BACKGROUND DOCUMENT: TOWARDS GREENER TAXES AND SUBSIDIES IN PACIFIC ISLAND COUNTRIES AND TERRITORIES (PICTs)
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*Front cover photo: Saint Josef Cathedral and Moselle Bay in Nouméa, New Caledonia (Shutterstock)*
Overview of the objectives and components of RESCCUE project:

The Resilience of Ecosystems and Societies to Climate Change (RESCCUE) project is a regional project implemented by the Secretariat of the Pacific Community.

The overall goal of RESCCUE is to contribute to increasing the resilience of Pacific Island Countries and Territories (PICTs) in the context of global changes. To this end RESCCUE aims at supporting adaptation to climate change (ACC) through integrated coastal management (ICM), resorting especially to economic analysis and economic and financial mechanisms.

The RESCCUE project operates both at the regional level and in one to two pilot sites in four countries and territories: New Caledonia, Vanuatu, Fiji and French Polynesia.

RESCCUE is funded primarily by the French Development Agency (AFD) and the French Global Environment Facility (FFEM) for a duration of five years (01/01/2014 to 31/12/2018). The total project budget is 13 million Euros, including 6.5 million Euros from AFD/FFEM and about the same in co-funding.

It is structured around five components:

**Component 1:** Integrated coastal management – supporting ICM implementation through ICM plans, ICM committees, and management activities concerning both terrestrial and marine ecosystems, capacity building and income generating activities.

**Component 2:** Economic analysis – using economic analysis to support coastal management and policy decisions.

**Component 3:** Economic and financial mechanisms – setting up economic and financial mechanisms to generate additional and sustainable funding for ICM: review of options (payment for ecosystem services, taxes, user fees, trust funds, quota markets, offsets, labels...); feasibility studies; implementation; monitoring.

**Component 4:** Capitalization, communication, dissemination of project outcomes in the Pacific – going beyond pilot sites activities in order to have impacts at the regional level, by fostering experience sharing between sites, cross-sectoral expertise, and communication and dissemination of the project outcomes.

**Component 5:** Project management – implementing and coordinating the project, by providing technical assistance, organizing local and regional steering committees, conducting audits and evaluations (mid-term and ex-post), etc.
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List of acronyms

ACC  Adaptation to climate change
ADEME  Agence de l'Environnement et de la Maîtrise de l'Énergie (France)
AFD  Agence Française de Développement
AS  American Samoa
AUD  Australian dollar (currency)
CBD  Convention on Biological Diversity
CGT  Capital gains tax
CHPF  Centre hospitalier de Polynésie française
CK  Cook Islands
CO2  Carbon dioxide
DASP  dispositif d'Aide et de Soutien à la Pêche (French Polynesia)
DDPL  dotation pour le Développement de la Pêche Lagonaire (French Polynesia)
EEZ  Exclusive Economic Zone(s)
EHS  Environmentally harmful subsidies
EIA  Environmental Impact Assessment
EL  Environmental Levy (Fiji)
EMP  Environmental Management Plan
ENSO  El Niño-Southern Oscillation
ETR  Environmental tax reform
EU  European Union
EUR  Euro (currency)
FEA  Fiji Electricity Authority
FIT  Feed-in tariff
FJ  Fiji
FJD  Fiji dollar (currency)
FM  Federated States of Micronesia
FOC  Flag of convenience
FRPH  Fonds de régulation des prix des hydrocarbures (French Polynesia)
FSC  Fiji Sugar Corporation
GDP  Gross domestic product
GHG  Greenhouse gas(es)
GPS  Global Positioning System
GU  Guam
IAS  Invasive alien species
ICM  Integrated coastal management
IFC  International Finance Corporation
IGF  Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
INDC  Intended Nationally Determined Contribution
IPP  Independent power producer
KI  Kiribati
LMC  Luganville Municipal Council
LNG  Liquid natural gas
MH  Marshall Islands
MPF  Mining Policy Framework for Mining and Sustainable Development
MRD  Minerals Resource Department (Fiji)
MSI  Mauritius Strategy for the further Implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States
NC  New Caledonia
NDC  Nationally Determined Contributions to support the Paris Climate Agreement
<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>PET</td>
<td>Polyethylene terephthalate (plastic)</td>
</tr>
<tr>
<td>PF</td>
<td>French Polynesia</td>
</tr>
<tr>
<td>PG</td>
<td>Papua New Guinea</td>
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<tr>
<td>PICTs</td>
<td>Pacific island countries and territories</td>
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<td>PM</td>
<td>Particulate matter</td>
</tr>
<tr>
<td>PNA</td>
<td>Parties to the Nauru Agreement</td>
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<tr>
<td>PV</td>
<td>Photo-voltaic</td>
</tr>
<tr>
<td>PVMC</td>
<td>Port Vila Municipal Council (Vanuatu)</td>
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<tr>
<td>PW</td>
<td>Palau</td>
</tr>
<tr>
<td>RESCCUE</td>
<td>Restoration of Ecosystem Services and Adaptation to Climate Change</td>
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<tr>
<td>SDGs</td>
<td>Sustainable Development Goals</td>
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<tr>
<td>SPC</td>
<td>Secretariat of the Pacific Community</td>
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<tr>
<td>SPEA</td>
<td>French Polynesian Water Services provider</td>
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<td>SWAC</td>
<td>Sea Water Air Conditioning</td>
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<tr>
<td>TEAP</td>
<td>Taxe pour l’environnement, l’agriculture et la pêche (French Polynesia)</td>
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<tr>
<td>TERV</td>
<td>Taxe d’environnement pour le recyclage des véhicules (French Polynesia)</td>
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<tr>
<td>TO</td>
<td>Tonga</td>
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<td>TV</td>
<td>Tuvalu</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNELCO</td>
<td>Utilities concessionaire for electricity and water in Vanuatu</td>
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<tr>
<td>US</td>
<td>United States</td>
</tr>
<tr>
<td>USD</td>
<td>United States dollar (currency)</td>
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<tr>
<td>VAT</td>
<td>Value added tax</td>
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<td>VDS</td>
<td>Vessel day scheme</td>
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<tr>
<td>VEP</td>
<td>VAT Exclusive Price</td>
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<tr>
<td>VU</td>
<td>Vanuatu</td>
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<tr>
<td>VUV</td>
<td>Vanuatu vatu (currency)</td>
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<tr>
<td>WCPFC</td>
<td>Western and Central Pacific Fisheries Commission</td>
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<td>WCPO</td>
<td>Western and Central Pacific Ocean</td>
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<tr>
<td>WS</td>
<td>Samoa</td>
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<tr>
<td>WST</td>
<td>Samoan tala (currency)</td>
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<tr>
<td>WTO</td>
<td>World Trade Organization</td>
</tr>
<tr>
<td>XPF</td>
<td>Comptoirs Français du Pacifique Franc (currency)</td>
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Executive Summary

This document presents information found for Vanuatu, Fiji and French Polynesia as well as a limited number of cases from other Pacific Island Countries and Territories (PICTs) during an initial scoping exercise to identify existing instruments and reform efforts of relevance for greening taxes and subsidies in the region. Nine economic sectors are addressed: mining, fisheries, agriculture, transport, waste management, water management, urban development, tourism and energy.

The document presents a series of actual examples of taxation and subsidies that have, or have the potential to generate, harmful or beneficial environmental impacts. The report is not intended to be an exhaustive regional review, but rather to present illustrative examples of instruments from each of the economic sectors. Where information has been found on specific environmental impacts of the identified taxes and subsidies, this is included in the text. In cases where no specific impacts are outlined, this information has not been readily available during the research for this document. However, efforts have been made to identify the potential environmental impacts that may arise from the various types of fiscal instruments outlined.

Figures 1-9 below provide a summary of the main taxes and subsidies identified in the PICTs during the preparation of this report, the judgement of the authors on the likely broad environmental impacts of the instruments, and potential reform options for consideration to contribute to their further greening. These reform options are indicative, and are intended at this stage to encourage discussion amongst technical and policy specialists in the PICTs for potential future reforms to green taxes and subsidies in their territories.

Figure 10 (in section 3) offers some insights into success factors for greener taxes and subsidies, and maps them against existing instruments from the PICTs (with a particular focus on the RESCCUE PICTs of Fiji, French Polynesia and Vanuatu).

Key to figures 1-9:

- Mainly positive environmental impacts
- Mixed environmental impacts
- Potential negative environmental impacts
- Environmental impacts unclear / no data found

AS – American Samoa
CK – Cook Islands
FJ – Fiji
FM – Federated States of Micronesia
GU – Guam
KI – Kiribati
MH – Marshall Islands
NC – New Caledonia
PF – French Polynesia
PG – Papua New Guinea
PW – Palau
TV – Tuvalu
VU – Vanuatu
WS – Samoa
TO – Tonga
**Figure 1: Fiscal incentives in the mining sector**

<table>
<thead>
<tr>
<th>Examples in the PICTs</th>
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<tbody>
<tr>
<td>NC: Tax credits &amp; fiscal advantages for mining investments</td>
</tr>
<tr>
<td>NC: Fiscal advantages for construction &amp; operation of factories for treatment of nickel or associated ores</td>
</tr>
<tr>
<td>FJ: Mineral prospecting expenditures tax deductible</td>
</tr>
<tr>
<td>VU: Registration fees and conditions for small-scale quarrying permits</td>
</tr>
<tr>
<td>FJ: Royalty payments</td>
</tr>
<tr>
<td>FJ: Environmental bonds, rehabilitation funds, EIA payments, env. monitoring &amp; Environmental Management Plan (EMP)</td>
</tr>
<tr>
<td>NC: Financial guarantee for rehabilitation of mining sites</td>
</tr>
</tbody>
</table>

**Reform options**

- Add environmental criteria
- Consider reducing or abolishing
- Adjust based on level of environmental risk
- Earmark revenue for environmental purposes

**Figure 2: Fiscal incentives in the fisheries sector**

<table>
<thead>
<tr>
<th>Examples in the PICTs</th>
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<tbody>
<tr>
<td>FJ: Import tax exemptions for specialised machinery</td>
</tr>
<tr>
<td>PF: Tax &amp; duty exemptions on equipment and vessels</td>
</tr>
<tr>
<td>VU: Exemptions from trade taxes on materials &amp; equipment, tax exemptions on production inputs &amp; exports</td>
</tr>
<tr>
<td>PF: Aid for lagoon fishermen for purchase of vessels &amp; small equipment</td>
</tr>
<tr>
<td>Access fees for foreign vessels to fish in PICT waters</td>
</tr>
<tr>
<td>PF: Exemption from fuel duties &amp; taxes for coastal fishers*</td>
</tr>
<tr>
<td>FJ: Fishing licence and registration fees</td>
</tr>
<tr>
<td>FJ: Fishing licence fees</td>
</tr>
</tbody>
</table>

**Reform options**

- Consider adding environmental criteria
- Add environmental criteria
- Consider reducing or abolishing
- Add environmental criteria
- Implement strict quotas (catch / no. of days)
- Consider reducing or abolishing, or replacing with alternative support with environmental criteria
- Improve enforcement
- Consider cap on no. of licences issued

*Also relevant for the energy sector*
Figure 3: Fiscal incentives in the agriculture sector

Examples in the PICTs

PF: Tax credits for investments in agriculture & livestock farming
FJ: Tax relief for biofuel production, duty free imports for equipment & chemicals*
VU: Subsidies for fossil fuel (diesel, LNG, petroleum) used in sector*
FJ: Sugar Development Programme
PF: Price support fund for copra/coconut
FJ: Foreign import tariffs, subsidies & tax breaks for dairy
VU: Support for agricultural adaptation to climate change/ extreme weather events

Consider adding environmental criteria
Add environmental criteria
Reduce or abolish
Consider adding environmental criteria
Extend to additional locations

*Also relevant for the energy sector

Figure 4: Fiscal incentives in the waste management sector

Examples in the PICTs

FJ, NC, PF, FM, TO, AS, GU, VU: Waste collection fees
VU: Landfill tipping fee
VU, KL: Pay-as-you-throw (pay per bag) schemes
FP, PW: Beverage container deposit fees
PF: Tax credits for investments in collection, sorting, recycling, recovery & treatment of household and/or industrial waste

Consider increasing
Consider applying ‘pay-as-you-throw’ approach
Improve enforcement
Consider scheduled increases in fee
Consider wider implementation/ require households to participate
Consider extending deposit to additional types of container
Improve enforcement
Improve enforcement
Improve enforcement
Figure 5: Fiscal incentives in the water management sector

Examples in the PICTs

FJ: Drainage levy and drainage subsidies*
FJ: Water Resources Act to apply fees for the use of water resources for bottling
FJ, PF: Water pricing
VU, PF, NC: Fixed & variable block tariff water pricing
PF: Cross-subsidisation of water & wastewater systems (Bora Bora)

Reform options

Add environmental criteria
Consider earmarking revenue for environmental purposes
Improve enforcement
Consider earmarking revenues to water sector

