys. In 2022, 62 billion kilogrammes of e-waste were discharged worldwide.[199] It is known as the fastest-growing solid waste stream, with only 17.4 per cent of it formally collected and recycled in 2019.[200] E-waste is often recycled using environmentally unsound techniques and inferior facilities, largely due to the complexity of waste treatments needed.[201] There is a clear need for a circular economy in Micronesia's waste management, especially for e-waste.

Micronesia is known for having improper e-waste management systems, which then poses serious health risks to labourers and residents. It is often treated in the informal recycling sector, largely due to insufficient recycling infrastructure, training and regulations, thereby resulting in concerns about human health and environmental ramifications.[202] The recent rise in the usage of digital devices suggests a surge in e-waste. All five Micronesian countries – Palau, FSM, Marshall Islands, Nauru and Kiribati – have experienced a gradual increase in digital device consumption indicating the likelihood of having an increased amount of e-waste, now and in the coming years, and hence the need for a thorough e-waste management system in these countries.[203] But to date, the five Micronesian countries are facing challenges in building and maintaining efficient e-waste management systems as e-waste is often deemed to be a low policy priority.[204]

Considering the socio-economic and environmental potential that the circular economy approach can bring to e-waste management systems, it is recommended that the Micronesian countries implement the following measures:

(i) *More thorough data collection on e-waste and other hazardous wastes*: The countries lack sufficient data on the amount and scope of hazardous wastes, including e-waste, released. There is an urgent need for a more comprehensive and refined data collection system on hazardous waste. Such refined data collection systems and higher quality data can help governments to develop better ways of controlling e-waste;

(ii) *Combining e-waste into the existing waste management infrastructure:* While progress on e-waste management has been slow, some states have already created waste management infrastructure and recycling systems for more general waste. Micronesian countries are recommended to actively implement e-waste recycling systems combined with the existing waste management infrastructure on more common waste.

[199] United Nations Institute for Training and Research (UNITAR) (2024). *Global E-waste Monitor 2024: Electronic Waste Rising Five Times Faster Than Documented E-waste Recycling*. https://unitar.org/about/news-stories/press/global-e-waste-monitor-2024-electronic-waste-rising-five-times-faster-documented-e-waste-recycling.

[200] UNITAR (2020). *Global E-waste Surging: Up 21 Percent in 5 Years*. https://unitar.org/about/news-stories/press/global-e-waste-surging-21-cent-5-years.

[201] World Health Organization (WHO) (2023). *Electronic waste (e-waste)*. https://www.who.int/news-room/fact-sheets/detail/electronic-waste-(e-waste).

[202] Widmer, R., et al. (2005). Global perspectives on e-waste. *Environmental Impact Assessment Review, 25*(5), 436-458. https://doi.org/10.1016/j.eiar.2005.04.001; WHO (2023). Electronic waste (e-waste). Retrieved August 26, 2024, from https://www.who.int/news-room/fact-sheets/detail/electronic-waste-(e-waste).

[203] World Bank Group (2024). "Individuals using the Internet (% of population), total", *Data.* https://data.worldbank.org/indicator/IT.NET.USER.ZS; World Bank Group (2024). "Mobile cellular subscriptions (per 100 people), total", *Data.* https://data.worldbank.org/indicator/IT.CEL.SETS.P2.

[204] Secretariat of the Pacific Regional Environment Programme (SPREP). (2018). *Review of e-waste Related Activities in the Pacific Islands.* 27-39. https://www.sprep.org/attachments/report4-ewaste-baseline-2018.pdf.

This would reduce the time and resources that could have been put into making an entirely new, separate programme;

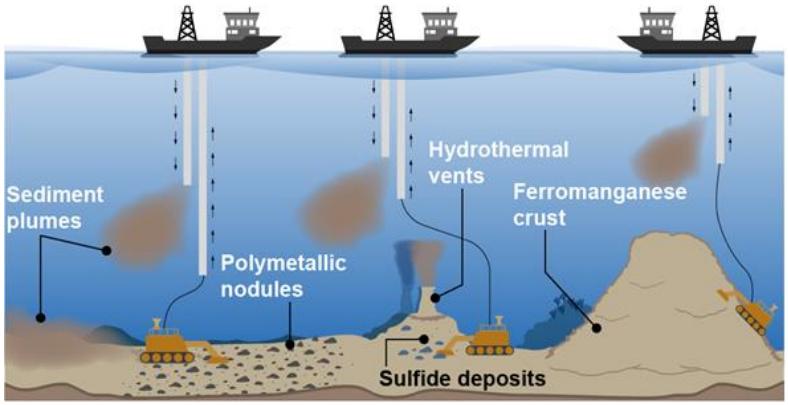
(iii) *Laws specifically for e-waste management*: The five countries currently do not have sufficient legislative structures for managing e-waste. Enacting laws and regulations specific to e-waste treatment and regulation is required for the effective management of waste; other countries that have already related legislation are reported to have 25 per cent higher recycling rates than the ones that do not;[205] and

(iv) *Resource recovery and transfer facilities:* Micronesian countries should further develop recycling programmes focused on resource recovery and transfer facilities to facilitate the export of recyclable materials. Recycling facilities are expensive and mostly found in large countries in Asia and Australia. As there are no large-scale recycling facilities in Micronesia, they usually establish resource recovery or transfer facilities that provide onshore processing for collecting and processing recyclable materials and export them to overseas recycling facilities.[206] This can be a way to achieve the "closed-loop" circular economy principle by sending e-waste to appropriate facilities for recycling.

5.5. Deep-sea mining

Deep-sea mining involves the extraction of minerals and resources from the ocean floor, which can include everything from precious metals to rare earth elements, and serve as an additional source of public revenues (such as from mining rights and royalty payments) and private sector investment (figure 29).

Figure 29
Simplified deep-sea mining scheme



Source: GAO.[207]

Deep-sea mining is not without controversy. Many experts are concerned that the potentially harmful effect of deep-sea mining has not been fully assessed.[208] A legitimate worry is that extractive industries may be motivated to maximize returns in extracting these resources, at least temporarily

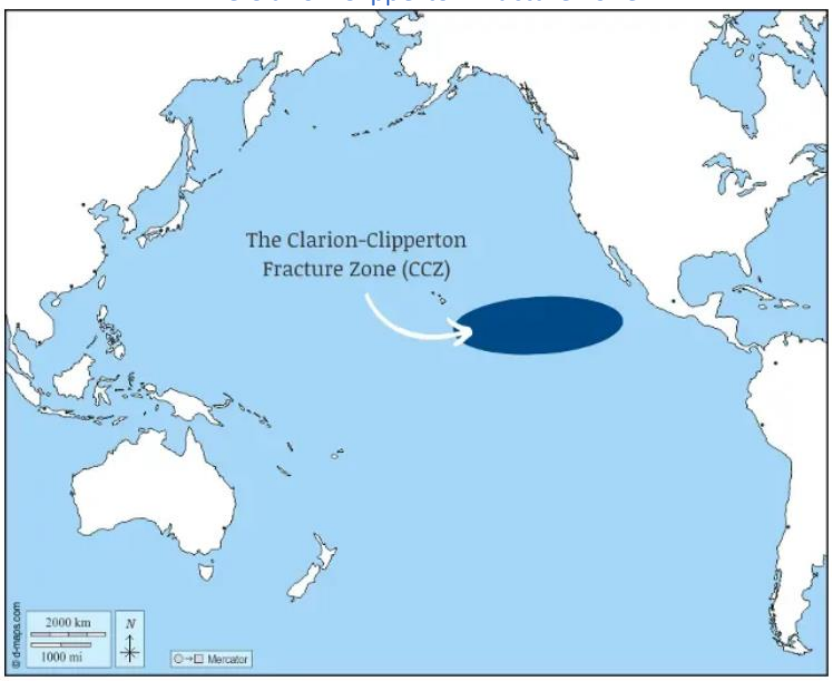
[205] The UN agency for digital technologies (ITU) & UNITAR (2024). *The world generated 62 million tonnes of electronic waste in just one year and recycled way too little, UN agencies warn*. Retrieved August 26, 2024, from https://www.itu.int/hub/2024/04/the-world-generated-62-million-tonnes-of-electronic-waste-in-just-one-year-and-recycled-way-too-little-un-agencies-warn/.
[206] SPREP (2023). *Introduction to a Pacific Circular Economy*. https://pacwasteplus.org/wp-content/uploads/2023/12/Circular-Economy-Factsheet.pdf.
[207] United States Government Accountability Office (GAO) (2021). "Science & Tech Spotlight: Deep-Sea Mining", *Science, Technology Assessment, and Analytics, GAO-22-105507*, p. 1.
[208] Ibid.

eschewing environmental sustainability concerns. The controversy surrounding such an extractive industry is compounded by the likely negative consequences for ocean biodiversity and the climate impact it may imply. Besides, there is serious scientific scepticism that deep-sea mining can be undertaken without incurring significant damage to the oceans and their sustainability.[209] In this vein, multinational firms might take advantage of their advanced knowledge of market dynamics to decide which investments to make or not to make, especially where host countries may lack adequate knowledge assets to make informed decisions or the institutional capacity needed to engage in large-scale contract negotiations.

There are significant divisions towards pursuing deep-sea mining in Micronesia. In 2018, Palau became one of the first countries in the world to ban commercial deep-sea mining within its territorial waters, citing the need to protect its ocean environment.[210] On the other hand, in an echo of their experience mining phosphates on the land, Nauru and Kiribati have expressed interest in exploring deep-sea mining as an option for economic diversification.[211] They are two of five PICTs (also including Cook Islands, Tonga and Tuvalu) considering exploration activities within and beyond their national jurisdiction under the supervision of the International Seabed Authority (ISA).[212] [213] [214] [215] Nauru and Kiribati plan to explore the abyssal plains of the Clarion-Clipperton Fracture Zone (CCFZ), a vast deep-sea plain in the North Pacific Ocean between Hawaii and Mexico, which is reported to contain billions of tons of nickel, cobalt, copper and manganese; enough to address growing global supply shortages of these key resources, as the shift away from fossil fuels accelerates (figure 30).[216] [217]

[209] Hallgren, A. and Hansson, A. (2021). "Conflicting Narratives of Deep Sea Mining", *Sustainability*, 13(9).
[210] World Rainforest Movement (2019). "Contesting a "Blue" Pacific: Ocean and Coastal Territories under Siege", *WRM Bulletin 246.*
[211] *Gazette No. 103*, (2023), Republic of Nauru.
[212] Sue F. (2022). "Deep-sea mining and the potential environmental cost of 'going green' in the Pacific", *Environmental Law Review*, 24(3).
[213] Three other PICTs include Cook Islands, Tonga and Tuvalu.
[214] The company referred to is The Metals Company.
[215] Singh, P. A. (2021). "What Are the Next Steps for the International Seabed Authority after the Invocation of the 'Two-year Rule'?" *The International Journal of Marine and Coastal Law*, 37(1), 152-165.
[216] Katona, S., *et al*. (2023). "Land and deep-sea mining: the challenges of comparing biodiversity impacts," *Biodiversity and Conservation*, 32, 1125–1164.
[217] Hein, J. R., Koschinsky, A. and Kuhn, T. (2020). "Deep-ocean polymetallic nodules as a resource for critical materials," *Nature Reviews Earth and Environment*, 158–169.