*Also relevant for the agriculture sector

Figure 6: Fiscal incentives in the urban development sector

Examples in the PICTs

PF: Tax on aggregates extraction
FJ: Capital gains tax (CGT) on sales of capital, including property
PF: Adjusted tax rate for wood for use in construction
PF: Tax credits on investments in construction of non-equipped buildings
FJ: Residential housing development package (tax exemptions, import duty for equipment and machinery, subsidy on proportion of capital expenditure)
PF: Loans/financing for installation of Sea Water Air Conditioning (SWAC) at main hospital

Consider adding environmental criteria

Reform options
Figure 7: Fiscal incentives in the tourism sector

<table>
<thead>
<tr>
<th>Examples in the PICTs</th>
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<tbody>
<tr>
<td>FJ, VT, PF: Tax concessions/credits for development &amp; operation of tourism facilities*</td>
</tr>
</tbody>
</table>
| FJ: Increased VAT on hotels  
VT: Hotel and premises tax on tourism-related businesses  
KI: Hotel turnover tax, departure tax and Cruise Ship head tax  
WS: Hotel occupancy tax |
| FJ: Environmental Levy on tourism-related businesses^ |
| Consider adding environmental criteria |
| Consider earmarking revenues for environmental purposes |
| Ensure effective earmarking for environmental purposes  
Monitor impacts |
| TO: Cruise ship levy# |
| PW: Green Fee from departure tax# |
| MH: Green Fund accrues revenue from tourism # |
| FJ, WS: Entrance fees for access to conservation areas |

*Also relevant for the urban development sector  
^ Also relevant for the urban development and transport sectors  
# Also relevant for the transport and waste management sectors
Figure 8: Fiscal incentives in the transport sector

VU, FJ, PF, NC: Duty free stay periods for yachts*

PF: Duty free fuel for yachts on departure^ 
NC: Duty free diesel & petrol for yachts^ 
CK: Air route underwrite agreements*

PF: Electric/hybrid vehicles exempt from vehicle circulation tax & VAT 
FJ: Fiscal duty & import excise exemptions for hybrid & electric vehicles

Consider reducing or abolishing 
Pass on (a proportion) to passengers

FJ: Bus operator and travel incentives^ 
PF: Tax credits on investments in new vehicles for terrestrial public/school transport, inter-island shipping, international air transport etc."

PF: Subsidies for purchase of cleaner vehicles% 
FJ: Airport departure tax*

Consider adding environmental criteria regarding end-of-life tyres 
Consider adding environmental criteria 
Consider extending duration 
Consider earmarking revenue for environmental purposes

*Also relevant for the tourism sector 
^Also relevant for the energy and tourism sectors 
# Also relevant for the urban development sector 
^ Also relevant for the tourism and urban development sectors 
% Also relevant for the energy sector
*Also relevant for the transport sector
Introduction and context

This Background Document has been developed as part of the study *Towards greener taxes and subsidies in Pacific Island Countries and Territories (PICTs)* (Contract No. CC16/273). The study will contribute to the regional programme of activities of the RESCCUE project (Restoration of Ecosystem Services and Adaptation to Climate Change), which aims to contribute to increasing the resilience of Pacific Island Countries and Territories (PICTs), specifically Vanuatu, Fiji, French Polynesia and New Caledonia, in the context of global changes. This includes support for adaptation to climate change (ACC) through integrated coastal management (ICM), and progress towards meeting Aichi Biodiversity Target 3 (to reform incentives harmful to biodiversity and to develop appropriate positive incentives for the conservation and sustainable use of biodiversity, both by 2020).

This document presents information found for Vanuatu, Fiji and French Polynesia as well as a limited number of cases from other PICTs during an initial exercise to scope existing instruments and reform efforts. Nine economic sectors are addressed: mining, fisheries, agriculture, transport, waste management, water management, urban development, tourism and energy. The aim is to present a series of actual examples of taxation and subsidies that have harmful or beneficial environmental impacts, and to outline the potential of tax and subsidy reforms. The report is not intended to be an exhaustive regional review, but rather to present interesting illustrative examples. The examples were selected based on the scale of their (potential) environmental, economic and social impacts, and their relevance to the PICT region, to ensure they are representative of the broader region and any lessons learned from an example in one location could be transferable more widely.

Taxes and subsidies are increasingly being discussed and applied around the world in the area of environmental policy. This is driven by concerns over impacts on the environment, human health, biodiversity, energy, resource use and food security as well as the push for fiscal consolidation and growing recognition of the financial burden of some measures (such as fossil fuel subsidies in many developing countries). Economic instruments are an important part of the policy mix to support the shift to a green, inclusive global economy (UNEP 2011), helping to raise domestic public revenues and shift price signals in the economy to support sustainable development and green growth. Well-designed instruments can have a range of benefits and support financial, economic, social, environmental and security policy objectives. As well as individual instruments, packages of instruments are important, for example in the case of fiscal reform such as the reform of environmentally harmful subsidies (EHS) and environmental tax reform (ETR). Such instruments can be applied across a broad range of economic sectors, such as those explored in this Background Document.

The overall objective of greening taxes and subsidies is to generate positive gains for the economy, environment and society (Withana 2015), and a wide range of instruments can be applied in order to achieve this. However, obstacles do exist to the further take up of these

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1 Additional information for New Caledonia will be included in subsequent work under this contract, drawing on inputs from a parallel study.
instruments. These include: concerns over the correct and proper gathering and appropriate use of revenues; limited revenue raising potential due to small tax bases and extensive exemptions; difficulties in the administration of instruments (e.g. lack of transparency, inadequate human resources, limited capacities to collect revenues and enforce measures); unequal impacts across different economic sectors; potential competitive disadvantages from unilateral implementation of instruments; compliance with the policy objectives and commitments under international agreements; conditions of development assistance payments; and potential negative impacts on the income and wealth of different societal groups. For these reasons, it is critical to understand and clarify the impacts (both positive and negative) of greening/reforms when designing and implementing such actions, building on the outcomes of previous experiences.

The PICTs face a particular set of challenges, both environmental (in particular issues related to the impacts of climate change), and in terms of the potential for taxes and subsidies to play a role in addressing them.

The climate-related challenges facing small island nations include higher temperatures, altered rainfall patterns, weather extremes, and sea level rise. These can lead to numerous detrimental impacts. Much of islands’ critical infrastructure such as airports, sea ports and roads is located near the coast and is vulnerable to sea level rise and flooding. Water supply and energy systems face challenges such as increasing costs of future proofing, maintenance and damage repairs. For many islands, the agriculture sector may be threatened by climate change, potentially impacting on their food security as well as their potential to export produce. Many islands, including the PICTs, depend heavily on revenues from tourism, which can be compromised by climate related effects including heat, fires, flooding and biodiversity loss. Fisheries and other marine industries in many island nations may face a risk of lower catches and associated reduced incomes, whilst also affecting food security. Island nations are also rich in biodiversity, which may be endangered by climate change impacts with corresponding impacts on tourism. The environmental and economic imbalances resulting from climate change impacts may also lead to migration away from islands (IEEP 2013).

In addition to the general obstacles to the take up of greener subsidies and taxation outlined above, specific challenges for the use of such instruments in the PICTs include: small tax bases (e.g. due to large informal sectors of the economy, finite natural resources, small populations and multiple tax exemptions), lack of institutional and human resources to implement taxes, lack of transparency in governance structures, fragmentation within government (with ministries responsible for financial and tax matters less often advocates of green taxes and subsidies than environmental ministries), remote geographical locations and sparsely populated areas, and heavy economic reliance on certain sectors that can adversely impact the environment (e.g. fisheries, tourism, mining). These factors may lead to resistance to the application of green taxes.

2 Although some fiscal reforms such as fossil fuel subsidy reform could save quite substantial revenues which could be used for other purposes.
Finally, the further future greening of taxation and subsidies in the PICTs must take into account the international context within which they will take place. Greener taxes and subsidies have the potential to raise public revenues and contribute to regional and international commitments – see Box 1 below. In addition, high levels of reliance on aid among independent Pacific Island Countries, and fiscal transfers in the Pacific Island Territories, will also influence the adoption of greener subsidies and taxation, as some assistance may undermine green growth (e.g. support for energy inefficient buildings, vehicles or fuels). Steps should therefore be taken to address this by promoting greener subsidies and taxation at the domestic level (where possible without jeopardising essential future development assistance) and ensuring that international aid is coherent and supports the PICTs’ international obligations.

**Box 1 Selected commitments relevant to green taxes and subsidies at the regional and international level**

- **Mauritius Strategy (MSI) of Implementation** for the Barbados Programme of Action for the Sustainable Development of Small Island Developing States.

- **Sustainable Development Goals (SDGs).** In particular SDG 12 includes a target to rationalise inefficient fossil fuel subsidies and SDG 14 includes a target to prohibit/eliminate fisheries subsidies which contribute to overcapacity, overfishing, illegal, unreported and unregulated fishing by 2020.

- **Convention on Biological Diversity (CBD) commitments** under Aichi Biodiversity Target 3 which seeks to eliminate, phase out or reform ‘incentives, including subsidies, harmful to biodiversity’ by 2020, and Target 20, which seeks to mobilise additional resources from all sources to implement the Strategic Plan for Biodiversity 2011-2020.

- **Nationally Determined Contributions (NDCs)** to support the Paris Climate Agreement. Some form of carbon pricing or other fiscal policies are included in the NDCs of over 90 countries. The Paris Agreement provides a foundation for the further development of such market-based mechanisms and their potential linkages.

This Background Document is a first step in the analysis of taxes and subsidies (and their reform) that can help to meet the challenges outlined here. The findings are anticipated to be communicated to stakeholders in the PICTs at a dedicated Regional Workshop, and to feed into a proposed Regional Roadmap for moving towards greener taxes and subsidies. The ultimate aim is to help to guide the region towards greener taxes and subsidies, by building the knowledge and capacity of stakeholders and offering guidance on how greening of instruments can be carried out to support the achievement of environmental objectives.
The following sections present the information found during a scoping exercise on existing taxes and subsidies (both harmful and beneficial in environmental terms) and reform efforts. The report focuses in particular on three of the RESSCUE PICTs, namely Vanuatu, Fiji and French Polynesia, although several examples from other PICTs are also referred to in order to provide a broader regional context. Nine economic sectors are addressed in turn: mining, fisheries, agriculture, transport, waste management, water management, urban development, tourism and energy.

2.1 Mining

2.1.1 Introduction

Mining is an important economic sector in several PICTs. In New Caledonia, the nickel industry accounted for almost 10% of GDP in 2010, with ore exports of around 5.4 million tonnes and nickel exports of around 76,500 tonnes in 2014 (IEOM 2014). In 2013, mining contributed around 1% of GDP in Fiji, but is seen to be growing in importance as it offers significant opportunities for economic growth (ADB 2014d). In Vanuatu, quarrying activities include small-scale limestone quarrying and beach/sand mining, and there are considerable manganese deposits and significant potential for deep-sea mining activities (Commonwealth of Nations 2017). Mining is also important in Papua New Guinea, where the mining and petroleum sector’s share of GDP has amounted to around 20% since 2014 (ADB 2015).

The environmental impacts of mining vary according to the type of resource extracted, the methods of extraction, and the regulatory framework in place. The extraction of fossil fuels and other minerals has global impacts through the associated greenhouse gas (GHG) emissions, as well as local impacts in the area surrounding the extraction site. The potential negative environmental impacts include land use change away from (subsistence) farming, pollution of local ecosystems (including marine ecosystems) and impacts on fisheries from increased sedimentation and nutrient loading due to offshore activities (SPREP 2012a). Negative social impacts include non-inclusive growth, corruption, health impacts on local communities and even threat to the lives of mineworkers. Nevertheless, in many cases extractive industries support local economies and wider socio-economic development, since mined materials are economically valuable and provide jobs. With a strong regulatory framework, negative externalities can be reduced and compensated by positive impacts such as job creation, the development of a skilled workforce, biodiversity offsets, and tax revenues that can be invested in education, health, environmental improvements and infrastructure.

For these reasons, there is growing consensus in international organisations that mining can contribute to sustainable development under appropriate conditions (see e.g. UN Resolution 66/288, adopted in 2012). Many international initiatives led by civil society, companies or governments have been launched since the 2000s to improve the sustainability of mining. These include the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) which was launched in 2002, and works to
advance good governance practices and policies that support sustainable development through its Mining Policy Framework for Mining and Sustainable Development (MPF). The Forum comprises 55 member states including Papua New Guinea and France (which implies the inclusion of French Polynesia and New Caledonia). The World Bank, which actively promoted the liberalisation and deregulation of the mining sector in many developing countries during the 1980 and 1990s, acknowledged in the 2000s the need for state regulation of the sector and the consideration of social and environmental aspects. The Performance Standards of the International Finance Corporation (IFC) are relevant for projects in the mining sector, for example in their provisions on pollution prevention and biodiversity conservation. IFC Performance Standard 6 aims to ‘protect and conserve biodiversity, maintain ecosystem service benefits, and promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities’ (IFC 2012). Companies are also increasingly being encouraged to apply the mitigation hierarchy to their operations, mitigating environmental harm through avoidance, minimisation (or reduction) and restoration of detrimental impacts to biodiversity before using biodiversity offsetting to address any residual impacts (Flora & Fauna International n.d.).