Figure 30
The Clarion-Clipperton Fracture Zone



Source: https://vajiramandravi.com/upsc-daily-current-affairs/prelims-pointers/clarion-clipperton-zone/.

However, this movement has raised strong environmental concerns for the oceanic ecosystems of the Pacific, particularly given the fragile and poorly understood nature of many deep-sea ecosystems. Some experts warn that deep-sea mining could have serious and long-lasting consequences for marine biodiversity and the health of ocean ecosystems.[218] Deep-sea mining requires particularly robust social and environmental safeguards and appropriately trained human resources, while its potentially harmful impacts on the ocean have not been fully appraised.[219] It is increasingly clear that any future decision to move forward with this practice must carefully consider potential adverse environmental impacts. and that a firm commitment to sustainable practices that minimize any harm to the ocean and its ecosystems is made and enforced.

In this vein, international efforts have been invested in the development and adoption of specifically designed legal frameworks for this evolving sector of the blue economy. Significant international efforts, including those of ISA, DESA and various development partners, have been invested in the development and adoption of specifically designed legal, institutional and policy frameworks for this novel sector, although the capacity to comply with and properly enforce these frameworks remains a challenge. In 2021, Nauru triggered the so-called "two-year rule" at ISA to fast-track the adoption of regulations for deep-sea mining.[220] Should ISA not comply within two years, Nauru will be allowed to launch deep-sea extraction activities under existing and largely non-protective regulations, although no progress has been made. However, when the regulations are non-existent, Nauru may not wish to take on potential liability under international law or incur reputational harm. Nauru has already faced a blow when A.P. Moller-Maersk, a leading global shipping company, withdrew from the deep-sea

[218] Durden, J. M., *et al.* (2018). "Environmental Impact Assessment process for deep-sea mining in 'the Area'", *Marine Policy*, 87, 194-202.
[219] European Academies Science Advisory Council (EASAC) (2023). *Leading Scientists Urge Moratorium on Deep-Sea Mining: Explore Recycling and Terrestrial Resources First*.
[220] Research Institute for Sustainability (RIFS) Discussion Paper (2023). *What if" revisited: Open legal questions in light of the two-year rule at the International Seabed Authority (ISA).*

mining space.[221] More generally, deep-sea mining firms have come under concerted pressure over legitimate worries that such commercial activities will have lasting harm to the seabed environment.

The United Nations in the Pacific does not promote a mineral resources-intensive economic diversification strategy.[222] Extreme caution needs to be exercised in this sector, especially by Nauru and Kiribati as sponsoring and licensing states. However, the United Nations is cognizant of the existence of these resources and participates in the debate on the advisability of their exploitation, while being aware of the limited alternative growth options. Nauru and Kiribati are therefore strongly advised to evaluate the potential costs and benefits, where they are currently known, and consider the known risks cited by the resistant global community towards deep-sea mining initiatives. Effective engagement in deep-sea mining requires further analysis of its cumulative impacts, enforceable environmental safeguards and appropriately trained human resources, coupled with the proper and practical regulatory structure. Furthermore, reasonable taxation (such as those found in conventional mineral extraction, spanning royalties, resource rent, franchise and profits tax) would be key, as this industry is unlikely to generate significant local employment or other onshore benefits to the host country.[223] Deep-sea mining is a long-term, non-renewable, extractive enterprise that must be monitored very closely and cautiously, but the potential is undeniable as a resource for small countries like Nauru and Kiribati.

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[221] Khan, Y. (2023). "Shipping Giant Maersk Drops Deep Sea Mining Investment. Maersk is selling its stake in The Metals Company, the latest big name to divest itself of its seabed mining interests," *The Wall Street Journal.*

[222] United Nations in the Pacific (2022).

[223] Ergas, H., Harrison, M. and Pincus, J. (2010). "Some economics of mining taxation", *Economic Papers of the Economic Society of Australia*, 29(4), 369-389.

6. Peace and Partnerships

This section elaborates on two final SDG pillars: peace and partnership. The first pillar focuses on governance, gender and human rights issues, and growing geo-political tensions in Micronesia. The second pillar addresses international cooperation and the United Nations' role in Micronesia.

6.1. Governance, gender equality and human rights

All Micronesian countries have a presidential-parliamentary system of government. The President is both the Head of State and Head of Government and depends on parliamentary confidence to remain in the post. Parliamentary members are elected, and they elect the President from themselves directly or through a national vote. The President appoints the members of a cabinet.[224]

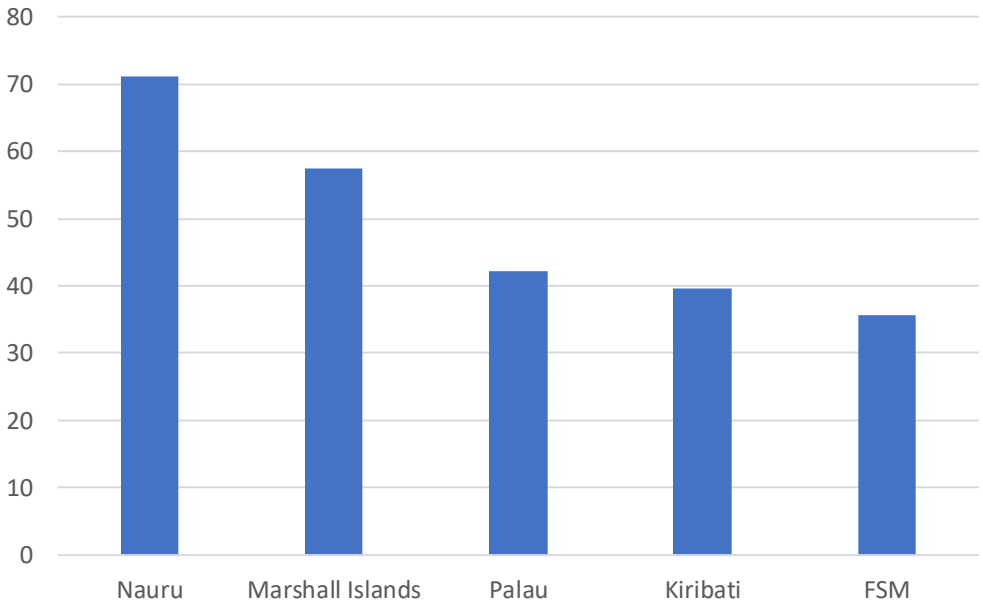
Micronesia countries' legal system is a combination of common law, customary law and, often, traditional local statutes. Their Constitutions guarantee judicial independence although international experts have sometimes questioned this.[225] They also offer women formal equality before the law, but this has yet to transpire in practice fully in the sub-region. It must be also noted that FSM's four states have their own constitutions and laws that operate independently, albeit with a federal constitution as its supreme law.

In Micronesia, gender equality is one of the major challenges that intersect with almost all the SDGs. Micronesian Constitutions commonly guarantee women formal equality before the law, but this practice has not fully followed legislation.[226] All the Micronesian nations, except Palau, have pledged to bring gender parity to their population through ratifying the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).[227] They also endorsed the Pacific Leaders Gender Equality Declaration and national gender policy plans. Pacific Women (part of the Pacific Community, SPC) has also provided technical support in designing and implementing gender policy.[228]

Although Micronesia's governments have made efforts to eradicate discrimination against women and girls, there still exist large gender gaps between women/girls and men/boys. Discrimination against women is grounded in customs and traditions that have not evolved with society, and additional reinforcing misogyny denies women and girls their rights. Social norms and perceived gender roles underpin: reproductive health issues, early marriage and pregnancy, and the absence of health data; a higher dropout rate for girls from secondary school; the unfair distribution of assets and resources (especially land); unbalanced labour force participation; disparity in unemployment; cultural tolerance for gender-based violence (GBV); low representation of women in the government; and much greater representation in the unpaid informal economy (especially in subsistence food production and home care). Furthermore, women living in rural areas and outer islands in particular face significant barriers to gaining access to healthcare, higher education and paid employment. Barriers still exist to women's full participation in Micronesia's social, economic and political life. As an illustrative example, figure 31 presents high adolescent fertility in Micronesia.

[224] van Dyke, J. M. (2009). "The Pacific Judicial Conference: Strengthening the Independent Judiciary and the Rule of Lao in the Pacific", *Western Legal History*, 21(I/2), 127-212.
[225] Paterson, D. E. (1995). "South Pacific customary law and common law: Their interrelationship", *Commonwealth Law Bulletin*, 21(2), 660-671.
[226] Regmi, S. (2024). "Current Issues and Challenges Affecting Gender Equality and Sustainable Development in Federated States of Micronesia". In Monaco, E. and Abe, M. (eds), *Sustainable Development Across Pacific Islands: Lessons, Challenges, and Ways Forward*. Singapore: Springer.
[227] For more details on the ratification status, see: https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Treaty.aspx?CountryID=132&Lang=en.
[228] Regmi (2024).

Figure 31
Adolescent fertility rate, 2022
Births per 1,000 women aged 15-19



Source: Developed based on data from The World Bank Group.[229]

The main issues affecting gender equality in Micronesia can be summarized as follows:

(i) *Social obstructs*, manifesting in education, health, protection, family and justice;
(ii) *Economic empowerment*, including issues in poverty, economic participation, the informal sector, women entrepreneurship and legislation;
(iii) *Climate change and disaster resilience*, necessitating gender integration in DRR;
(iv) *Leadership and political participation*, encouraging women's involvement in the decision-making process at the institutional and national levels; and
(v) *Holistic national planning*, covering all the above-listed issues.