Though regulatory instruments have a critical role in reducing the environmental impacts of mining, taxes and subsidies also have a significant role to play in particular by raising domestic public revenues. The fiscal benefits of mining must therefore be optimised through fiscal policies and wider regulatory and reporting instruments designed to support economic benefits without compromising local communities (Vanclay & Esteves 2011). This implies efficient tax regimes to attract investors whilst also raising high revenues. It is also important, however, to consider the use of instruments to support more environmentally friendly mining practices, for example extraction levies. The lack of internalisation of externalities, or lack of resource pricing, can sometimes act as a de facto subsidy and have potentially negative environmental impacts along with certain tax exemptions and other direct subsidies. Taxes and subsidies can also help mining companies to make financial provisions to implement environmental management plans and to rehabilitate mining sites once extraction is completed.

Table 1 Mining-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to mining</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax credits, concessions and exemptions</td>
<td>Tax credits or fiscal advantages for investments in mining activities, infrastructure or equipment.</td>
<td>- Environmental damage due to lack of environmental criteria.</td>
</tr>
</tbody>
</table>
| Environmental bonds etc. | Environmental bonds, rehabilitation funds and similar instruments. | + Reduced extraction due to increased cost (application of polluter pays principle).  
+ Financial support for environmental mitigation / site rehabilitation. |
| Fees for access to / use of natural resources | Royalty payments for extracted minerals. Registration or permit fees and associated conditions. | + Reduced extraction due to increased cost (application of polluter pays principle).  
- Environmental damage if no / inadequate environmental conditions or low fees. |
2.1.2 Existing (potentially) harmful instruments

Tax exemptions and subsidies granted to the mining sector can potentially contribute to negative impacts on ecosystems and biodiversity. This can include impacts on water, soil and air quality, degradation of habitats, issues with waste generation (including hazardous waste), and emissions and other impacts associated with mining-related transportation. This section provides examples from New Caledonia and Fiji.

In New Caledonia, companies can benefit from tax credits and fiscal advantages for investments to expand metallurgic or mining activities, if the investment is at least XPF 10 billion (EUR 83.8 million) and the number of jobs is maintained (DSF 2001, Art Lp. 45 bis 10). Mining and metalworking industries also benefit from an exemption from tariffs on imports and on exports (DSF 1999, article 227). In addition, added value on fixed assets is exempted from all taxes for companies with a majority of mining assets in New Caledonia, and added value from mining asset transfers (from a company with a majority of mining assets to a metalworking and/or mining company) is exempt from corporation taxes. Furthermore, companies in the extractive industry and metallurgic companies can benefit from a tax credit for expenditure on professional training, to a maximum of up to 30% of total training expenditure, and a maximum of XPF 100 million (EUR 838,000) per year for metallurgic companies and XPF 50 million (EUR 419,000) per year for companies subject to the mining tax system (DSF 1990, article 45.24).

In New Caledonia, businesses investing in industrial factories for the treatment of nickel or associated ores (e.g. cobalt and chrome ores), can benefit from fiscal advantages for the construction and operation of their factory, subject to certain conditions and limitations. The investment must be at least XPF 50 billion (EUR 41.9 million) and a minimum of 500 jobs must be created in New Caledonia. During the construction phase, exemptions from corporate income taxes, property taxes, and taxes on metallurgic and mining activities are available (DSF 2002, Article Lp.45 bis 1-5). In addition, during the operational phase, the company can benefit from fiscal advantages for up to 10 years (or 15 years in special situations). Furthermore, certain metallurgic companies can benefit from a fiscal stability regime, which can be applied during the construction phase and can continue for 15 years after the start of operational activities (DSF 2002, Article Lp.45 bis 1-5). From 2010-2015, mining and the metal industry accounted for 10% of the customs exemptions in New Caledonia, amounting to around XPF 2.5 billion (EUR 21 million) in 2015 (Pacific Community 2016a).

In Fiji, the minister could previously exempt mining companies from paying taxes on their whole income or reduce them as specified, if deemed to be beneficial for economic development (FRCA 2014). However, the Fiji Income Tax Act 2015 does not include such a provision (Government of Fiji, 2015). Furthermore, expenditures for the prospecting of minerals are deductible when determining taxable income. In addition, mining companies

3 https://dsf.gouv.nc/reglementation/code-des-impots-de-la-nouvelle-caledonie
can offset one-fifth of other expenditures in Fiji against their total income, for example capital expenditure to develop mines and the extraction, treatment, refinement and sale of minerals, and expenditure to acquire a mining lease or tenement (Government of Fiji 2015). See Box 2 below for an example of a mining tax exemption for a specific Fijian company.

**Box 2 Mining tax exemptions: The Emperor Gold Mining Company Limited (Fiji)**

Since 1952, the Emperor Gold Mining Company Limited was able to operate at Vatukoula in Fiji without contributing substantially to Government revenue, due to agreements with the Government. The company was allowed tax concessions since 1952 when exports of precious metals were exempt from the Port and Service Tax, and more tax concessions and subsidies were granted to the company from the 1950s to the 1980s. Governmental support contributed to the expansion of the company on the Island, with accompanying environmental impacts from their mining activities (Grynberg 1996). The tax concessions and subsidies continued into the 21st century with the Vatukoula Tax Agreement. From 1983 to 2004, and in the case of a new mine until 2011, the Agreement was settled between the Government and two joint ventures in which Emperor Gold Mining had a 50% or majority share. The Agreement included concessions on income tax, stamp duty, royalties, customs and fiscal duty. Due to the Agreement, the Fiji Government is estimated to have indirectly subsidised the Emperor Gold Mining Company to the tune of between FJD 4 and 6 million (EUR 1.8 and 2.7 million) per year from 1986 to 1991 (Grynberg 1996).

2.1.3 Reform efforts and existing ‘green’ instruments

Green instruments in the mining sector include permits (in Vanuatu and New Caledonia), royalty payments for the extraction of materials (in Fiji), and financial guarantees/bonds to be used for environmental purposes (in Fiji and New Caledonia).

The Vanuatu Quarry permit regulation (Order No. 8 of 2005) imposes registration fees and conditions on mining companies to obtain a permit for small-scale quarrying activities (quarrying on traditionally-owned land for building materials for customary/traditional purposes is exempt). Since 2005, permit applications must be approved by a commissioner for Mines and Minerals, appointed by the Ministry of Lands and Natural Resources. The mining company must pay a non-refundable application fee of VUV 2,500 (EUR 22), and a quarry permit costs VUV 50,000 (EUR 438) per year. An occasional quarry permit is subject to a fee of VUV 10,000 (EUR 88) per year. The forecast permit revenues for 2016 amount to VUV 35,623,670 (EUR 312,310), and revenues are integrated into the national budget (i.e. not earmarked specifically for environmental purposes). (Republic of Vanuatu 2005; Government of the Republic of Vanuatu 2016)

In Fiji, Mining Regulations established under the Mining Act (1978) require mining companies to pay royalties to the Government for extracted minerals. The royalties are designed as payment for the loss of a non-renewable resource. The Act establishes fees as 3% of the value for bauxite or iron ore, and 5% for other minerals, but alternative royalty fees may also be set by the Director of the Department of Mining, with approval of the Minister. Royalties are paid to the Director of the Department of Mining, with a share payable to landowners.
Several PICTs, including Fiji and New Caledonia, impose financial obligations such as guarantees or bonds on mining developers, with the specific aim of supporting improved environmental management of mining projects and limiting negative environmental impacts by guaranteeing that funds are available for their remediation. Examples are presented in Box 3 below.

### Box 3 Mining guarantees and bonds: Fiji and New Caledonia

In Fiji each mining development may include the following financial obligations:

- A security deposit (Fiji Mining Act 1978) to guarantee the due performance of a project developer's legal obligations;
- An environmental bond (Fiji Environment Management Act 2005). If the security deposit is deemed insufficient following an Environmental Impact Assessment (EIA), the Minerals Resource Department (MRD) and Department of Environment can require a project developer to take out an environmental bond to cover the probable costs of environmental management. The amount of the bond is determined by the level of risk;
- Contributions to a private mine closure and rehabilitation fund. Since 2005, businesses (including mining operations) can benefit from a tax deduction of 150% on any cash donation of between FJD 10,000 and 100,000 (EUR 4,500 and 45,000) to a disaster rehabilitation fund (Government of Fiji 2015). There is currently no obligation to make such a donation, but the Revenue and Customs authority is looking to introduce legislation to address this; and
- Payment for EIA, environmental monitoring and Environmental Management Plan (EMP). Since 2005, a mining project developer must cover the costs of the EIA and environmental monitoring undertaken by government-accredited experts, and the cost of their required EMP. It should be noted that in recent years, environmental NGOs have raised concerns about the quality of EIAs for mining operations. Court action is currently underway with respect to at least one development where the EIA is alleged to be sub-standard.

The environmental bonds are paid into an Environment Trust Fund administered by the Department of Environment (the mine closure and rehabilitation funds are separate and private). The fund is used to finance debts for nature swaps (including compensation to land or resource owners for handing over the right to use land and natural resources for conservation purposes); expenses related to environmental monitoring or audits; environmental rehabilitation work; research programmes; refunds of environmental bonds and security of costs; and rewards under the Environment Management Act (2005).

**New Caledonia** imposes a financial guarantee for the rehabilitation of mining sites, in response to growing concerns about the environmental impacts of abandoned mining sites and the financial costs of their rehabilitation. Since 2009, an obligatory financial guarantee for mine closure and rehabilitation is associated with every mining permit. The amount is set under the governance of the president of the Assembly of the Province in which the mining project is established. The financial guarantee is accrued through progressive contributions to an approved private financial institution or the public Deposits and Consignments Fund, and can be fully or partially refunded once a site has been rehabilitated.
2.2  Fisheries

2.2.1  Introduction

Many different types of taxes and subsidies, which can be either harmful or beneficial to the environment, are applied in the fisheries sector (Sumaila et al. 2013). Individual transferable quotas and resource taxes can be used for the sustainable management of fish stocks, whereas subsidies are generally provided to reduce the cost of fishing and/or increase revenue. Fuel subsidies tend to represent the largest proportion of total subsidies to the sector, followed by subsidies for management. Fisheries subsidies and taxes are an important issue for PICTs because many livelihoods in the region depend on many marine ecosystem services; for example, offshore tuna fishing and coastal fishing play a central role in terms of food supply and foreign exchange (Gillett 2011). Inshore fishing provides much of the region’s nutrition; coastal fish is mostly traded and consumed locally and is a critical source of food for Pacific islanders (FOA n.d.). Even most commercial fishing is on a small scale to supply local needs (The Parliament of the Commonwealth of Australia 2009). The fishing sector is also important in terms of welfare, culture, employment, and recreation.

Some studies (World Bank 2008; UNDP 2008) have shown that fisheries subsidies often provide incentives for overfishing and harm the sustainable provision of marine ecosystem services. Research has suggested that subsidies can hamper economic sustainability and community and environmental resilience by creating a dependency on government funding (OECD 2006). The fact that climate change – the ecological impacts of which are exacerbated by anthropogenic stress such as overfishing – is expected to negatively impact local fisheries in the Pacific through temperature change, sea level rise and the intensification of tropical cyclones, also suggests that it would be beneficial to ensure that environmental impacts are taken into account within fishery-related taxes and subsidies.

Fisheries management in PICTs is faced with declining coastal resources caused by overfishing due to population and socio-economic growth (Kronen et al. 2010). Due to ever-increasing catch two of the four target species in the Western and Central Pacific Ocean (WCPO) (yellowfin and bigeye tuna) are at or beyond full exploitation. There is substantial concern over the future of these populations if fishing pressures are not reduced (Havice 2010). Reef fisheries are likely to be unsustainable in half of all (63 sites) South Pacific communities (Kronen et al. 2012). Finfish and invertebrates in many areas of Fiji, and many other Pacific reef fisheries, are overexploited (Gillett et al. 2014). Most of the fish obtained from reefs is critical to the diet of Pacific islanders, with consumption on Kiribati as high as 200 kg per person annually (UNEP 2005). In some islands the decline in coastal and reef-living stocks has forced many islanders to switch to imported and less nutritious food (UNEP 2005). In recent consultations on Vanuatu’s National Sustainable Development Plan, one of the primary concerns of residents in outer islands was the decline of fish stocks caused by fishing of coastal waters by foreign vessels, including fishing allowed by international agreements (see below).