One of the major constraints is the lack of resources and capacity within the national gender machinery, greatly inhibiting the ability to promote, protect and fulfil the rights of women and girls.[230] In addition, there are gaps not only in research and data but also in the clear comprehension of (often complex) on-the-ground issues pertaining to gender equality and the SDGs in Micronesia, which ultimately impacts the work and efforts of the development community to address the challenges. There is also a need to understand on-the-ground social, economic, environmental, legal and political issues that often intersect to bring about gender inequality, which ultimately hampers sustainable development.[231]

Micronesia has faced multi-faceted human rights issues, such as varying access to basic public services (e.g., utilities, education and healthcare), child abuse and neglect, gender and LGBTQ+ discrimination, forced labour and human trafficking. Micronesia also has some distinct human rights issues, including: (i) mining-related forced migrants (in Palau, Nauru and Kiribati); (ii) sea-level rise-driven displacements

[229] World Bank Group (2024). "Gender Statistics", *Data*. https://databank.worldbank.org/source/gender-statistics.
[230] Ibid.
[231] Ibid.

and climate-induced refugees (across all five countries); and (iii) issues related to nuclear weapons testing (in Marshall Islands and Kiribati).[232] Micronesia generally has limited labour protection laws, while the right to strike and collectively bargain is not fully protected by law.[233] Religious groups and civil society organizations (CSOs) can secure legal recognition, allowing them to be formally registered and lawfully operate in Micronesia; however, their participation in the development process is minimal, with no mechanism in place for regular dialogue and engagement.[234]

Despite having signed and ratified some international human rights treaties, the legal protection of human rights in Micronesia remains relatively weak (table 7). This is primarily due to poor incorporation of the relevant human rights commitments into domestic law, as well as a paucity of domestic legislative provisions for human rights protection.

Table 7
Micronesia's ratifications in International human rights treaties

Human rights	Treaties	Palau	FSM	Marshall Islands	Nauru	Kiribati
Torture and punishment	CAT			✓	✓	✓
	CAT-OP				✓	
Political rights	CCPR			✓		
	CCPR-OP1					
	CCPR-OP2-DP					
Enforced disappearance	CED					✓
Women	CEDAW		✓	✓	✓	✓
	CEDAW-OP			✓		
Racial discrimination	CERD			✓		
Economic, social and cultural Rights	CESCR			✓		
	CESCR-OP					
Migrants	CMW					
Children	CRC	✓	✓	✓	✓	✓
	CRC-OP-AC		✓			✓
	CRC-OP-IC			✓		
	CRC-OP-SC		✓	✓		✓
Disabilities	CRPD	✓	✓	✓	✓	✓
	CRPD-OP	✓				

Source: UNCHR.[235]

Note: Those treaties and their optional protocols comprise: the Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT); the International Covenant on Civil and Political Rights (CCPR); the International Convention for the Protection of All Persons from Enforced Disappearance (CED); the

[232] Various academic sources.
[233] Arrowsmith, J. and Parker, J. (2020). "The Political Economy of Employment Regulation in Small Developing Countries", *Industrial Relations*, 75(1), 123-152. FSM and Nauru are not a member of the International Labour Organization (ILO) and have not signed any ILO conventions on equality of opportunity and treatment in the labour markets.
[234] The authors' interviews with civil society representatives in Micronesia in 2023.
[235] United Nations Human Rights Council (OHCHR) (2024). *UN Treaty Body Database*. https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Treaty.aspx?CountryID=132&Lang=en.

Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW); the International Convention on the Elimination of All Forms of Racial Discrimination (CERD); the International Covenant on Economic, Social and Cultural Rights (CESCR); the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (CMW); the Convention on the Rights of the Child (CRC); and the Convention on the Rights of Persons with Disabilities (CRPD).

On labour rights issues, such as fairness, equality, safety and security at the workplace, the countries of Micronesia have not yet fully integrated international labour principles and standards into their regulatory and policy frameworks. FSM and Nauru are not members of the International Labour Organization (ILO), so they do not ratify ILO's international labour standards treaties (11 "fundamental" and four "priority" legally binding conventions). While Kiribati ratified nine treaties, Palau and Marshall Islands only did so with the child labour convention.[236] Table 8 provides the present overview.

Table 8
Micronesia's ratification of the ILO's main labour treaties

Instruments	Treaties	Palau	FSM	Marshall Islands	Nauru	Kiribati
Fundamental	Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)					✓
	Right to Organise and Collective Bargaining Convention, 1949 (No. 98)					✓
	Forced Labour Convention, 1930 (No. 29)					✓
	2014 Protocol of the above Forced Labour Convention, 1930 (No. 29)					
	Abolition of Forced Labour Convention, 1957 (No. 105)					✓
	Minimum Age Convention, 1973 (No. 138)					✓
	Worst Forms of Child Labour Convention, 1999 (No. 182)	✓		✓		✓
	Equal Remuneration Convention, 1951 (No. 100)					✓
	Discrimination (Employment and Occupation) Convention, 1958 (No. 111)					✓
	Occupational Safety and Health Convention, 1981 (No. 155)					
	Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)					
Priority	Labour Inspection Convention, 1947 (No. 81)					
	Employment Policy Convention, 1964 (No. 122)					
	Labour Inspection (Agriculture) Convention, 1969 (No. 129)					
	Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144)					✓

Source: ILO.[237]
Note: FSM and Nauru have yet to be an ILO member.

Micronesia countries are encouraged to recognize the importance of ensuring labour market governance based on international labour standards related to freedom of association, collective bargaining and social protection, including social security, and tripartite social dialogues as an effective framework where representatives of governments, employers and workers negotiate, consult or exchange information on socio-economic and environmental policies. Although they are members of ILO, Palau and Marshall Islands have no formally established tripartite institutions. Kiribati has one body. In general, tripartism and social dialogues need to be strengthened in Micronesia so that

[236] International Labour Organization (ILO) (2024). *Conventions, Protocols and Recommendations*. Geneva: ILO. https://www.ilo.org/international-labour-standards/conventions-protocols-and-recommendations.
[237] Ibid.

workers and employers have a say in influencing development policies while governments understand the challenges and needs of workers and employers and facilitate more access to technical assistance. In the absence of this, the achievement of the 2030 Agenda and SDGs may leave many behind.

The governments in Micronesia are also encouraged to enhance efforts on human rights issues. Their interventions could usefully span: (i) ratifying the OHCHR human rights treaties and the ILO conventions; (ii) undertaking more inclusive climate change and disaster risk reduction action; (iii) strengthening the justice systems; and (iv) improving legal and structural frameworks that will advance human rights, including human rights monitoring.[238] [239] More could also be done in terms of the protection and promotion of human rights by either instituting a Paris Principles-compliant national human rights institution, or broadening the mandate and strengthening the resources available to existing human rights committees.[240] In particular, reaching out to civil society and working on women´s rights, child protection and furtherance of the status of people with disabilities (PWD).[241] For all those efforts, governments' institutional capacity building and human resource development will be a key determinant of success.

6.2. Geo-politics

Since the five Micronesian countries fully became independent (Palau in 1994, FSM in 1986, Marshall Islands in 1986, Nauru in 1974 and Kiribati in 1979), they have maintained stable relationships with their former controlling nations (i.e., Australia, New Zealand and the United States), ensuring security, aid and technical assistance. Other bilateral donors and international development agencies have also provided support to these nations, which have enhanced their political roles in the global arena, typically observed in the United Nations and the PIF.

In recent decades, however, the international political dynamics caused by Micronesian nations' location in the Northern Pacific Ocean have influenced their development trajectory, which they cannot fully control. Still, they have broadly tried to find the best possible options for their citizens. They have also strengthened their relationships with new development partners and the United Nations agencies and encouraged their presence on the islands.

The partnerships between the United States and three CoFA nations (i.e., Palau, FSM and Marshall Islands), which have lasted for nearly 80 years, have created a wide range of services and privileges for the three nations and their citizens, while CoFA allows the United States to take full responsibility for the nations' security.[242] Micronesia is at the centre of the United States' strategy for geo-political competition in the Pacific, and Micronesia is regarded as "the bedrock of the U.S. role in the Pacific".[243]

[238] OHCHR (2021). *Universal Periodic Review – Palau.*
[239] United States Department of State (2021).
[240] Universal Rights Group (2021, July 15). *Report of the Human Rights Council on its 47th session (A/HRC/47/2)*. https://www.universal-rights.org/report-on-the-47th-session-of-the-human-rights-council/.
[241] NATLEX. (n.d.). *Marshall Islands - Human Rights Committee Act 2015 (P.L. 2015 - 49) [10 MIRC].* NITLJELA of the Republic of the Marshall Islands, 36th Constitutional Regular Session. International Labour Organization. See: https://natlex.ilo.org/dyn/natlex2/r/natlex/fe/details?p3_isn=102769&cs=10KXfj-SjZaIcFe4TiT75dGQJnl6fxI4BBZ-6_xpLrTVbf_JSNiAsNCJ84VPEQ4ajZ0Ne-4zXGciyEHzb3RQzsA.
[242] United States Institute of Peace (2022).
[243] The White House (2022, February). *Indo-Pacific Strategy of the United States*. https://www.whitehouse.gov/wp-content/uploads/2022/02/U.S.-Indo-Pacific-Strategy.pdf.

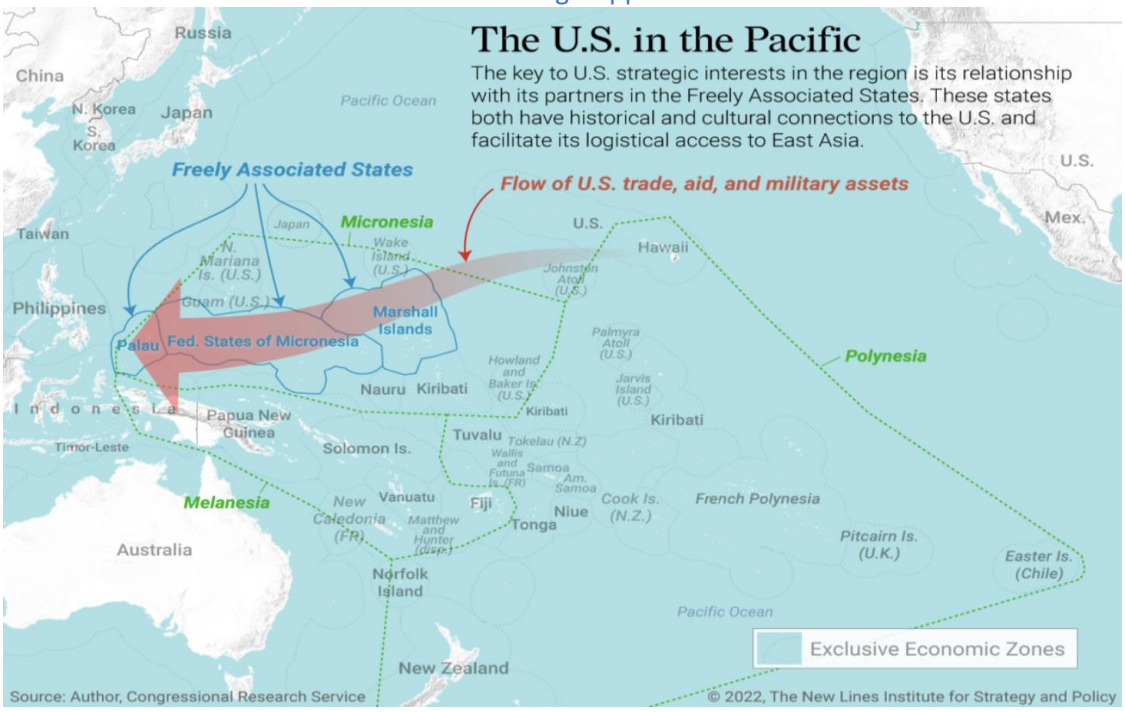
The threat that Japan's presence in Micronesia posed to the United States during World War II ensured that it would vie to have greater control over the sub-region thereafter.[244] Thus, the United States became the administering power of the United Nations (Strategic) Trust Territory of the Pacific Islands (TTPI), which comprised the current jurisdictions of the CNMI, Palau, FSM and Marshall Islands. Under United States' supervision, Marshall Islands, FSM and Palau became self-governing states as freely associated states (FAS) when CoFAs with the United States went into effect.[245] The compacts grant benefits to FAS citizens and significant sums of monetary assistance to their governments, while permitting the United States to have "responsibility for defense and security matters in, and relating to […them],"[246] thereby intertwining the United States and FAS foreign policies.