Table 2 Fisheries-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to fisheries</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax credits,</td>
<td>Tax/duty exemptions for fisheries</td>
<td>+ Promotion of sustainable fishing methods</td>
</tr>
<tr>
<td>Type of tax or subsidy</td>
<td>Examples related to fisheries</td>
<td>Potential environmental impacts</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>concessions and exemptions</td>
<td>machinery / equipment. Tax exemptions on production inputs and exports.</td>
<td>through targeted subsidies (e.g. for specific types of equipment / fisheries). - Increased catch / depleted stocks due to cheaper equipment (in particular if no / inadequate environmental criteria).</td>
</tr>
<tr>
<td>Fuel duty</td>
<td>Exemption / concessions from fuel duties and taxes for fishing vessels.</td>
<td>- Increased GHG emissions due to cheaper fuel. - Increased catch /depleted stocks due to increased fishing facilitated by cheaper fuel.</td>
</tr>
<tr>
<td>Production subsidies</td>
<td>Aid for fishermen for purchase of vessels and small equipment.</td>
<td>+ Promotion of sustainable fishing methods through targeted subsidies. - Increased catch / depleted stocks due to increased fishing.</td>
</tr>
<tr>
<td>Fees for access to / use of natural resources</td>
<td>Access fees for foreign vessels to fish in PICT waters.</td>
<td>+ Potential to reduce catch and preserve stocks if fees set adequately high and / or quotas applied. - Increased catch / depleted stocks (in particular if no / inadequate environmental criteria, quotas, or fees too low).</td>
</tr>
<tr>
<td>Fishing licence and registration fees.</td>
<td>+ Promotion of more sustainable fishing methods through differentiated fees. + Preservation of stocks if number of licences limited.</td>
<td></td>
</tr>
</tbody>
</table>

### 2.2.2 Existing (potentially) harmful instruments

Several PICTs offer *concessions/aid to fishermen for fuel*. This is the case for example in **French Polynesia**, which offers an exemption from duties and taxes on fuel for coastal fishers (Direction de Ressources Marines et Minières 2017a), and **Fiji**, which offers a national fuel concession for the fishing industry (see Box 4 below).

#### Box 4 Fisheries fuel concessions: Fuel concession for the fishing industry (Fiji)

It is likely that this concession was aimed at reducing the relative operating cost of the fishing industry and to encourage participation in the sector. Local fishing vessels receive a subsidy in the form of exemption from the FJD 0.02 (EUR 0.009) per litre bunker fee and a duty free fuel concession, provided they meet eligibility criteria and receive approval from the Minister for Finance (Fiji Revenue and Customs Authority, 2016). The fuel subsidy might keep operational costs artificially low and could contribute to excessive fishing pressure on an already overfished reef (Gillett et al. 2014).

Several PICTs, including **Fiji**, **French Polynesia** and **Vanuatu**, also offer *tax exemptions for various types of fisheries equipment*, to encourage investments, in particular in more modern technology and equipment. These exemptions effectively act as subsidies to the sector, and in some cases do not appear to be subject to any specific environmental criteria. In some cases, direct aid is also available for specific types of fishery.
Specialised fisheries machinery for the fishing industry and processors is exempt from import taxes in Fiji (Fiji Revenue and Customs Authority 2016). The likely rationale is to overcome a competitive disadvantage resulting from high prices due to the need to import items into Fiji.

In French Polynesia coastal fisherman are exempt from duties and taxes on equipment and fishing vessels (Direction de Ressources Marines et Minières 2017), and tax credits of up to 60% are available on investments for new offshore fishing vessels (70% for vessels built in French Polynesia), and up to 40% for aquaculture, fish farming and pearl farming (DICP 2017a). No specific environmental criteria are applied, other than use of renewable energies where possible, and general efforts to reduce fossil fuel use. Professional (registered) lagoon fishermen can receive aid of up to XPF 500,000 (EUR 4,190) for the purchase of a boat, motor or trailer (through the dotation pour le Développement de la Pêche Lagonaire, DDPL) and up to XPF 100,000 (EUR 838) for the purchase of small items of equipment (through the dispositif d'Aide et de Soutien à la Pêche, DASP) (Direction de Ressources Marines et Minières 2017b).

Vanuatu offers exemptions from trade taxes to fisheries projects, covering boats and boat building materials, fuel oils, machinery, materials and equipment, including in-board and outboard motors and refrigeration equipment. Export manufacturers are exempt from trade taxes on their production inputs and from any taxes on exports. The concessions are intended to support the employment opportunities in the fishing sector by providing some protection to investors (Government of Vanuatu 2005) in the face of a small domestic market that results in reduced competitiveness against imports (in terms of both price and quality). Owners of licenced fishing boats also have access to duty free gears, support for loan services, access to fishing around fish aggregating devices, training opportunities and access to marketing of their catches. (Vanuatu Daily Post 2015)

Third countries can also negotiate access fees to fish in the EEZ of PICTs. For example, the EU has economic partnership agreements with Fiji and Papua New Guinea, and is negotiating agreements with other PICTs, that include fish. Sustainable Fisheries Partnership Agreements allow EU fleets to fish in third countries’ Exclusive Economic Zones (EEZ), within a regulated and guaranteed environment. Fisheries activities in the PICTs can be either inshore/coastal or offshore/oceanic, and fall into three broad categories: revenue generation from access fees for distant water fleets; domestic and foreign fishers operating for export in the EEZ and territorial sea to supply canneries, loining facilities and domestic processing facilities; and artisanal fisheries within the territorial sea for the domestic and export market (Grynberg 2003).

The WCPO tuna fishery is the world’s most valuable tuna fishery (The Parliament of the Commonwealth of Australia 2009). Since the 1980s, PICTs have used licensing/access agreements with foreign fishing interests (Havice 2010). PICTs receive many different types of fees for access to their offshore fisheries and separate agreements are in place for foreign fleet access to tuna. One example is the Fisheries partnership agreement between the EU and Kiribati, which ran from September 2012 to September 2015 (no protocol has been in force since then) (European Commission 2017). See Box 6 below for more detail on this.

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Box 5 Support for fisheries equipment/investments: Fiji, French Polynesia and Vanuatu

Specialised fisheries machinery for the fishing industry and processors is exempt from import taxes in Fiji (Fiji Revenue and Customs Authority 2016). The likely rationale is to overcome a competitive disadvantage resulting from high prices due to the need to import items into Fiji.

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9 e.g. [http://ec.europa.eu/fisheries/cfp/international/agreements/](http://ec.europa.eu/fisheries/cfp/international/agreements/)
The agreement allowed four purse seine vessels and six longline vessels (from Spain, France and Portugal) access to a reference tonnage (i.e. proposed catch) of 15,000 tonnes of tuna per year in the Kiribati EEZ. Ship owners had to pay EUR 35 per tonne caught, plus a fee of EUR 131,250 per purse seiner and EUR 15,000 per longliner. The agreement included some environmental and sustainability measures, including requiring fishing to be in accordance with the conservation and management requirements of the Western and Central Pacific Fisheries Commission (WCPO), not allowing bottom fishing or coral fishing, not disrupting traditional, local-based fisheries, and reporting by-catch (Council of the European Union 2012). However, if the reference tonnage was exceeded, the EU could pay an additional EUR 250 per tonne (for the first additional 2,500 tonnes) and an additional EUR 300 per tonne for any further additional tonnes. Under the agreement, only 26% (EUR 350,000) of the payments from the EU to Kiribati were earmarked to support the Kiribati sectoral fisheries policy (European Commission 2017); the remaining EUR 1.325 million was not earmarked for any specific purpose. Concerns were raised by NGOs that the agreement allowed cheap and inadequately controlled access by third country vessels to Pacific waters (e.g. an unlimited number of days, as opposed to the vessel day scheme (VDS) adopted by eight Pacific Island Nations under the Parties to the Nauru Agreement (PNA) (see below), leading to the potential for reduced sustainability of stocks (Greenpeace Australia Pacific 2013).

### 2.2.3 Reform efforts and existing ‘green’ instruments

Whilst access fees for fishing can be harmful in some cases, they can also allow for greater control over access to fish stocks. For example, cooperation is important to managing tuna stocks, as tuna is a migratory species and therefore a ‘common pool’ resource. The establishment of the vessel day scheme (VDS) by the Parties to the Nauru Agreement (PNA) is one of the most important developments in recent years. The scheme has successfully raised licensing revenue by uniting a group of governments from tuna stock-rich Pacific Islands into a coherent group with a uniform approach to selling and auctioning days during which foreign vessels may fish. In 2016, PNA members received around USD 400 million (EUR 376 million) in licensing revenues, compared with USD 64 million (EUR 49 million) in 2010. This is now the single largest source of government revenue in several PICTs (it represents 55% of domestic revenue in Tuvalu, an amount larger than foreign aid). By setting a limit on the number of overall days in which fishing occurs, the VDS has potential to improve the sustainability of the tuna fishery (which the WCPO has failed to do due to its membership base including distant water fishing nations).

Fishing licence fees are also present in Fiji and Vanuatu, as outlined in Box 7 below.
Fiji charges for fishing licences and registration fees in certain areas. Different licence fees may be charged in different areas (set by a licensing officer appointed by the Minister), with reports of anywhere between FJD 20 (EUR 9) (in Lautoka) and FJD 700 (EUR 317) (in Vitogo waters). Fishermen may fish in groups and pay for a (joint) fishing licence rather than fishing as one person, to reduce the licence cost (Fiji Times 2014). Registration fees apply to individuals who fish for trade or business purposes. The fees are as follows: FJD 4 (EUR 1.80) per year for the captain of every fishing vessel plus FJD 1 (EUR 0.45) per year for each crew member or employee, and FJD 4 (EUR 1.80) per year for any other person carrying on the trade of business of a fisherman. There is no fee for persons who take crustaceans or shellfish by net or hand net for sale (under certain conditions). In addition, fees are charged per vessel: FJD 4 (EUR 1.80) per year for a motorised/sail powered fishing vessel and FJD 1 (EUR 0.45) per year for a vessel propelled by oars, paddles or poles. The licences and registration fees for offshore fishing are: FJD 5 (EUR 2.25) per year per offshore licence per Fiji vessel shorter than 2 metres, and FJD 50 (EUR 22.50) per year per offshore licence per Fiji vessel longer than 12 metres (Fiji Fisheries Act 1942, as amended). The fees are either waived or lower for net/hand fishers, vessels propelled directly by the fisher, and smaller offshore vessels, offering an effective concession/subsidy to lower intensity forms of fishing.

Vanuatu charges fishing licence fees, including for game or sport-fishing boats, which are paid to the Department of Fisheries. In 2005, the foreign fishing licence fee was USD 11,000 (EUR 10,445) per year. Motorised fishing boats in Port Vila and Luganville are charged annual license fees of VUV 20,000 (EUR 175) for boats shorter than 8 metres, VUV 25,000 (EUR 219) plus for boats longer than 8 metres, and VUV 50,000 (EUR 435) for game fishing charter boats. Fishing boats in the outer islands are charged lower fees: VUV 10,000 (EUR 87) for boats shorter than 8 metres, VUV 15,000 (EUR 130) plus for larger boats and VUV 30,000 (EUR 260) for recreational fishing boats. The fees are lower for smaller vessels, which may result in effective support for lower intensity fishing. Licences are also charged for buying and selling of coconut crab, lobster, sea cucumber and for commercial aquaculture farms. These fees are paid directly to the Government and do not include provincial access fees, which are paid to the respective provinces. Civil servants report that implementation is a problem, and that many small-scale producers selling produce locally do not purchase licences. Currently, there are no caps on the number of licenses issued by area, island or province, but this may be assessed in the future.

2.3 Agriculture

2.3.1 Introduction

The agricultural sector is one of the main drivers of climate change; the agriculture, forest and land use sector accounts for around 25% of overall anthropogenic GHG emissions (IPCC 2014). The sector also contributes to air pollution, biodiversity loss, and has significant impacts on nitrogen and phosphorus stocks, as well as on water quality (through the use of fertilizers and pesticides) and quantity (due to water abstraction for irrigation). Simultaneously, it has been estimated that agricultural production will have to increase by 60 to 70% to meet the needs of 9 billion people in 2050 (FAO 2016). Whilst agricultural productivity gains throughout the 20th century were essentially the result of the increasing use of chemical inputs, mechanisation, and the focus on monoculture and a reduced range
of high-yield selected varieties, some studies have shown that sustainable forms of agriculture can be a new source of productivity gains (Pretty et al. 2006).

Reforming the tax and subsidy system in the sector can be an efficient way of promoting a shift towards sustainable agriculture. Instruments can be implemented during the production process – some European countries have created incentives to switch to organic farming (Rolfe, 1993) – or during the consumption/distribution phase – for example Hungary, Denmark and France have all created taxes on ‘unhealthy food’ (Mytton et al. 2012). Subsidies and taxes in the agricultural sector can include payments for specific agricultural practices or crops, and rebates or tax exemptions on key agricultural inputs (e.g. pesticides, fertilizer, fuel, equipment, land or labour). Subsidies can take the form of direct payments for conservation actions, or payments to compensate for price volatility or climate variability (e.g. times of drought).