Indeed, the compacts have built upon and reflected the strong military ties between the United States and Micronesia, especially, during the Cold War (1947-1991). These include a US military legacy in Marshall Islands of both nuclear testing at Bikini Atoll and Enewetak Atoll in the past, and missile testing on Kwajalein Atoll to the present day.[247] Furthermore, FAS citizens have "the highest military service per capita"[248] in the US armed forces.[249] CoFAs will cement US military involvement in Micronesia for years to come, especially since March 2024 when the US Congress approved the third iteration of their funding (over US$7 billion in total for the FAS as a whole and individually)[250] for the next 20 years. The US has delineated the Indo-Pacific region, from the Indian Ocean to the west coast of the United States (figure 32).[251] A core feature underpinning both Trump and Biden's Indo-Pacific strategies is security and thus effective US military deployment. In recent years, the US Department of Defense has indicated that the Indo-Pacific is a strategic priority.[252,253] Micronesia will only become more important to the United States' foreign and security policies as an integral part of its Indo-Pacific

[244] Hara, K. (2007). *Micronesia and the Postwar Remaking of the Asia Pacific: "An American Lake."* Asia-Pacific Journal: Japan Focus, 5(8). Retrieved August 5, 2024, from https://apjjf.org/kimie-hara/2493/article.
[245] 1986 Compact of Free Association (n.d.). https://jcrp.gov.fm/1986-compact-of-free-association/; Compact of Free Association (1994, October 1). https://www.doi.gov/sites/doi.gov/files/uploads/Palau_ROP_COFA.pdf.
[246] United States Government Accountability Office (GAO) (2022, February 14). *Compacts of Free Association: Implications of Planned Ending of Some U.S. Economic Assistance*. https://www.gao.gov/assets/gao-22-104436.pdf.
[247] Hirshberg, L. (2022). "Home on the Range: US Empire and Innocence in the Cold War Pacific." In *Suburban Empire Cold War Militarization in the US Pacific* (Vol. 64, Ser. American Crossroads, p. 10). Oakland: University of California Press. https://content.ucpress.edu/title/9780520289161/9780520289161_intro.pdf. See also: https://www.ll.mit.edu/about/facilities/reagan-test-site.
[248] *Statement of Admiral John C. Aquilino, U.S. Navy Commander, U.S. Indo-Pacific Command*, 117th Congress. (2024, 6 August). Testimony of Admiral John C. Aquilino, U.S. Navy Commander. https://www.congress.gov/118/meeting/house/116960/witnesses/HHRG-118-AS00-Wstate-AquilinoJ-20240320.pdf.
[249] United States Department of State, Bureau of East Asian and Pacific Affairs (2022). *U.S. Relations With Palau, Bilateral Relations Fact Sheet*. https://www.state.gov/u-s-relations-with-palau.
[250] Lum, T. (2024, April 25). *The Compacts of Free Association*. Version 45. Washington, D.C.: Congressional Research Service (CRS).
[251] United States Department of State Office of the Spokesperson (2022, August 2). *The United States' Enduring Commitment to the Indo-Pacific: Marking Two Years Since the Release of the Administration's Indo-Pacific Strategy*. https://www.state.gov/the-united-states-enduring-commitment-to-the-indo-pacific-marking-two-years-since-the-release-of-the-administrations-indo-pacific-strategy/.
[252] Department of Defense (2019, June 1). *The Department of Defense Indo-Pacific Strategy Report: Preparedness, partnerships, and promoting a networked region*. Washington, D.C.: Department of Defense. https://media.defense.gov/2019/Jul/01/2002152311/-1/-1/1/DEPARTMENT-OF-DEFENSE-INDO-PACIFIC-STRATEGY-REPORT-2019.PDF.
[253] Department of Defense (2022, October 27). *2022 National Defense Strategy of The United States of America - Including the 2022 Nuclear Posture Review and the 2022 Missile Defense Review*. https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

and Pacific Partnership Strategies. The United States plans to increase assistance and demonstrate its support for the socio-economic development and security of Micronesia.[254]

Figure 32
The United States' strategic approach in the Pacific



Source: The New Lines Institute for Strategy and Policy.[255]

The United States' assistance in FAS is based on building partnerships largely through community engagement and maritime security activities. As for Nauru and Kiribati, law enforcement authorities from those two countries can also leverage US defense platforms. The US partnership with Australia has touched all five MCO Micronesia countries, and the two nations have progressively conducted military activities in the sub-region. Although Australian defense engagements in Micronesia date back decades,[256] they have grown stronger in recent years, especially in the maritime security domain.[257] Further defence collaboration between the United States and its allies and partners in Micronesia is an area to watch.

The implications of US armed forces' involvement in Micronesia are wide-ranging, especially in the FAS, given the comprehensive CoFA arrangements that govern "all aspects of the relationship that the United States has with each of these [FAS]."[258] Continued environmental degradation and conflicts

[254] USIP China-Freely Associated States Senior Study Group (2022, September 20). *China's Influence on the Freely Associated States of the Northern Pacific.* Washington D.C.: USIP.
[255] The U.S. in the Pacific [online image]. (2022). The New Lines Institute for Strategic Policy. https://newlinesinstitute.org/.
[256] Shephard, A. (1993, November 25). *Australia's Defence Cooperation Program.* Canberra: Department of the Parliamentary Library. https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id:%22library/prspub/SFI10%22;src1=sm1.
[257] Abke, T. (2024, January 31). *Australia deepens maritime security cooperation with Pacific Island Neighbors*. Indo-Pacific Defense Forum. https://ipdefenseforum.com/2024/01/australia-deepens-maritime-security-cooperation-with-pacific-island-neighbors/.
[258] Office of Insular Affairs. (2024, January 30). *Compacts of Free Association*. U.S. Department of the Interior. https://www.doi.gov/oia/compacts-of-free-association.

over the use of resources (such as water, land and ocean fronts) due to military installations (e.g., airfields, ports and exercise and testing sites) may take place. Sustainable development might be hindered to an extent by maritime security activities that undertake construction and consumption in the place of residents. However, the training of apprentices might boost livelihoods if those activities employ citizens, due to the military build-up in the sub-region. Innovation and digitization, tourism, education, workforce development and emigration may all be oriented toward and/or influenced by military movements and goals. The impact of the United States' engagements in Nauru and Kiribati may not be as extensive, but they certainly will be considered in national politics and policy-making, especially in Kiribati, which lies relatively close to Hawaii. Australian support to US military activities, and vice versa, will feed into what the other does throughout the Pacific Ocean.[259]

UNCTs in Micronesia need to be mindful of the geo-political tensions and military presence in the sub-region, as it has direct implications for sustainable development efforts and donor coordination. Should superpower rivalry in Micronesia increase in intensity in the future, the countries in the sub-region will need to find a means of successfully navigating that dynamic, so as to ensure their desire for peace and development. All in all, it is anticipated that Micronesia will further grow in prominence in the global geo-political arena.

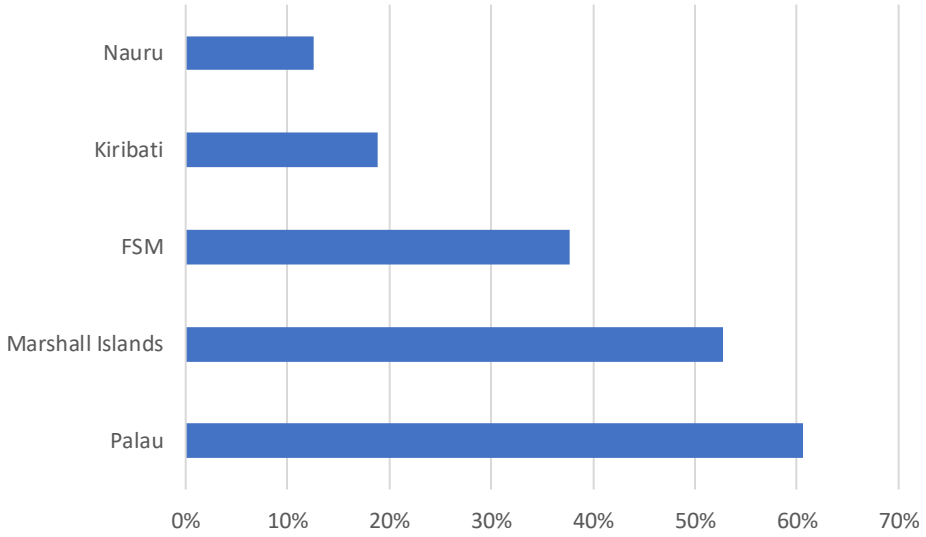
6.3. International cooperation

The Micronesian countries have worked with various external stakeholders, including bilateral development partners, international organizations, international financial institutions (IFIs), CSOs and the private sector, in pursuit of their sustainable development on multiple fronts. Such cooperation must be further fostered, and the United Nations system, which has been involved in the sub-region's development since the end of World War II, has played a leading role. While Australia and the United States remain the primary donors for the islands, other major contributors with grants, concessional loans and technical assistance comprise New Zealand, China, Japan, the European Union, Taiwan Province of China, the United Nations system, the World Bank and Asian Development Bank, among others. Their aid tends to focus on governance, education, health, agriculture, forestry and fishing, water, humanitarian assistance and energy issues.[260]

Foreign aid has significantly supported Micronesia's fiscal management. Figure 33 shows the share of official development assistance (ODA) in government revenues for Micronesia in 2022. Three compact countries, Palau, FSM and Marshall Islands, show larger ODA shares than the other two nations, Nauru and Kiribati. Nearly two-thirds of Kiribati's public revenues were earned through fishing licenses, while Nauru received financial support through private sector activities, as well as the Australian Regional Processing Centre. However, foreign aid flows have tended to fluctuate, increasing uncertainty for fiscal management.[261] The Micronesian nations' small economic base and narrow fiscal space, compounded by losses caused by occasional external shocks and natural disasters, mean that their reliance on foreign aid has been some of the highest globally, whether on a per capita basis or as a proportion of GNI.[262]

[259] Trainor, M. (2021, November 26). *ADF builds partnerships in Palau*. Defence Australia. https://www.defence.gov.au/news-events/news/2021-11-26/adf-builds-partnerships-palau.
[260] Lowy Institute (2024). *Pacific Aid Map*. https://pacificaidmap.lowyinstitute.org/.
[261] Ibid.
[262] World Bank Group (2023a). *Net official development assistance and official aid received (current United States dollars)*. https://databank.worldbank.org/source/world-development-indicators.