The contribution of agriculture to GDP greatly varies between PICTs: it represents a major and increasing share of GDP in Vanuatu (28.2% in 2014 compared to 18.9% in 1980) (World Bank 2016a), a significant though decreasing share of GDP in Fiji (11.2% compared to 22.1% in 1980) (World Bank, 2016a), and a very small share of GDP in French Polynesia (1.1% in 2009) (Pacific Community, n.d.) and New Caledonia (1.5% in 2010) (ISEE 2015). Very often, one specific crop is dominant in a country’s agriculture (e.g. sugar in Fiji, coconut/copra in French Polynesia). This tendency to practice monoculture and intensive farming has deleterious effects on the environment. In the Fiji Islands agriculture is the main driver of deforestation, which has consequences on both health and biodiversity. As a result, it has been suggested that the country create either a grant system for forest rehabilitation, or a trading carbon stock system (Sue 2010).

Table 3 Agriculture-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to agriculture</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax credits, concessions and exemptions</td>
<td>Tax /duty exemptions for agricultural machinery / equipment. Tax relief for biofuel production.</td>
<td>+ Reduced GHG emissions from increased biofuel use for energy production. - Increased GHG emissions due to land use change. - Risk of developing monoculture / intensification of agriculture, with associated impacts on biodiversity.</td>
</tr>
<tr>
<td>Fuel duty</td>
<td>Subsidies for fossil fuel use in agricultural sector.</td>
<td>- Increased GHG emissions due to cheaper fuel.</td>
</tr>
<tr>
<td>Production subsidies</td>
<td>Subsidies for production of specific crops (e.g. sugar, copra / coconut, dairy produce). Support for agricultural adaptation to climate change.</td>
<td>- Risk of developing monoculture / intensification of agriculture, with associated impacts on biodiversity. + Increased resilience to climate change / extreme weather events.</td>
</tr>
<tr>
<td>Drainage levies / subsidies</td>
<td>Drainage levies / subsidies.</td>
<td>- Negative impacts on ecosystem / biodiversity if no / inadequate environmental criteria.</td>
</tr>
</tbody>
</table>
2.3.2 Existing (potentially) harmful instruments

In several PICTs, subsidies or incentives to support the production of specific crops are provided to farmers to develop or expand production of a particular crop. These subsidies could be in the form of extension support services, direct payments for seeds, or tax incentives on income. Such instruments can afford the country in question a comparative advantage in producing a crop in the face of international competition, and/or provide crucial support for struggling producers and/or those who cannot easily diversify to other crops or economic activities. In these ways, crop intensification, rather than diversification to other crops with a lesser global market value, has economic benefits. The economies of scale achieved through monoculture agriculture increase the financial incentives for pursuing it. However, overall, intensification of agricultural production into one or two crops is harmful to the environment because it discourages diversification of species and plants (see for example Regenerative 2014).

Monoculture agriculture can also have negative environmental impacts because it generally encourages greater use of fertilizers and fossil fuels, which are in turn harmful to water resources (through run off) and contribute to climate change. Examples of PICTs with a subsidy or tax system in place that encourages monoculture agriculture are provided in Box 8 below.
Box 8 Farming payments: Sugar (Fiji), copra (French Polynesia) and dairy (Fiji)

In 2016, the Government of Fiji provided FJD 5 million (EUR 2.3 million) in 2016 for the national Sugar Development Programme\(^\text{10}\), in place since 2011. The Programme is designed to increase sugar production and exports from 212 tonnes in 2016 to 262 tonnes in 2018. The 2016 funding allocation supported cane development grants and cash-back incentive initiatives. In addition, the 2016 Budget allocated FJD 1.5 million (EUR 680,000) to assist farmers with irrigation during prolonged drought seasons, FJD 0.6 million (EUR 272,000) for the digitisation of sugarcane sectors using satellite Global Positioning System (GPS) (through the Ministry of Sugar), and FJD 3 million (EUR 1.4 million) to improve cane access roads for a smoother flow and uninterrupted transportation of harvested cane to the mills. (PWC 2015) The six core areas\(^\text{11}\) of the Sugarcane Industry Strategic Action Plan 2013 to 2022 focus more on the productivity, economic success and competitiveness of the industry than environmental requirements or outcomes. It is therefore possible that the funding could generate negative environmental impacts due to more land being put into sugar production and/or more intensification of production (as was the case with the earlier EU sugar subsidy). The funding for increased road access for ancillary services could also have an impact on the terrestrial environment around sugar plantations and processing establishments. Finally, the sugar cane industry is known to have detrimental impacts on freshwater and marine resources owing to run-off from fertilizer and pesticide use.

In French Polynesia, a price support fund exists for copra/coconut (La Caisse de Soutien des Prix du Coprah), to ensure revenue stability for producers (in particular in the outer islands). In 2015, the guaranteed price paid to producers by the S.A. Huilerie de Tahiti was XPF 128.31 (EUR 1.08) per kilogram. In total, copra subsidies amounted to XPF 1.78 billion (EUR 14.9 million) in 2015. Copra production was 14,556 tonnes in 2015 (Paierie de la Polynésie Française, 2015). Copra oil exports were worth XPF 732 million (EUR 6.1 million) in 2015 (IEOM 2016). When compared with lower subsidies and production levels in 2013, this indicates that higher subsidies may lead to increased production, with the associated environmental impacts.

Government support is offered to the dairy industry in Fiji, including through tariffs levied on foreign imports. Most dairy products are subject to a 32% import tariff plus 9% VAT. The Fiji Government has also provided support to the sector through subsidies and tax breaks. In 2013, a FJD 1 million (EUR 448,000) budget allocation was provided to the sector, with a 20-year tax holiday for those who set up new dairy farms. This has supported producers that would otherwise not be competitive, with associated land use implications, particularly in the Rewa area.

\textit{Subsidies or tax incentives for agricultural inputs} are also commonly provided to farmers for the purchase of key inputs to production, including land, water, labour, fuel, equipment, fertilizers or pesticides. All PICTs provide some subsidies in the agricultural sector, with the provision of subsidies for fossil fuel use being the most prevalent. For example, the \textit{Vanuatu National Energy Roadmap 2013-2020} explicitly addresses the challenges of energy access, security and affordability, and in turn introduces subsidies for fossil fuel (diesel, LNG, \ldots)

\(^{10}\) The Programme should be understood in the context of declining prices for sugar paid by the European Union, which has ended its decade-long practice of paying above-market rates for sugar from African Caribbean and Pacific island countries. This unique foreign subsidy on agricultural production in Fiji was of immense economic benefit. However, it also had deleterious environmental impacts. Chand (2005) argues that the subsidy led to the deforestation and development of marginal land in Fiji (which may also have contributed to ethnic conflict).

\(^{11}\) The six core areas of the Plan are: crop production and advice to growers; harvesting and transport; milling and processing; a cane quality payment system; revenue generation; and industry restructuring and legislation.
petroleum) use, including for the agricultural sector. In French Polynesia, tax credits of up to 40% are available on investments in agriculture and livestock farming (DICP 2017a). No specific environmental criteria are applied, other than use of renewable energies where possible, and general efforts to reduce fossil fuel use.

2.3.3 Reform efforts and existing ‘green’ instruments

Efforts towards greener taxes and subsidies in the agricultural sector include support for crops for biofuel production (e.g. in Fiji), and small-scale support to assist in agricultural adaptation to the impacts of climate change (e.g. in Vanuatu) (see Box 9 and Box 10 below).

**Box 9 Support for biofuels: Tax relief for biofuel production and duty free imports (Fiji)**

Fiji offered a **10-year tax relief for biofuel production**, available to taxpayers starting new activity in processing agricultural commodities into biofuels between 1 January 2009 to 31 December 2014 (subject to a minimum investment of FJD 1 million (EUR 448,000) and employment of at least 20 local employees). **Duty free imports of plant, machinery and equipment** for the initial establishment of the factory, and **duty free imports of chemicals required for biofuel production** are also available. They are intended to encourage the replacement of expensive fossil fuel imports with domestic biofuel production, to encourage more sustainable fuel use and reduction in carbon emissions (though the latter is likely to be a secondary consideration). Strong demand for biofuels from elsewhere in the world (in particular the EU) may also be driving this incentive scheme to increase biofuel exports.

No data has been found on environmental impacts. However, it can be assumed that the instrument will lead to increased biofuel production and displacement of fossil fuel imports and consumption. Due to the small scale of production the impacts are unlikely to be of global significance, but local environmental benefits could be significant due to reductions in environmentally damaging agricultural production and less fuel use in Fiji. It is however important to recognise that there can also be negative impacts from the displacement of fossil fuel use by biofuels. Whilst less fossil fuel use reduces GHG emissions, increased demand for biofuels (and thus biomass) can see agricultural land use shift to monocultures for biofuel production which can be negative for the environment, affect food security and impact on world food prices.

**Box 10 Adapting agriculture to climate change: Vanuatu**

Cyclone Pam and the severe El Nino of 2015/2016 led to loss of agricultural output in Vanuatu with associated impacts on food security and livelihoods for local inhabitants. In 2016, farmers were provided with various **support for agricultural extension**, including a package of backyard garden material (seed trays, organic pesticides etc.) and access to expertise and training for over 100 farmers on each of the islands of Nguna, Pele and Emao. This has allowed farmers to start constructing backyard gardens with climate-change focused adaptations (e.g. raised seed trays and beds, organic pesticides and off-season coverings and treatments) to increase resilience to future extreme weather events. In addition, four farming cooperatives have been established on Nguna, Pele and Emao to support farmers through the growing, harvesting and marketing of their vegetables.
2.4 Transport

2.4.1 Introduction

Road, air and sea transport are essential to the economies of the PICTs. Their remoteness and dependence on international trade result in high transportation costs. Transport is estimated to account for 75% of oil consumption for the PICTs (IRENA 2012). In contrast, for Germany (recognised as having a high share of fuel consumption in transport) the figure is closer to 50% (IEA, 2012). Furthermore, high dependence of the PICTs’ transport sector on fossil fuel imports contributes to the estimated 10% of gross national expenditure spent on fuel imports. (More information on taxes and subsidies related to transport fuel are included in section 2.9 of this report.)

The transport sector generates negative externalities which can be either addressed or exacerbated by taxes and subsidies (or the lack thereof), including registration and circulation taxes (e.g. based on emissions or engine size), fuel taxes/incentives, and vehicle standards, taxes and incentives (Eskeland & Lindstad 2015). Taxes in the transport sector often address environmental externalities indirectly, focusing on fuel use or vehicle criteria rather than pure environmental variables such as CO$_2$ or particulate matter (PM) emissions. However, well designed instruments can have positive environmental and socio-economic impacts both within the region and internationally, for example by managing stress on public infrastructures and congestion, generate revenue, and minimising noise and air pollution.

Illustratively, New Caledonia’s programme for energy transition outlines the significance of the transport sector due to the demands of the mining and metallurgy sector, potential vulnerability to volatility in global fossil fuel markets, transport emissions and the predominance of professional and personal cars (Gouvernement de la Nouvelle Calédonie 2015). It outlines ambitions to shift from private car usage towards public transport in urban and peri-urban areas. Similarly, for intercity transport of passengers and goods (including shipping) New Caledonia aims to reduce consumption and pollution and substitute fossil fuel use, as well as reducing traffic and improving road safety (Gouvernement de la Nouvelle Calédonie 2015). From this perspective appropriate taxes and subsidies, for example supporting alternative transport and energy sources, could support more sustainable transport to the benefit of New Caledonia and the PICTs more widely (IRENA 2012). The following sections provide some examples that are already being taken.

Table 4 Transport-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to transport</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
</table>
| Tax credits, concessions and exemptions| Tax exemptions / subsidies / support for cleaner vehicles (electric, hybrid, low emissions). | + Reduced GHG emissions due to switch to cleaner vehicles.  
+ Potential to prioritise cleanest vehicles through differentiated pricing. |
| Energy subsidies, price support        | Price controls / tax reductions to subsidise fossil fuels.                               | - Increased GHG emissions (or missed opportunity to reduce emissions).  
+ Potential to encourage cleaner fuels through environmental criteria or differentiated pricing. |
<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to transport</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air transport taxes / subsidies</td>
<td>Subsidies / support for specific air routes.</td>
<td>- Increased GHG emissions, especially when support given to underused routes (i.e. high emissions per passenger).</td>
</tr>
<tr>
<td></td>
<td>Airport departure tax.</td>
<td>+ Potential to support environmental projects through revenue use. + Application of polluter pays principle.</td>
</tr>
<tr>
<td>Public transport subsidies</td>
<td>Public transport subsidies / tax credits, e.g. for investment in vehicles.</td>
<td>+ Reduced GHG emissions from private vehicles.</td>
</tr>
</tbody>
</table>

2.4.2 Existing (potentially) harmful instruments

There are a range of hidden subsidies in the transport sector of all countries. One significant subsidy is government expenditure on the development and management of road networks. This can be financed through vehicle taxation (registration fees, heavy vehicle user charges), although such revenue is earmarked in only some countries. In practice, these fees are rarely sufficient to cover the cost of the road network (Dornan 2016). In Fiji, the Bainimarama Government has allocated considerable resources to the road sector, and the Fiji Roads Authority was granted 15% of the entire Government budget in 2016-17. Such hidden subsidies reduce the cost of transportation and therefore encourage greater vehicle use.

Subsidies for marine transport also exist in several PICTs, including French Polynesia, Vanuatu, Fiji and New Caledonia (see below and Box 11 and Box 12). Port infrastructure is often subsidised in PICTs, especially in smaller population centres that lack economies of scale. Again, the impact is to reduce the cost of transportation, encouraging increased transportation with associated fuel consumption and GHG emissions.

Concerning commercial shipping activities, Vanuatu is currently on a list of countries which operates a ‘flags of convenience’ (FOC) ship registry (ITF 2016), with 94% of its fleet foreign owned in 2010 (CIA 2016). Some vessels favour registration under a foreign flag (i.e. a FOC) to reduce operating costs and avoid more stringent legislation under the maritime laws of their home country. The provision of FOCs can attract revenue from ship registrations. Although the actual impacts of FOCs are difficult to assess, the associated environmental risks and difficulties in enforcing maritime legislation for foreign vessels are widely acknowledged. Illegal fishing activities and high profile oil spills, e.g. Deepwater Horizon, have been attributed to FOCs (ITF 2016; WWF & ITF 2008; IUCN 2008).

A diversity of charges and taxes are levied on recreational yachts and cruise ships (see section 2.8 on tourism) that enter the PICTs’ waters. These fees influence the use of yachts and can lead to greater or smaller environmental impacts, depending on their magnitude. Despite the relatively low traffic of super yachts in these areas (e.g. less than 100 per year in Tahiti, French Polynesia), this form of transport warrants attention as the size of the boats, the associated consumption of resources, and the wealth of passengers are disproportionately high compared with other forms of transport. Fees are levied according to the length of stay of foreign yachts and additional fees can be charged for obligatory services such as bio-security and health inspections. In some cases, however, duty fees are
waived for a certain period. In addition, several PICTs provide duty free fuel for yachts. These provisions, together with the natural features of the PICTs, make boats attractive for supporting local economies with tourism revenues. Reductions on duties for foreign yachts and increased lengths of stay suggest efforts to attract these boats, with the associated potential environmental impacts. A more detailed comparison of taxes that apply to yachts is given in Box 11 below.

**Box 11 Shipping related taxes and charges: Yachts and Super Yachts (Vanuatu, Fiji, French Polynesia and New Caledonia)**

<table>
<thead>
<tr>
<th></th>
<th>Vanuatu</th>
<th>Fiji</th>
<th>French Polynesia</th>
<th>New Caledonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port dues and import</td>
<td>VUV 7,875 (EUR 66) for up to 30 days. VUV 100</td>
<td>Up to 18 months duty free. 15% VAT thereafter.</td>
<td>36 months duty free. Afterwards, 8% import duty of the value of the yacht.</td>
<td>Up to 6 months in 12 month period, or 12 months if first visit in 36 months. Custom duty 10% (for boats under 20 tonnes), large boats duty free. All 17% VAT.</td>
</tr>
<tr>
<td>import duty</td>
<td>(EUR 0.84) per day after 30 days. Extendable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>by 6 months. Maximum 18 months in any 24 month period import duty free.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super yacht</td>
<td>Permission required from Licensing section of</td>
<td>Super Yacht Charter Fee 12.5% of the costs (since 2010).</td>
<td>Super Yacht charter tax of 5%.</td>
<td>Super yacht charter tax 5% of charter fees.</td>
</tr>
<tr>
<td>chartering</td>
<td>Ports and Marine. Duty free access for up to six months.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other permits</td>
<td>‘Inter-Island Cruising Permit’ required to visit</td>
<td>Cruising Permits (valid for up to 6 months) issued free of charge for all areas of Fiji.</td>
<td>Customs declaration form. No charge.</td>
<td>6 month free cruising permit.</td>
</tr>
<tr>
<td></td>
<td>more remote and isolated destinations in Vanuatu.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAS and bio-security</td>
<td>Quarantine: VUV 5,000 (EUR 42) to VUV 8,000</td>
<td>Bio-security Clearance: FJD 89.70 (EUR 41) (includes incineration fee for disposal of prohibited food). Out of hours overtime fee of FJD 182 (EUR 83). Health Clearance: FJD 172.50 (EUR 78); out of hours FJD 228 (EUR 104).</td>
<td>n/a</td>
<td>n/a Inspections likely.</td>
</tr>
<tr>
<td></td>
<td>(EUR 67) depending on amount of waste to be disposed of.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Departure fees</td>
<td>n/a</td>
<td>Exit Fee/departure Tax: FJD 20 (EUR 9).</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Some PICTs also offer "subsidies for aviation." Airport infrastructure is often subsidised in PICTs, especially in smaller population centres, to reduce the cost of transportation and encourage inter-island and international visits, with the associated fuel consumption and GHG emissions. An example from the **Cook Islands** is presented in Box 12 below.

**Box 12 Air travel: Air route underwrite agreements (Cook Islands)**

The Government of the Cook Islands has underwritten two direct air services to Rarotonga from Los Angeles (since 2010) and Sydney (since 2011), with the objective of expanding the tourism industry. The underwrite agreements guarantee to cover any losses by Air New Zealand on these routes in exchange for a minimum level of service (one Boeing 767 flight per week in each direction for each route). Both services currently make a loss, and required underwrite payments estimated at USD 6.55 million (EUR 6.2 million) on LAX-RAR and USD 3.74 million (EUR 3.5 million) on SYD-RAR for 2013/14. An economic analysis of these subsidies in 2013 found that the LAX-RAR underwrite agreement generates positive net economic benefits for the Cook Islands in the order of USD 5.1 million (EUR 4.8 million) per year. Approximately 60% of US and Canadian tourists travel direct from Los Angeles, with the vast majority ‘new’ tourists who would not have travelled to Cook Islands without the LAX-RAR route. In contrast, the SYD-RAR underwrite agreement was found to generate a small net economic loss of USD 0.1 million (EUR 94,000) per year for the Cook Islands, with only one-third of tourists from Australia using the SYD-RAR flights. The study concluded that only 40% of these passengers were ‘new’ tourists, with the remainder taking flights via New Zealand.

(Dornan 2014a)

### 2.4.3 Reform efforts and existing ‘green’ instruments

Some PICTs are using taxes and instruments to reduce environmental impacts from the transport sector (either directly or indirectly). This includes instruments to promote public transport (e.g. in Fiji and **French Polynesia**), including various incentives and subsidies for the purchase of collective transport vehicles and subsidised tickets (see Box 13 below).
Box 13 Support for public transport: Bus incentives (Fiji) and tax credits for new vehicles (French Polynesia)

Fiji offers numerous bus operator and travel incentives and subsidies. Buses are vital for Fijian transport and the Government is keen to promote them to reduce the fuel use, air pollution and congestion associated with private vehicle use. The instruments also aim to support fleet renewal (to improve quality and safety), to keep bus travel affordable for Fijians (including school children, elderly and disabled people). The instruments available include:

- A Bus Fuel Concession (reduced from FJD 0.18 to 0.15 (EUR 0.08 to 0.07) in 2012);
- A Bus operators’ refund of FJD 0.02 (EUR 0.009) of duty per litre on diesel (with a sulphur content <500ppm) for licensed operators on approved routes (introduced in 2016);
- Reduced fiscal duty since 2010 (32% reduced to 5%) and reduced import excise (15% reduced to 5%) on new buses for 23 passengers or more, and reduced fiscal duty since 2016 on vehicles carrying 10-22 passengers;
- Since 2016, reduced duty on new tyres (32% reduced to 5%) and increased duty on second hand tyres (from FJD 16 to 30 (EUR 7 to 13.50) per tyre);
- VAT zero rating of bus tickets, a 50% fare reduction for people over 60, free travel for disabled people, and a Bus Fare Assistance Programme for school students.

In French Polynesia, tax credits of up to 40% are available on investments in new vehicles for terrestrial public/school transport, lagoon and inter-island shipping, mixed cargo transport, and inter-island and international air transport of passengers and goods (DICP 2017a). No specific environmental criteria are applied, other than use of renewable energies where possible, and general efforts to reduce fossil fuel use.

Although public transport is generally preferable in terms of GHG emissions per passenger, it should be acknowledged that due to the geographical nature of many of the PICTs, which leads to disbursed population centres, private vehicles remain essential for some inhabitants. All of the PICTs charge import and registration fees for vehicles. Fiji, Vanuatu and New Caledonia additionally charge annual circulation taxes (French Polynesia does not apply an annual road/circulation tax). Rates are generally defined by the engine capacity of the vehicle or its weight. However, some instruments are being used to encourage greater use of more environmentally-friendly private vehicles. Examples from French Polynesia and Fiji are outlined in Box 14 below.
Support for cleaner private vehicles: Fiscal exemptions (Fiji and French Polynesia) and Opération voiture propre (French Polynesia)

In Fiji, fiscal duty and import excise are not applied to hybrid and electric vehicles. A reduced fiscal duty rate applies to imports of new (unleaded) vehicles not exceeding 2500cc (5% rather than 15% since 2016) (Republic of Fiji 2016). A ‘Luxury Vehicle Levy’ of between FJD 7,500 and 20,000 (EUR 3,400 and 9,000) is charged on the import of new and used vehicles with an engine capacity between 2500cc and 3000cc and greater than 3000cc respectively (FRCA 2016). In French Polynesia, a one-off circulation tax of between 3% and 11% of the vehicle’s price is applied (according to engine size and fuel type), but vehicles with an engine size under 90 cm³, new electric or hybrid vehicles are exempt from the tax, and from VAT (which is otherwise charged at 5%, 13% or 16%). Estimates suggested that the reduced circulation tax would only affect about 100 vehicles in 2015, and would therefore have only negligible budgetary impacts (Assemblée de la Polynésie Française 2014a) but anticipated environmental benefits from reduced emissions.

Further support to purchase greener vehicles was made available in French Polynesia during 2016 through Opération voiture propre. Whilst the measure was aimed predominantly at stimulating vehicle sales to support the automotive sector there were accompanying environmental goals, i.e. to remove older more polluting vehicles from circulation. From August 2016 any person, company/association with fewer than 10 employees, or owner of a vehicle that is seven or more years old could receive a financial incentive from the Government to purchase a new (cleaner) motor vehicle. The incentives were regressive according to the type of vehicle and the level of CO₂ emissions (i.e. a larger incentive for cleaner vehicles), as follows:

- For an electric vehicle: XPF 250,000 (EUR 2,095);
- For a hybrid vehicle: XPF 225,000 (EUR 1,885);
- For a vehicle emitting 0-165 grams CO₂/km: XPF 200,000 (EUR 1,676); and
- For a vehicle emitting 166-210 grams CO₂/km: XPF 150,000 (EUR 1,257).

These incentives were matched by the car dealership, effectively doubling the incentive to the consumer. The incentive was available on cars to a maximum purchase price of XPF 4 million (EUR 33,520), effectively limiting it to ‘city cars’ and other smaller cars. Opération voiture propre had a total budget of XPF 400 million (EUR 3.4 million) and was expected to generate up to 600 additional vehicle sales by the end of 2016. Around 400 had already been sold by the end of October 2016. (Sources: Vanizette 2016, personal communication; Radio 1 2016)

Air travel has considerable environmental impacts, notably from its significant GHG emissions, but is vital to the PICTs. It therefore offers an opportunity to gather revenue, which if earmarked for environmental purposes, can contribute to the financing of environmental objectives. Several PICTs have airport taxes, although Vanuatu repealed its Airport Departure Tax in 1999. Fiji has the highest such tax in the region, which is briefly outlined in Box 15 below.
### Box 15 Air travel taxes: Airport departure tax (Fiji)

Since 1986 an airport departure tax is included in the cost of any airline departure from Fiji, and is paid by all airline passengers (with a few exemptions). The rate was initially FJD 100 (EUR 45), then increased to FJD 150 (EUR 68) in 2012, including a FJD 5 (EUR 2.25) environmental levy. In 2014 the tax was increased to FJD 200 (EUR 90), including a FJD 10 (EUR 4.50) environmental levy. The environmental levy was removed following the introduction of the broader Environmental Levy in 2016 (see section 2.8.3 below). The airport departure tax contributes a significant share of Fiji’s budget and tax revenues, steadily increasing from FJD 87.1 million (EUR 39.4 million) in 2012 to an estimated FJD 149.3 million (EUR 67.6 million) in 2016. Money from the tax is earmarked for investment in airport infrastructure and developing tourism in Fiji.

It was unclear whether the environmental levy was actually used for environmental purposes (see e.g. Fiji Times 2016) and explicit information on the use of revenues and their impacts has not been found. The impact of the levy on tourism is not expected to be significant, since the tax is ‘hidden’ within the flight cost. However, any price increase will have some impact on tourism numbers, meaning that air traffic and emissions are likely to be slightly reduced.