Figure 33
Foreign aid in 2022
As % of the government budget



Source: IMF.[263]

Apart from the bilateral donors and international development agencies, the Micronesian countries have joined regional organizations such as the Pacific Island Forum (PIF) and the Pacific Islands Development Forum (PIDF).[264] [265] The Secretariat of the Pacific Community (SPC) also provides various technical assistance to the countries of Micronesia.[266] The Micronesia Islands Forum (MIF) and the Micronesian Presidents' Summit (MPS) were also established to promote regional cooperation within Micronesia.[267] To date, all five Micronesian countries (Palau, FSM, Marshall Islands, Nauru and Kiribati), four FSM states (Yap, Chuuk, Pohnpei and Kosrae) and two US territories (Guam and CNMI) are members of the MPS.[268] In addition, India, Japan, Republic of Korea and the United States regularly convene regional forums with PICTs, including the Micronesia countries.[269] [270] [271] [272] Finally, China has actively extended its economic and diplomatic engagements with Micronesia.

[263] Various IMF Article IV Staff Reports. See: https://www.imf.org/en/Publications/SPROLLs/Article-iv-staff-reports#sort=%40imfdate%20descending.
[264] Pacific Islands Forum (2023). *Marshall Islands, Forum Members*. https://www.forumsec.org/marshall-islands/.
[265] Pacific Islands Development Forum (2023). *Marshall Islands.* https://www.pidf.int/members-rmi/.
[266] The Pacific Community (n.d.). https://www.spc.int/.
[267] Micronesian Islands Forum (2008, February). *9th MCES Joint Communique, February*.
[268] Micronesian Islands Forum (2023, April). *25th MCES Joint Communique, April*.
[269] Ministry of Foreign Affairs of Japan (2023). *Pacific Islands Leaders Meeting (PALM)*. https://www.mofa.go.jp/region/asia-paci/palm/index.html.
[270] Pacific Islands Forum (2023, May 29). *Declaration and Action Plan of the 1st Korea-Pacific Leaders' Summit, 2023*. https://www.forumsec.org/2023/05/29/report-declaration-and-action-plan-of-the-1st-korea-pacific-leaders-summit-2023/.
[271] Ministry of External Affairs, Government of India. *Forum for India-Pacific Islands Cooperation*. https://www.ficci-fipic.com/about.html.
[272] United States Department of State (n.d.) *Indo-Pacific Strategy*. https://www.state.gov/subjects/indo-pacific-strategy/.

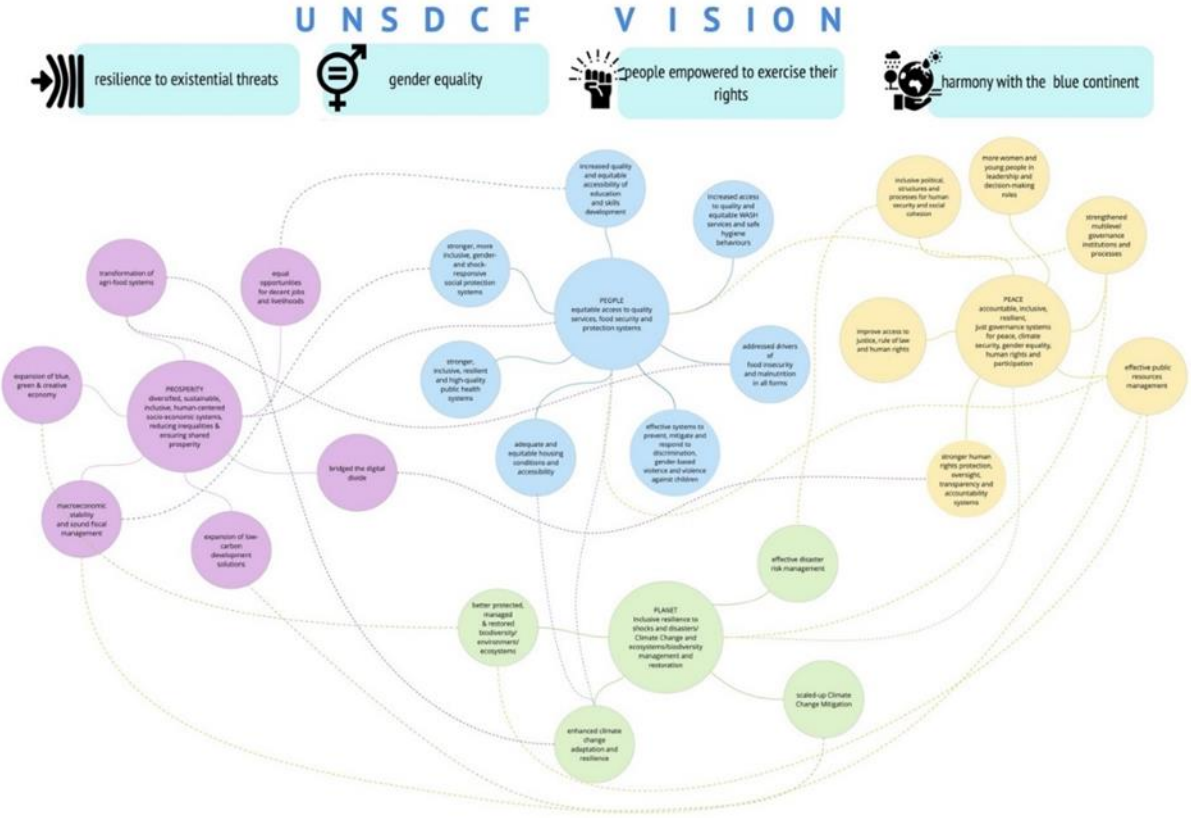
6.4. The United Nations in Micronesia

The United Nations Multi-Country Office (MCO) for Micronesia, headed by the United Nations Resident Coordinator, coordinates the United Nations' system-wide development initiatives in Micronesia. It is based in Kolonia, Pohnpei, FSM, and serves the five Northern Pacific states. Together with the MCO, the United Nations Country Teams (UNCTs) support the Micronesian countries in meeting their national development priorities and achieving the SDGs. Currently, over 20 United Nations entities and agencies have implemented programmes and projects in Micronesia.[273] The countries also remain partners under several United Nations joint programmes and projects in Micronesia, typically managed by the UNCTs' regional offices in Apia, Bangkok, Jakarta, Kolonia, Kuala Lumpur, Manila and Suva.[274] The MCO has opened satellite offices in Palau (Koror), Marshall Islands (Majuro), Nauru and Kiribati (South Tarawa) to provide country-specific assistance in coordinating with various UNCT members.

Developed by the MCO and its counterparts in Fiji and Samoa, the United Nations Pacific Sustainable Development Cooperation Framework (PSDCF) 2023-27 aims to accelerate ongoing and future investments for the SDGs in the Pacific, to be funded by domestic resources, debt, bilateral or multilateral development assistance, as well as national and international private financing. The PSDCF has been implemented in line with relevant national development plans and regional strategies, particularly PIF's most recent 2050 Strategy for the Blue Pacific Continent.[275] The PSDCF also mainstreams multisectoral resilience, gender equality, human rights and the blue economy across its entire framework, from its vision and theory of change, through outcomes and indicators, to tracking and reporting on progress. The framework is articulated around the 2030 Agenda's main pillars: planet, people, prosperity and peace. The partnership pillar is principally a means of implementing programmes to be developed under each thematic area. Figure 34 below presents an overview of the framework.

[273] Ibid.
[274] The United Nations Micronesia (2023). *Republic of the Marshall Islands: United Nations Country Implementation Plan (CIP), January 2023 – December 2024*.
[275] The United Nations in the Pacific (2022).

Figure 34
The PSDCF framework



Source: United Nations.[276]

In the previous five-year programming cycle (2018-2022), the Pacific UNCTs disbursed over $700 million to the PICTs under the United Nations Pacific Strategy (UNPS) 2018-2022, albeit down from close to $1 billion during the 2013-2017 development framework.[277] This relative decline is primarily attributed to the impact of the COVID-19 pandemic on the United Nations' operations and the capacity of the PICTs to continue with investments and absorb funds during major operational restrictions stemming from the pandemic. In the present 2023-2027 programming cycle, the UNCTs are expected to increase their programme expenditures to nearly $2 billion, by expanding programme coverage, the number of activities and human resource deployments.[278]

Box 8
The United Nations' "Six Transitions" and "UN 2.0" development strategies

At the most recent SDG Summit, held in New York City in September 2023, the United Nations proposed six significant transitions in further driving progress towards the SDGs by 2030.[279] The critical transitions that can have catalytic and multiplier effects across the SDGs comprise:

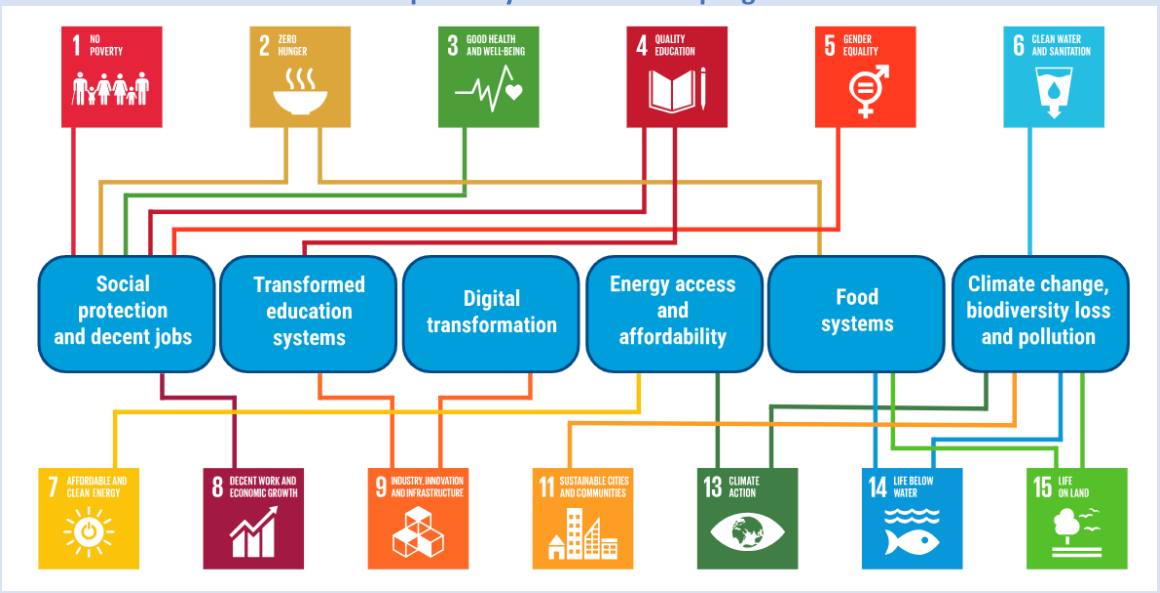
(i) Food systems;

[276] Ibid.
[277] United Nations in the Pacific (2022, April). *United Nations Pacific Strategy (UNPS) 2018-2022: Final Evaluation Report, April 2022*.
[278] United Nations Development Coordination Office (DCO) (2024, June). *DRAFT: Pacific Country Implementation Plans: Analysis of framework data, June 2024*.
[279] United Nations Sustainable Development Group (2023, September*). Six Transitions: Investment Pathways to Deliver the SDGs, September 2023*. New York: The United Nations.