### 2.5 Waste management

#### 2.5.1 Introduction

Numerous taxes, subsidies and charges can be applied to waste management, including taxes for waste disposal, charges for households or businesses based on the weight/volume of waste they dispose of (‘pay-as-you-throw’ schemes), deposit refund schemes (e.g. for beverage containers) and product charges (e.g. plastic bag charges). Such instruments typically aim to increase the cost of waste disposal to make waste management options such as recycling more attractive in economic terms. Direct subsidies include financial support from governments or donor organisations for the development of waste management infrastructures, whilst the lack of cost recovery for the environmental impacts of waste management can act as an indirect subsidy for poorly managed waste disposal.

The PICTs face particular challenges with regards to waste management, including remoteness, landfills in coastal areas susceptible to sea-level rise, low population densities (which can reduce economies of scale for waste collection), and limited land space for managing large amounts of residual waste (SPREP/JICA 2009). This makes collection infrastructures, waste avoidance/minimisation and recycling crucial. Municipal solid waste in the PICTs typically consists of around 60% organic waste and 35% potentially recyclable waste (Haynes 2014) such as paper, plastics, glass and metals. Frequent collection (3 times a week in Suva, Fiji) of rubbish and the absence of recycling options increases the amount of waste collected. There is therefore significant potential for recycling, composting and anaerobic digestion, and the use of economic instruments could help to further encourage this. Waste collection and landfill tipping fees, such as those applied in Fiji, Vanuatu and other PICTs could potentially be applied more widely in the region, helping to divert waste from landfills to waste management methods that are better for the environment (e.g. recycling), and potentially providing funds for improvements in recycling infrastructures if revenues can be ring-fenced. Hazardous wastes are also an issue in the PICTs; e-waste and used oils are particular issues in the region (Haynes 2014), which could be addressed through the increased use of producer responsibility or deposit-refund schemes. The Pacific
Regional Solid Waste Management Strategy for 2010-2015 (SPREP/JICA 2009) set out an overall goal of PICTs adopting cost-effective, self-sustaining waste management systems. The remoteness of PICTs and their low population densities also reduce the economies of scale for waste collection.

**Table 5 Waste-related instruments in the PICTs and potential environmental impacts**

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to waste management</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax credits, concessions and exemptions</td>
<td>Tax credits for investments in waste management activities.</td>
<td>+ Increased rates of collection and recycling due to improved infrastructure.</td>
</tr>
<tr>
<td>Service provision fees (including inadequate pricing)</td>
<td>Waste collection fees. Landfill tipping fee. Pay-as-you throw (pay per bag) schemes. Beverage container deposit fees.</td>
<td>+ Increased rates of collection and recycling due to revenue use for infrastructure. - Increase in illegal dumping to avoid fees. - Limited environmental improvements if e.g. low fees / fees inadequate to cover waste management costs.</td>
</tr>
<tr>
<td>Tax on certain activities / sectors</td>
<td>Levies (e.g. for cruise ships, tourists) with revenues earmarked for waste management.</td>
<td>+ Increased rates of collection and recycling due to revenue use for infrastructure.</td>
</tr>
</tbody>
</table>

### 2.5.2 Existing (potentially) harmful instruments

Waste collection fees are widely applied in the PICTs, including in Fiji, New Caledonia, French Polynesia, the Federated States of Micronesia, Tonga, American Samoa and Guam. This approach is broadly positive, allowing the application of the polluter pays principle, the financing of collection and treatment infrastructures, and associated improvements in waste management and reductions in the negative environmental impacts of waste. However, the fees in some PICTs are inadequate to cover the full cost of waste management. This appears to be the case in both French Polynesia and Vanuatu, acting as a de facto subsidy to poor waste management.

In French Polynesia communes are legally responsible for waste management, but the fees charged to households are lower than the cost of waste management (Vanizette 2016, personal communication; Fauvet 2016, personal communication). In addition, many households simply fail to pay the relevant fees ("redévances"), and non-payments are inadequately pursued by the communes. This is partly due to political considerations, since elected officials wish to remain in office and therefore do not wish to upset local residents, and as a result waste management is underfunded and therefore sub-standard. Household waste amounts to around 347 kg per person per year, with around 36% estimated to be recyclable. Selective waste collection is in place in the Society Islands (and some of the Gambier Islands), representing around 50% of municipalities and 76% of the population. 44% of municipalities have green waste and bulky waste collections. Nevertheless, the

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12 Examples of monthly waste collection fees in the PICTs: Fiji USD 0.99-3.51 (EUR 0.93-3.30), Federated States of Micronesia USD 0-5 (EUR 0-4.70), Tonga (Tongatatapu) USD 5.40 (EUR 5), American Samoa USD 8.64 (EUR 8.10), French Polynesia (Papeete) USD 15-19.50 (EUR 14-18.30), Guam USD 30 (EUR 28), New Caledonia USD 7-79 (EUR 6.50-74) (SPREP PROE and JICA, 2016).
recycling rate in French Polynesia remains at only 6%. (Direction de l’environnement 2015) Additional revenue directed to waste management could be used to help improve infrastructures and therefore improve collection and further increase the rate of recycling.

In Vanuatu, a waste collection fee is charged by the Port Vila Municipal Council (PVMC) as a separate item in the twice yearly property taxes charged to household, government and commercial properties (including hotels) (ADB 2014a). The standard fee is USD 12 (EUR 11.40) per month (SPREP PROE and JICA 2016). The rate does not vary based on the amount of waste collected, although hotels are charged as multiple units (ADB 2014a). Revenues finance solid waste management in the PVMC area, and amounted to around VUV 28.8 million (EUR 242,700) in 2012 (ADB 2014a). It is estimated that only around 20% of all properties in the PVMC area actually pay the waste collection fee (ADB 2014a). This implies that only a small percentage of properties finance waste collection and disposal, whilst all waste put out for collection is collected, meaning that many properties have their waste collected ‘for free’ and there is a low incentive to actually pay collection fees. If effective enforcement systems were in place and all properties paid the fee, it is estimated that the revenues raised could comfortably support the operation of the waste collection and disposal systems in the PVMC area (ADB 2014a). However, it is unclear whether any reforms to either the collection system or the governance system are being planned.

2.5.3 Reform efforts and existing ‘green’ instruments

There are numerous examples of PICTs using taxes and subsidies in an attempt to encourage and provide financial support for improved waste management. In French Polynesia, tax credits of up to 40% are available on investments in waste collection, sorting, recycling, recovery and treatment of household and/or industrial waste (DICP 2017a). No specific environmental criteria are applied, other than use of renewable energies where possible, and general efforts to reduce fossil fuel use. Vanuatu applies a landfill tipping fee, at the Bouffa landfill. The fee averages USD 30 (EUR 28.5) per tonne and is paid by commercial and self-haul trucks upon delivery of waste to the site. Revenues from the fee, which amounted to VUV 20 million (EUR 168,500) in 2012, are used to finance solid waste management in the PVMC area (ADB 2014a).

Several PICTs, including Vanuatu and Kiribati, use ‘pay-as-you-throw’ schemes. Such schemes typically aim to link the fees paid by households (or businesses) for waste management to the actual amount of waste they generate, for example based on quantity, waste, or the number of bags disposed of. The examples from Vanuatu and Kiribati are summarised in Box 16 below.
Box 16 Pay-as-you-throw schemes: Luganville red bag scheme (Vanuatu) and South Tarawa green bag initiative (Kiribati)

Since 2015 the Luganville Red Bag scheme has aimed to encourage citizens to change their behaviour and attitude towards waste (Vanuatu Daily Post 2015a), and to finance waste management in the area (e.g. maintenance of waste collection trucks) (Luganville Waste Management 2015). The main purpose is to encourage the minimisation of waste at source (e.g. through home composting and aluminium can separation) to reduce final disposal of waste via landfilling to a minimum (Department of Environmental Protection & Conservation 2016). Households in the Luganville Municipal Council (LMC) buy official red rubbish bags (around 80 litres in volume per bag) for disposal of non-compostable waste. The bags cost VUV 80 (EUR 0.67) per single bag or VUV 1,400 (EUR 11.80) for a pack of 20 bags (equivalent to VUV 70 (EUR 0.60) per bag) (Vanuatu Daily Post 2015a). Every household was given one free bag when the scheme was introduced (Vanuatu Daily Post 2015c). It was estimated in 2015 that around 250,000 red bags would be used in a year (Vanuatu Daily Post 2015c), which would provide revenues in the range of VUV 17.5 to 20 million (EUR 147,500 to 168,600). The LMC achieved a 96% participation rate for weekly red bag use (VSA 2015).

Under the green bag initiative in South Tarawa, households pay AUD 0.20 (EUR 0.14) per green bag for the disposal of non-organic waste. The bag fees finance the cost of waste collection by private contractors (ADB 2014b). Whilst few households participate in the scheme, the households that do use it feel it is both efficient and fair (ADB 2014b). In environmental terms, the scheme has been successful. By the end of 2005, a 50% reduction in waste generated (sent to the Nanikai landfill) had been achieved, and between February 2004 and December 2005, the amount of household waste landfilled dropped by around 60% (from 0.2kg to 0.08kg per person per day) through the removal of organics and recyclables (Leney 2006). In economic terms, from its inception to December 2005, the green bag system saved at least AUD 14,000 (EUR 9,867) in landfill space through waste reduction. It was estimated in 2006 that use of the green bag had the potential to save 60% of landfill space (i.e. up to AUD 100,000 (EUR 70,466) per year in avoided landfill costs) (Leney 2006). To achieve full cost recovery, it is estimated that the cost of a green bag will need to increase to AUD 0.40 (around EUR 0.28) (ADB 2014b).

Deposit-refund schemes, typically applied to bottles (or other packaging), are another instrument that can be used to finance waste management. These exist in both French Polynesia (for bottles of the locally produced Hinano beer) and Palau (see Box 17 below).
Since 2011, each beverage manufacturer/importer pays a USD 0.10 (EUR 0.9) deposit for each imported plastic, glass or metal beverage container of 32 fluid ounces or smaller that is used to contain a deposit beverage13 (The Republic of Palau Public Law - RPPL No. 7-24). Consumers can redeem USD 0.05 (EUR 0.05) of this when returning the container to a designated redemption centre for recycling (ADB, 2014c). Refunds of USD 50 (EUR 48) or less are paid in cash; higher amounts are paid by cheque (Koror State Government, 2015). The deposits are paid into a separate Recycling Fund (RPPL No. 7-24) which is used to administer the recycling program, to conduct recycling education/demonstration projects, and/or to promote recyclable market development activities. Up to USD 0.025 (EUR 0.024) per deposit goes to the redemption centre receiving the container.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of deposits paid</th>
<th>Total value of deposits</th>
<th>Revenue to Recycling Fund</th>
<th>Deposits returned to consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>10.3 million</td>
<td>USD 1.035 million (EUR 987,225)</td>
<td>USD 912,722 (EUR 870,538)</td>
<td>USD 1,714,531.40 (over EUR 1.6 million)</td>
</tr>
<tr>
<td>2012</td>
<td>14.8 million</td>
<td>USD 1.484 million (EUR 1.4 million)</td>
<td>Redemption centres received up to USD 857,265.70 (over EUR 817,000)</td>
<td></td>
</tr>
<tr>
<td>2013 (to Sept)</td>
<td>11.3 million</td>
<td>USD 1.131 million (EUR 1.1 million)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Government of Palau 2014)

From January 2011-September 2013 a deposit was redeemed on 34,290,628 containers – around 94% of containers upon which the deposit fee was paid (Government of Palau 2014). It is estimated that 311,793 kg of aluminium beverage containers, 118,785 kg of PET bottles and 15,689 kg of other metal beverage containers – a total of 446,267 kg – were exported (for recycling) between April 2011 and September 2013 (Government of Palau 2014), removing 98% of aluminium cans from the waste stream and reducing pressure on the M-dock landfill (ADB 2014c).

### 2.6 Water management

#### 2.6.1 Introduction

The UN resolved in 2010 that access to adequate, safe freshwater is a basic human right. However, many Pacific island countries did not meet the Millennium Goals for water and sanitation. PICTs face unique challenges in sustainable development, especially in water and sanitation, due to their vulnerability and diversity (Duncan 2011). Having access to, and the availability of, safe freshwater and appropriate sanitation are some of the highest priority concerns for PICT communities and industries. Culturally, water is seen as a public good or ‘gift of God’. This can make it challenging to extract revenues from community members for water provision, although some attempts at it have been made, especially in urbanised

13 ‘Deposit beverages’ include beer, ale, spirits, wine, tea and coffee drinks, soda, non-carbonated water and all non-alcoholic liquid drinks. The following are not classed as deposit beverages: syrups, concentrated liquids, extracts/sauces/condiments/flavourings, medicines and nutritional supplements, products frozen at the time of sale to the consumer or designed to be consumed frozen, instant drink powders, broths/soups and milk/dairy-derived products (RPPL No. 7-24). The scheme may be amended to include all sizes of beverage container and containers for milk and dairy-derived products in the future (Government of Palau 2014).
settings (see examples below). Water management challenges in the PICTs are exacerbated by increasing levels of development, population growth, urbanisation, tourism development and changes in land use and accompanying governance structures. Safe freshwater supplies are also already disrupted by frequent and severe El Niño-Southern Oscillation (ENSO)-related droughts, floods and major cyclones, with such issues likely to worsen in the future with the impacts of climate change, especially rising sea-levels and temperatures (White and Falkland 2012).