(ii) Energy access and affordability;
(iii) Digital connectivity;
(iv) Education;
(v) Jobs and social protection; and
(vi) Climate change, biodiversity loss and pollution.

The below figure presents the overall picture of six transitions and their associations with the SDGs. As seen, four SDGs (i.e., SDG10 "Reduces inequalities", SDG12 "Responsible consumption and production", SDG16 "Peace, justice and strong institutions" and SDG17 "Partnerships for the goals") are excluded from the framework.

Figure 35
Six transformative pathways to accelerate progress towards SDGs



Source: UNCTAD.[280]

Micronesia's development agenda suggests the six transitions will play a critical role in realizing the SDGs for which this sub-regional study is intended to help provide a relevant strategic direction for the sub-region.

Simaeltenously, the United Nations Secretary-General launched the "UN 2.0" which aims to modernize the United Nations system by creating a forward-thinking culture and developing cutting-edge skills to fit the present-day challenges. This vision with a powerful fusion of data, innovation, digital, foresight and behavioural science expertise grounds toward stronger organizational culture and transforms the United Nations system towards agile, diverse, responsive and impactful entities.[281]

UN 2.0's four major strategies are:

(i) Upgrading system-wide skillsets;
(ii) Adapting diverse cultures;
(iii) Shifting internal resources for more impactful purposes; and

[280] UNCTAD (2024). *Six pathways to sustainable development*. https://unctad.org/sdg-costing/about#.
[281] United Nations (2023). "UN 2.0: Forward-thinking culture and cutting-edge skills for better United Nations system impact", *Our Common Agenda Policy Brief 11*, September. https://www.un.org/two-zero/sites/default/files/2023-09/UN-2.0_Policy-Brief_EN.pdf.

(iv) Facilitating internal changes for greater external results.

UN 2.0 is expected to be a major accelerator to implement the six transition development strategies by working closely with all the member states.

Box 9
Multidimensional vulnerability index (MVI)

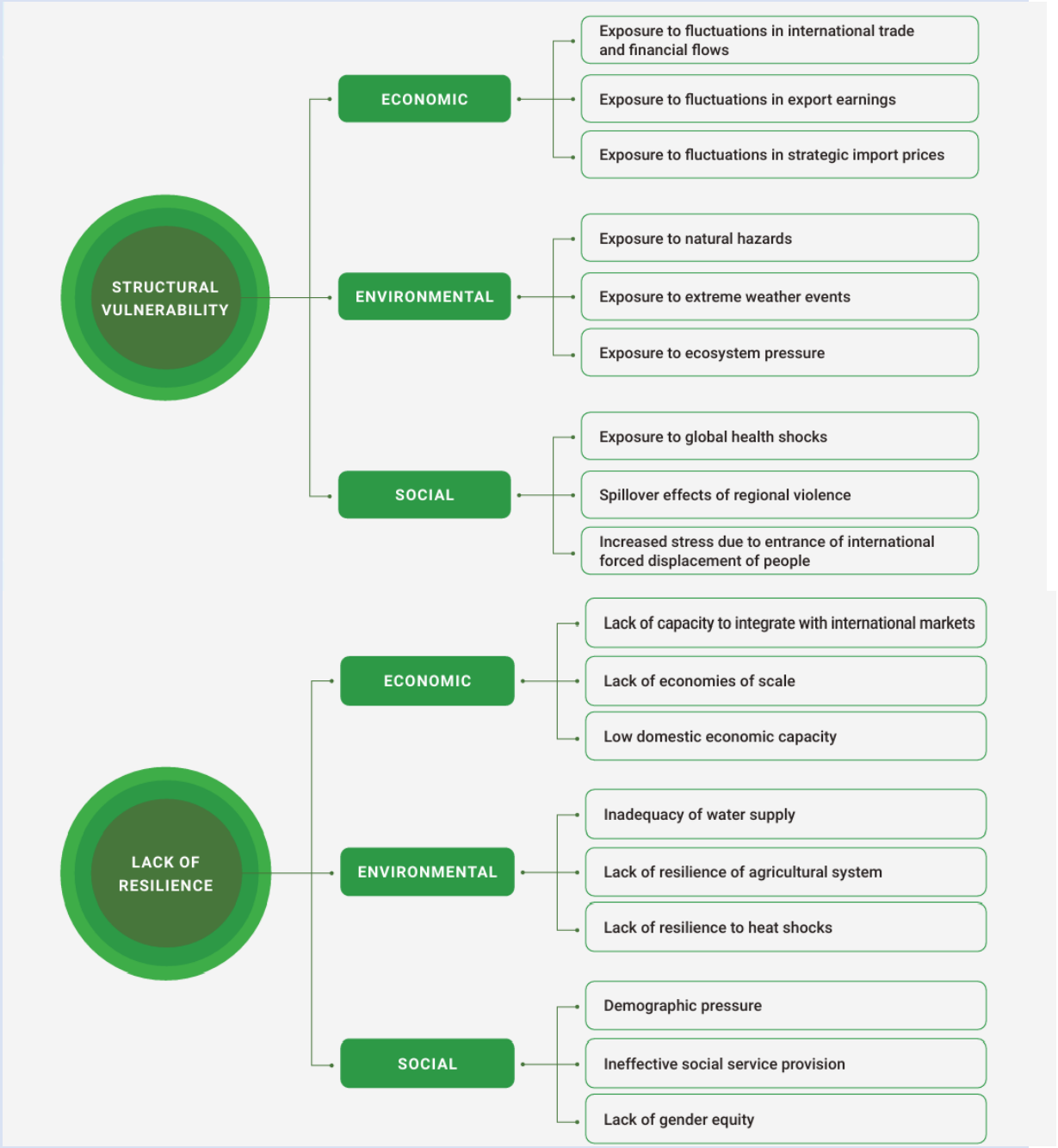
In 2020, the United Nations General Assembly requested the development and coordination of work within the United Nations system on a multi-dimensional vulnerability index (MVI) for SIDS. The MVI assesses the vulnerabilities of SIDS and serves as a criterion for access to, and allocation of, concessional resources among countries.[282]

Expanding its country coverage, in August 2024, the United Nations General Assembly adopted the MVI for all developing member States. Its essential dimensions are economic, environmental and social, categorized into two streams: structural vulnerability and lack of resilience (see figure 36).[283] The economic dimension is the risk of the economy being affected by exogenous shocks, either of external or natural origin (thereby including the economic effects of environmental or health shocks). The environmental dimension consists mainly of the physical vulnerability to climate change. The third dimension is the risk of being impacted by social shocks, mainly episodes of violence, and also health shocks such as epidemics. Alongside the three dimensions of vulnerability, the resilience of a country is its capacity to face and manage exogenous shocks, whether economic, environmental and linked to climate change, or social. This resilience results from structural or related factors, reflecting countries' inherited capacity and populations to face and cope with external shocks. Taking resilience into account allows for a better understanding of the structural handicaps developing countries, including those in Micronesia, face.

[282] Sachs, J., Massa, I., Marinescu, S. & Lafortune, G. (2021, July 12). "The Decade of Action and Small Island Developing States: Measuring and addressing SIDS' vulnerabilities to accelerate SDG progress", *Working Paper*. Sustainable Development Solutions Network (SDSN). https://irp.cdn-website.com/be6d1d56/files/uploaded/WP_MVI_Sachs%20Massa%20Marinescu%20Lafortune_FINAL_cVeeBVmKSKyYYS6OyiiH.pdf.

[283] United Nations (2024, July 17). *Draft resolution submitted by the President of the General Assembly, Multidimensional vulnerability index, A/78/L.98, 17 July*, Seventy-eighth session, Agenda item 18 (b), Sustainable development: follow-up to and implementation of the SIDS Accelerated Modalities of Action (SAMOA) Pathway and the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States.

Figure 36
The two-stream/three-dimension MVI framework



Source: United Nations.[284]

According to the specific findings of the MVI, in the future Micronesia should focus most on improving infrastructure, introducing essential social protection schemes and promoting the tourism sector to help enhance climate change resilience, create employment and improve livelihoods, while also securing international assistance.

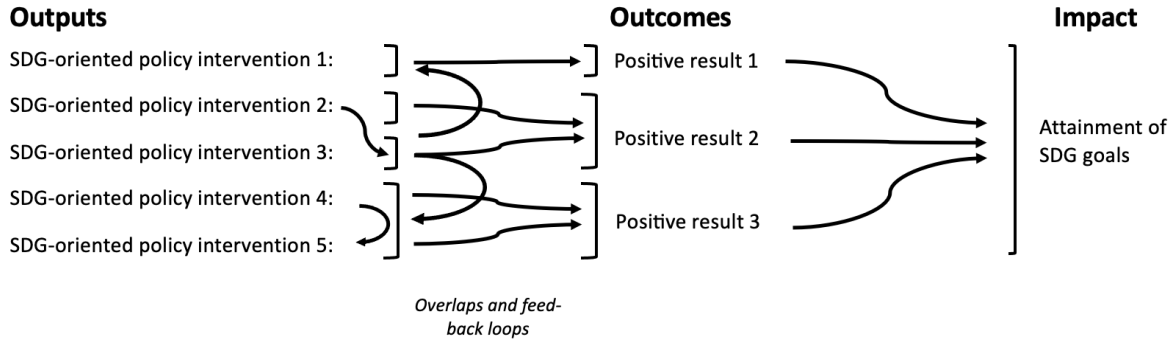
[284] United Nations (2024, February). *High level panel on the development of a Multidimensional Vulnerability Index: Final Report, February 2024, Final Edited Version*. New York: United Nations President of the General Assembly's High Level Panel on the Development of a Multidimensional Vulnerability Index.

7. Risks and Opportunities in Attaining the 2030 Agenda: Adopting a holistic development approach, the "BlueEARTH"

This final section of the sub-regional study seeks to identify some crucial risks posed for Micronesia in attaining the SDGs, emanating from the observations cited in the previous sections of this sub-regional study. This is not an exhaustive checklist, nor does it seek to go into great depth. Rather, it aims to delineate and prioritize some of Micronesia's most pressing challenges that could be the basis for further policy advocacy for the sub-region, and propose emerging opportunities for policy-makers in attaining the SDGs.

There are considerable overlaps and inter-linkages between the 17 SDG goals and the challenges posed in attaining them. Thus, while it is useful to clearly define each of these, for clarity and a strategic allocation of resources, the actual pursuit of these goals necessitates taking a holistic approach, and, conversely, avoiding the temptation to adopt a "silo approach" (see figure 37 below). Gains made in one area field may have a positive (or negative) knock-on effect in another area, while a lack of progress in one area could pose a negative drag on another. For example, NCDs and health issues in Micronesia are partly related to diet and a high dependency on imported low-nutrition foods. Not only is there a need for a lifestyle change but there is also a need to seek economic solutions that lessen Micronesia's dependence on imported products. But any import substitution programme must overcome the stark reality that most imported produce is typically cheaper than any real or potential home-grown equivalents. And there is a need for education and advocacy work as well. Thus, addressing health issues in Micronesia also necessitates interventions on the economic and socio-cultural fronts.

Figure 37
Overcoming the silo approach



Source: The authors.

There is also a need to prioritize and pursue a strategy most likely to bring about the greatest desirable impact, relative to the limited resources and institutional capacity available (cf., UN 2.0). In the context of competing demands for finite funding and resources, effective prioritization becomes critical in achieving the greatest net positive impact. However, those calculations, articulated in various development strategies and other policy documents, are not static and are prone to changes triggered by events and other exogenous factors. The recent COVID-19 pandemic is a good example, with a "different Micronesia" coming out of the pandemic, back into a world that is also different from the one before the pandemic struck in early 2020. The following table 9 summarizes the most pertaining development risks and their examples in Micronesia, classified based on the 5Ps framework. As seen, they are not exclusive but interlink in various paths that require a holistic development approach.

Table 9
Major development risks in Micronesia

5Ps	Risk provisions	Examples	Indicators
People	• Weak food security	• Micronesia imports nearly (or over) 90 per cent of its food, much of which is low in nutritional quality. • Even a short disruption in shipping could cause food stocks to run out quickly. • A longer disruption, such as one caused by a conflict, pandemic or natural disaster, could be disastrous (e.g., supply, price and quality).	• Share of imported food in total nutrition • NCD prevalence • Health data • Transportation quality
	• Poor public healthcare services and prevalence of NCDs	• Micronesia has high rates of NCDs such as obesity and anemia due to limited local food supplies and an increasing reliance on imported foods that lack proper nutrition.	• Share of imported food in total nutrition • NCD prevalence • Health data
	• Poor education attainment and lack of national higher education institution	• Micronesia has a high dropout rate, particularly among boys at the secondary level and unequal access to quality education. • There is also a lack of national tertiary institutions in Micronesia.	• Education data • Dropout rates • Institutional education structure
	• Prevalent poverty and increased inequality in rural areas and outer islands	• FSM has the highest poverty rate and inequality level in Micronesia, with 16 per cent of the population living on less than $2.15 per day. • FSM also has a low GINI index of 40.1. • Marshall Islands and Kiribati, widespread atoll nations, have shown growing inequality between urban and rural areas or capital and outer islands.	• Income levels and distributions • Demographic trends • Inter-island migration
	• Outward migration and declining populations	• There are high levels of emigration from Micronesia, particularly to the United States under the Compact of Free Association (COFA) agreements. • This can lead to a "brain drain" and a shortage of skilled workers.	• Demographical trends (e.g., populations and migration stocks)
Prosperity	• Lack of resilient, diversified and sustainable private sector	• Micronesia has a narrow economic base, with a heavy reliance on tourism, fisheries, agriculture inward remittances and development partner assistance. • The private sector in Micronesia is underdeveloped and fragile, making it difficult for the countries to diversify their economies and become less reliant on external assistance. • Both domestic and foreign private investments have been weak.	• Various economic data (sectoral distribution, trade and investment) • Government budgets and expenditures

		• Low private investments leading to (i) inactive tourism sector; (ii) less value-added fishery sector; and (iii) slow digitalization. • State-owned enterprises (SOEs) often have to provide services that would normally be handled by the private sector. • These SOEs are often inefficient and lose money. • Digitalization's benefits have yet to be seen.	• Various development indexes
	• Heavy reliance on foreign aid	• Micronesia is heavily dependent on grants and assistance from development partners, particularly the United States and Australia as well as other donors and MDBs. • This can make the countries vulnerable to changes in donor priorities.	• Various economic data (sectoral distribution, trade and investment) • Government budgets and expenditures • ODA data
	• Poor or outdated infrastructure and utilities	• There are significant infrastructure deficits in Micronesia, particularly in the areas of utilities, transport and telecommunications. • These deficits are made worse by climate change and natural disasters, which are damaging critical infrastructure.	• National development plans • National infrastructure development plans • Various socio-economic statistics
Planet	• Degrading in a pristine and unique ecology, biodiversity and marine resources	• Climate change is harming biodiversity in Micronesia. • Pollution, overfishing and invasive species also threaten biodiversity. • Micronesia must adopt the blue economy strategies.	• Various environmental data • Government budgets and expenditures • National development strategies • NVRs
	• Lack of diversified funds and technical assistance for climate change actions	• Climate change is an existential threat to Micronesia, causing sea-level rise, storm surges, ocean acidification and coral bleaching. • The countries are highly vulnerable to the impacts of climate change, and adaptation measures are costly while lacking adequate funds to tackle the issues. • International commitments for climate justice have been weak.	• National budgets • National development plans • NVRs • Various international climate and DRR indexes

	• Lack of holistic strategies for DRR	• Micronesia is highly vulnerable to natural disasters such as typhoons, earthquakes and tsunamis. • Climate change is increasing the frequency and intensity of these disasters • The Sendai Framework for Disaster Risk Reduction 2015-2030) must be revisited.	• National budgets • National development plans • NVRs • Various international climate and DRR indexes
	• Nascent circular economy development	• Micronesia has insufficient waste management systems, posing a risk to public health and the environment. • The increasing use of digital devices is leading to more e-waste, which is a particular challenge.	• National budgets • National development plans • NVRs
Peace and partnership	• High need to empower and protect women, as well as other underprivileged groups	• Gender inequality is a significant issue in Micronesia, with women facing discrimination in education, employment and political participation. • There are also high rates of violence against women. • Micronesia faces human rights challenges, including limited access to basic services, child abuse, gender discrimination and human trafficking. • There are also concerns about the rights of climate refugees and those displaced by mining activities. • Attention is lacking on youth, elders, disabled and LGBTQ+. and informal labourers.	• National budgets • National development plans • NVRs • Ratification of human rights treaties • Various human rights indexes
	• Limited dialogue and coordination channels for labour issues	• While promoting growth through economic diversification and greater private-sector investment and participation (both domestic and foreign) is important, Micronesia needs to respect fundamental labour standards related to freedom of association, collective bargaining and social protection, including social security. • Economic growth has accelerated inequalities and also not improved government revenues (if growth and incomes end up at the capital end as against the labour, the domestic demand and tax revenues, especially those linked to consumption, do not grow much). • Tripartite social dialogues are encouraged to ensure representation and voice to the domestic stakeholders in influencing development policies. • Attention is lacking on informal labourers.	• Ratification of labour rights treaties • Eatablsihment of tripartite institutions • National development plans • NVRs • Various economic, business and labour indexes

	• Lack of understanding of a pragmatic approach towards geo-political competition and partnership	• Economic disparities and dissatisfaction with the federal government are observed. • The countries of Micronesia have limited institutional capacity, making it difficult to effectively implement development policies and programmes. • This is a particular challenge in areas such as disaster risk reduction and environmental protection.	• National budgets • National development plans • NVRs • Various development indexes
	• Lakc of regional attention on nuclear legacy	• Those displaced have not been satisfied with the justice and compensation in the past. • The provisions of science and research works have not been adequately mobilized. • There is a legitimate concern that the nuclear legacy issues could be escalated at the Pacific level as there have been many nuclear bomb tests in the region.	• National budgets • National development plans • NVRs • Various human rights indexes
	• Poor regional cooperation and partnership	• Geo-political tension has been observed in Micronesia. • This can make it difficult for the countries to balance their relationships with both powers. • There are challenges in coordinating development assistance from various partners. • This can lead to duplication of effort and a lack of alignment with national priorities. • Addressing these risks effectively will require strengthening partnerships, improving governance, promoting sustainable economic growth and investing in human capital.	• Qualitative data. • Diplomatic documents. • Various journalistic materials.

Source: The authors.

This sub-regional study would argue that the post-pandemic period allows Micronesia to reset some of its development priorities and reposition itself in a regional and global context different than before 2020-2023. While the various recommendations provided below are valid avenues to pursue, in and of themselves, in combination they can be part of a new development narrative for Micronesia, leveraging its greatest strengths and current opportunities, while seeking to address or mitigate some of its key weaknesses.

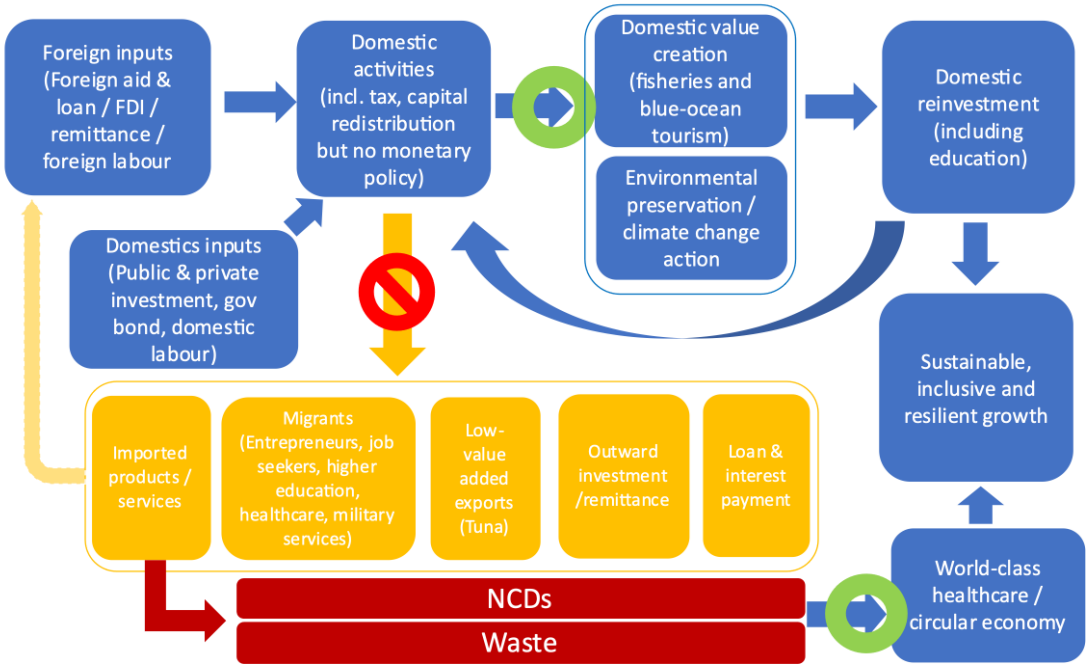
Navigating a way through increasing geo-strategic competition, Micronesia has faced various challenges and conundrums, as profiled in this sub-regional study, spanning: education, healthcare, nutrition, labour, migration, infrastructure, trade and investment, tourism, finance, the private sector, climate change, natural disasters, the blue economy, biodiversity, gender and youth, the circular economy, etc. To a lesser or greater extent, all these issues stem in part from one crucial dilemma, that is: Micronesia has come to depend significantly on foreign external inputs, capital and knowledge, while at the same time steadily diminishing its valuable domestic assets (whether they be capital, human, tangible or intangible in form) to others, and particularly Australia, China, Fiji, Japan, New Zealand, Republic of Korea, the United States and other neighbouring countries. This vicious cycle has largely resulted from historical sovereign development and geo-political settings around the sub-region. But it need not define Micronesia's future.

Money flowing into Micronesia or generated within the sub-region can either contribute to domestic value creation or be lost through outflows. To foster sustainable growth, key assets must remain within Micronesia, enabling local reinvestment and fuelling a more virtuous cycle of sustainable development. The sub-region should therefore prioritize the value creation process within its oceans, which should serve to effectively halt the outflow of assets, and promote the inflow of investments and re-investments within the sub-region.

For instance, significant amounts of money are spent on imported goods and foods. While certain food products, like rice and wheat, may not be producible within Micronesia, there are opportunities to locally produce other goods or seek equivalent substitutes, which are usually better in nutritional terms, and prevent NCDs, thereby reducing healthcare costs and enhancing food security. Another issue is that those imported goods, such as cars, motorcycles, furniture and canned foods and drinks, will eventually increase the amount of waste at the very end of these value chains, where Micronesia is located, and which urgently requires the implementation of circular economy practices, such as recycling, reuse, remanufacture and environmentally right dumping, or returning to the source nations. Presently, locally caught tuna is also exported without processing, leading to low prices and reduced income for the local economies. Earnings received by foreign immigrants, who play an important economic role in Micronesia, are often remitted back to their home countries. To retain money within the sub-region, it is crucial to develop a more self-reliant and skilled workforce capable of fulfilling jobs across various fields. This requires sufficient education and healthcare services to citizens in all necessary and specialized fields so that the money they earn stays within the home economy, and can circulate within the country. Another significant outflow of money stems from investments made overseas. The lack of a conducive business environment in Micronesia discourages local and inward foreign investment flows. The funds lost through these investments in foreign markets should instead be reinvested within local boundaries, with the aim of fostering sustainable, inclusive and resilient development.

It is recommended that Micronesia focus on retaining money within the country by emphasizing domestic value-creation processes, reducing outflows and investing retained earnings in local markets. This approach should contribute to socio-economic growth, self-reliance and sectoral diversification. Figure 38, below, depicts the problem in Micronesia as a simplified value chain.

Figure 38
Micronesia's simplified value creation or losing chains



Source: The authors.

The figure suggests four critical policy implications:

(i) Micronesia should focus on investment in domestic (or sub-regional) value creation in a diversified range of sectors (e.g., agriculture and fisheries, light industry, services and the private sector, infrastructure, education, environmental protection, climate change adaptation, digitalization), as well as healthcare and waste management to safeguard against the negative impacts of imported foods and goods;

(ii) Micronesia should work to discourage value outflows through various channels (e.g., imported goods, foods and fuels, outward migration, low-value-added exports, outward FDI and loan repayments) by implementing relevant counter-measures (e.g., laws and regulations, taxes and duties, incentives, contracts and procurement, institutional capacity building and human resource development);

(iii) Micronesia needs to protect its pristine and unique environment and rich biodiversity by adopting climate change-related activities, and developing sustainable infrastructure and utility provisions that can diversify and deepen its sectors further, including the agriculture, fishery and tourism sectors. While the impacts of climate change pose an existential threat to Micronesia, it also has the potential to be a vehicle by which the country can raise technical assistance and funding support to develop sustainable approaches to infrastructure and utility provision, as well as other interventions intended to protect the sub-region's unique environmental assets. Activities that could attract international private sector funding and other support include (but are not limited to): environmental and marine sanctuaries; solar energy; onshore and offshore windfarms; energy generation from tidal forces; reducing emissions from deforestation and forest degradation (REDD+) and improved forest management; reforestation and sustainable agriculture; biomass and methane from landfills; fuel switching (e.g., shifting land and coastal traffic to EV); waste diversion and recycling; weatherization, etc.;

(iv) Potential contributions from thematic bonds,[285] climate risk disclosure and reporting, debt-for-climate swaps[286] and enabling policy frameworks that can enhance the flow of finance to climate mitigation and adaptation projects could also benefit Micronesia. The rapidly growing market for thematic bonds, such as green, blue, social, sustainability and climate bonds, and carbon credits/offsetting, provide an opportunity to raise additional financing dedicated to climate action and the SDGs. The rise of environmental, social and governance (ESG) practices and impact investing may also offer some new funding opportunities and investment activities, such as in aquaculture. In this context, the direction of travel in financial markets and investment management is broadly in Micronesia's favour. And while individual Micronesian countries alone may struggle to achieve economies of scale necessary to make such initiatives adequately viable, it could work in concert with other PICTs to pursue activities of shared mutual benefit, with the assistance of development partners;

In partnership with stakeholders, including other SIDS in the Pacific, bilateral development partners, multilateral development agencies (MBDs), IFIs and others (e.g., CSOs and the private sector), Micronesia should develop and implement a holistic development framework intended to comprehensively break out of the vicious cycle and strengthen its socioe-conomic fundamentals. Such a strategy would aim to maintain and further develop the domestic value-creation systems within the sub-region, while simultaneously encouraging international cooperation with other countries and entities. Such a framework should seek to bring about greater economic resilience as well as attain a more environmentally sustainable growth trajectory.

In this context, we humbly propose a new development model for consideration by Micronesia, and potentially adaptable to other SIDS globally, called "BlueEARTH". The term BlueEARTH denotes a [Blue] economy, [E]ducation, [A]id, [R]emittances, [T]ourism and [H]ealth. The model builds on some of the key concepts and components of previous SIDS development models, such as MIRAB (see section 2.2) but expands them to cover other crucial issues and challenges that the Micronesian countries and other PICTs are currently contending with, as depicted in this sub-regional study (table 10).

[285] Thematic bonds are debt securities issued by governments and private sector entities on the condition that the funds obtained are used to finance projects with a clear social and environmental impact. Thematic bonds are akin to common fixed-income bonds, offering predictable returns for investors through a fixed coupon in exchange for medium to long-term funding. Different types of bonds are available under the banner of thematic bonds, including (but not limited to): green bonds, social bonds, sustainability bonds and SDG bonds. Within these broad categories, there are sub-categories. For example, green bonds include climate bonds linked to climate mitigation (e.g., projects in solar and wind technologies that reduce GHG emissions) and climate adaptation (e.g., infrastructure projects to protect against rising sea levels and other aspects of climate proofing). Also see: United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2021). *Introduction to Issuing Thematic Bonds*. Bangkok.

[286] A debt-for-climate swap is a voluntary agreement between a debtor country and its creditors, in which the former's debt stock is reduced in exchange for a verifiable commitment to invest in climate mitigation or adaptation projects. In addition to providing debt relief, debt-for-climate swaps can provide a dedicated funding source to the debtor's Nationally Determined Contributions (NDCs) and an opportunity for a developed country creditor to fulfil its climate finance obligations under the United Nations Framework Convention on Climate Change (UNFCCC).

Table 10
The "BlueEARTH" development model

Model	Key elements	Income sources	Enablers
BlueEARTH	[Blue] economy [E]ducation [A]id [R]emittance [T]ourism [H]ealth	Fisheries, foreign development assistance, inward remittances and Blue Ocean tourism	Improved education and healthcare, a more dynamic private sector, environmental preservation, a circular economy, greater international cooperation, better bureaucracy and advances in digitalization

Source: The authors.

The model's merit is in identifying multiple revenue sources for Micronesia, namely: fisheries, foreign development assistance, international remittances and blue ocean tourism. The model also identifies the key enablers: improved education and healthcare, a more dynamic private sector, environmental preservation, a circular economy, greater international cooperation, better bureaucracy and advances derived from increased digitalization. Compared with the conventional development models for SIDS, this model includes new elements: education, healthcare, environmental preservation and the circular economy as key policy issues that Micronesia must address, as they have significantly contributed to migration flows out of the sub-region. This framework can provide the basis for national and international development cooperation for Micronesia among various stakeholders and development partners, as elaborated in this sub-regional study. Mainstreaming environment sustainability, in the pursuit of a robust domestic blue economy, offers the prospect of genuine sustainability. All in all, BlueEARTH aims to break the vicious cycle of the past and serve as a vehicle to create a more virtuous cycle for the future.

Partnerships with bilateral development partners (such as Australia, China, Japan, New Zealand, the United States and EU), regional and international organizations (such as ESCAP, PIF and SPC), multilateral development banks (MDBs, such as ADB and the World Bank) and IFIs can all help bring about positive impacts. Harnessing the financial and non-financial (technical) capacities of these institutions, and their considerable prior experience, is highly recommended. Within the Pacific, partnering with other PICTs to develop joint approaches to regional socio-economic and environmental issues of mutual concern can also be beneficial, sharing and leveraging resources, and ensuring that "the wheel is not reinvented". Sharing best practices, lessons learned and pursuing innovative approaches to economic development and climate change challenges all help to enhance, not divert, domestic institutional capacity. Further, bilateral and multilateral agreements with neighbouring island countries can help create and strengthen trade and investment ties. This sub-regional study would also argue that integrating blue economy principles into Micronesia's development strategy (i.e., the Blue EARTH) would contribute significantly to the sub-region's sustainable growth prospects. Initiatives might usefully include offshore renewable energy; decarbonized shipping and climate-resilient ports; adopting circular economy principles in production, processing and services; and sustainable marine food production and processing, among others.