A significant number of taxes are in place for water management, including abstraction charges, pollution charges and penalties for pollution incidents. Subsidies (or de facto subsidies) include the tacit acceptance of illegal (unpaid) bore holes, preferential pricing, and guarantees of a minimum level of supply for communities (e.g. by governments/funded by donors). Globally, these instruments can help to limit water over-consumption and pollution, provide access to water for vulnerable populations at low cost or for free, while recovering for the cost of water management, and allow modest profit in the case of public private partnership. The careful design of the tax and subsidy system is thus essential to provide such a vital service while fairly distributing its costs. The evolution of the tax and subsidy system in the PICTs is also linked to various international factors, including some development projects. The 6th and 8th programmes of the European Development Fund in French Polynesia supported the development of water and wastewater systems, and the implementation of a drainage levy in Fiji is related to internationally funded drainage projects. It should be noted that the privatisation of parts of the water management system, if not compensated through effective taxes and subsidies, can lead to a twofold system in which only wealthier populations have access to clean water.

### Table 6 Water-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to water management</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage levies / subsidies</td>
<td>Drainage levies / subsidies.</td>
<td>- Negative impacts on ecosystem / biodiversity if no / inadequate environmental criteria.</td>
</tr>
<tr>
<td>Fees for access to / use of natural resources</td>
<td>Fees for the use of water resources for bottling.</td>
<td>+ Reduced water extraction through application of user pays principle.</td>
</tr>
<tr>
<td>Service provision fees (including inadequate pricing)</td>
<td>Water pricing (domestic, hotel / tourism related), e.g. through fixed / variable block tariffs, cross-subsidisation etc.</td>
<td>+ Reduced water extraction through application of user pays principle, including differentiated pricing for different users. - Missed opportunity to reduce water extraction if prices too low.</td>
</tr>
</tbody>
</table>

#### 2.6.2 Existing (potentially) harmful instruments

Governments in many PICTs offer financial support for the provision of water, often in the form of ad hoc subsidies to responsible ministries or state-owned enterprises (Pacific Region Infrastructure Facility 2014). In Fiji, the Water Authority receives Government funding to support its operations through budget allocations. User fees cover just 41% of the total costs of supplying water to households. This lowers household costs for water supply, but simultaneously increases water usage and acts against water conservation. Similarly, in
French Polynesia, communes have legal responsibility for water provision but many residents simply fail to pay the relevant fees (‘redevances’) (Vanizette 2016, personal communication; Lallement 2016, personal communication).

In Fiji, a Drainage Levy was in place from 1961-2008\textsuperscript{14}, to support the development and maintenance of viable agricultural land in low lying areas of land in the Fiji river deltas near the sea that can become waterlogged and not feasible for growing crops, and also as a flood mitigation measure. Land users paid the levy to drainage boards controlled by the Ministry of Primary Industries. Exemptions could be granted by the individual drainage area boards or the Government (e.g. to farmers affected by natural disasters). The revenues were used to maintain and develop drainage systems in the drainage board area (including weeding of channels and dredging). It should be noted that drainage works projects are also often sponsored through international donor funds (e.g. Asian Development Bank).

The levies allowed farmers and land users to collectively invest in the maintenance and protection of their farmland. Some anecdotal media reports suggest that the money given by farmers to the boards was not always directly reinvested as designed. In many cases poor farmers were unable to pay the levies, especially in times of natural disasters (e.g. floods/cyclones). There is however some debate over the use of drainage. On one hand, drainage works against the natural environment (i.e. by draining wetlands), with associated negative impacts on ecosystems and long-term maintenance needs. On the other hand, it allows for agricultural development in areas not ideally suited to agriculture, which can be beneficial in economic and food security terms. The Fijian Government is now budgeting for FJD 2 million (EUR 909,000) in drainage subsidies for the year 2016-2017 (Government of Fiji 2016).

2.6.3 Reform efforts and existing ‘green’ instruments

Fixed and variable block tariff water pricing, coupled with private concession management of water systems (under contract to the Government), exist in Vanuatu, French Polynesia and New Caledonia.

In Vanuatu, the mechanism was introduced so the Government could meet its need for long term growth and economic development and have sufficient capacity to manage the systems and support improvements and future investments in water supply. This instrument was introduced in New Caledonia and in Efate in Vanuatu for similar reasons. The tariffs in Bora Bora in French Polynesia were introduced to address pollution in the lagoon (which was impacting on tourism) and to support the supply of water both to luxury hotels and local communities on the island. Typically the pricing structures aim for ongoing cost recovery and modest profit making for water supply infrastructure, treatment and maintenance costs that are managed by a private business. In these cases, all of the water companies managing these contracts are subsidiaries of the French Company ENGIE (formally GDF SUEZ).

\textsuperscript{14} Most sections of the drainage Act including on levies/rates were repealed in 2008.
In Vanuatu, Port Vila and other villages on the island of Efate are managed under concession by UNELCO. The volumetric pricing mechanism started just after the 40 year UNELCO concession in 1994 was signed. In French Polynesia, water pricing structures exist in Papeete, Moorea and Bora Bora (Pirae is managed by the same company Polynésienne des eaux, but with a fixed subscription price). In New Caledonia, Calédonienne des Eaux prices water in this way in Nouméa; water services were privatised in Nouméa in 1989. Most of the pricing systems are managed at an island or more local level, with the private water company/service provider collecting the payments from water users.

Pricing structures are only in place in areas where it is affordable and viable for the business to charge the proposed tariffs (e.g. in parts of Vanuatu not covered by UNELCO, water supply and distribution are run by the Public Works Department of Vanuatu). Other small water utilities and individuals also provide services in communities throughout the country (e.g. in informal settlements in Vanuatu, a 44 litre drum of water costs VUV 100-200 (EUR 0.84-1.70) (10-20 times the piped price), and is charged by residents with a connection to the piped water supply). In Nouméa, New Caledonia, the water price is made up of a number of components that are fixed (one part for the company, one part for the Ville de Nouméa and another to cover aqueduct development costs) and another part that is charged on a volumetric basis.

In Vanuatu, cost recovery (revenue to expenditure) is 157% in UNECLO. Revenues from water pricing are typically used to maintain and improve water and wastewater distribution and treatment systems; and also to run an effective business for stockholders.

In terms of environmental impacts, different supply and wastewater treatment systems require different quantities of energy to run and materials to be developed. Full life-cycle assessment of water systems and alternatives in the Pacific Islands is rare, but newer development projects and private water operators often optimise their water solutions for energy usage and sustainability, installing solar rather than diesel generation to support them. In such systems, both water and electricity pricing and incentives need to be considered concurrently (see section 2.9). This may be easier in countries where both water and electricity fall under the same utility manager. Another key environmental impact that can be mitigated through pricing and incentives is lagoon and marine/land and groundwater pollution from poorly treated wastewater and water polluting practices. Although pollution is sometimes visible and can be measured de facto through statistics such as diarrheal diseases and infant mortality, water quality data in many Pacific Islands is scarce or patchy so the level of environmental impact from particular treatment systems or lack thereof is difficult to effectively quantify (e.g. ISF-UTS 2011 for Vanuatu). More generally, where water prices are low, water use can increase, also augmenting the potential for water shortages and associated environmental impacts such as saline intrusion or a lack of adequate water for other uses, including island ecosystems and agricultural crops.

Regarding socio-economic impacts, water supplied by these companies tends to be only in key (richer) urban or touristic areas. Other parts of the population rely on either informal water provision of questionable quality, or water bought more on the more expensive informal market. In urban serviced areas, water bills can be very expensive for poorer residents and prices are considered to be very high for a service of questionable quality in
some places. There are some exceptions, such as Bora Bora in French Polynesia, where solidarity funding has been arranged between richer and poorer users (see Box 18).

### Box 18 Water pricing: Cross-subsidisation of water and wastewater systems in Bora Bora (French Polynesia)

Pollution in the Bora Bora lagoon was impacting on tourism, leading to a need for better wastewater treatment. Support was also needed for the supply of water both to luxury hotels and local communities on the island. Local communities could not pay the cost of the improved systems, so a system of cross-subsidisation was introduced to generate enough revenue to provide both hotels and local residents with access to improved water and wastewater systems.

SPEA (the French Polynesian Water Services provider) collects water services charges from both hotels and local residents. Hotel businesses pay greater charges than local residents, meaning that in effect hotels are taxed and residents subsidised. In 2000, hotels paid XPF 210 (EUR 1.75) per m³ (without tax) and local residents paid XPF 10 (EUR 0.08) per m³ (without tax); in 2008 the rates were XPF 280 (EUR 2.35) per m³ (without tax) for hotels and XPF 30 (EUR 0.25) per m³ (without tax) for local residents. Rates include fixed charges based on water meter diameter, plus a volumetric charge per m³, with a block tariff to encourage payment of higher costs by the biggest water users. Hotel users also now pay XPF 1,004 (EUR 8.40) per m³ of their volumetric water charges into a ‘solidarity fund’, which can be used to subsidise the costs of more precarious users. Hotels are effectively paying approximately 80% of the system costs, compared to only 20% for domestic users (ASPA Utilities, 2008). In this way, businesses are supporting community access to improved services.

In terms of environmental impacts, sampling suggests good water quality in the lagoon which is adequate for swimming. Regarding socio-economic impacts, domestic users in this part of French Polynesia have access to one of the best quality systems, with the associated health benefits. The system of cross-subsidisation allows them to pay reduced costs for a good level of service.

Another type of instrument is fees for the use of water resources for bottling. Bottled water is hugely environmentally draining (in terms of energy and water use to produce bottles), and large extractions could lead to water scarcities for local populations in specific areas if there is major competition for resources. In Fiji, a national Water Resources Tax was implemented in 2009 to raise revenue and ensure that bottled water companies pay for their use of this natural resource. Until 2011, businesses extracting less than 5 million litres/month paid FJD 0.011 (EUR 0.0045) per litre; those extracting 5-10 million litres/month paid FJD 0.022 (EUR 0.01) per litre; and those extracting 10 million litres/month or more paid FJD 0.033 (EUR 0.015) per litre (Water Resource Tax Promulgation 2008). In 2011, the tax for extraction of over 3.5 million litres/month was significantly increased to FJD 0.15 (EUR 0.07) per litre. A further adjustment occurred in 2016 to increase the tax to FJD 0.10 (EUR 0.045) per litre for less than 3.5 million litres/month and FJD 0.18 (EUR 0.08) per litre for 3.5 million litres/month or more. Revenues are paid into the general Government budget, with the aim of reinvesting in basic human needs and infrastructure, including water systems for the local population. FJD 35.1 million (EUR 15.9 million) was raised in 2014-15, with FJD 42.3 million (EUR 19.2 million) expected in 2015-16 under the reformed tariff structure.
2.7 Urban development

2.7.1 Introduction

Cities and towns in the PICTs serve as hubs for administration, the provision of essential social services, and drivers of economic growth. However, many of the region’s urban centres are located in hazard-prone areas such as coasts, flood plains, or low-lying atolls. The impacts of a changing climate – increasing frequency and intensity of natural hazards, increased and prolonged heatwaves, and sea level rise – will therefore contribute to rising risk exposure to Pacific nations’ cities and urban centres. To mitigate those risks, urban resilience can be built in several ways. This can include: collecting better information on natural hazards and climate change; ensuring basic urban services for all residents; adopting risk-resilient land use planning, zoning and infrastructure design; preserving natural ecosystem functions such as natural drainage channels, green space, and natural shoreline buffers; and implementing effective early warning systems, emergency disaster response, and post-disaster recovery (ADB 2013).

However, as is the case in many countries, the ability for state urban planning authorities and associated stakeholders to achieve these goals is hindered by the existence of various perverse incentives, including regulations, subsidies or taxes, that either actively encourage unsustainable land development or impede the adoption of more resilient dwellings and infrastructure (for example through water sensitive urban design); subsidies that support centralised electricity generation by state-owned power utilities which prevents the adoption of decentralised electricity systems which could lessen the incidence of power outages etc.; regulations pertaining to, or taxes on, ‘brownfield’ development which provides a disincentive for retro-fitting existing dwellings in favour of ‘greenfield’ development; and lack of ‘fit-for-purpose’ information on where the greatest gains from reforms could be achieved.

Fiji, Vanuatu and French Polynesia have all, to varying degrees, introduced measures that affect urban development in one way or another. They include: Capital Gains tax and land sales taxes; vehicle registration fees and stamp duties; exemptions for residential housing developments (and conversely increases in taxes for tourism development, e.g. in Fiji); subsidies for investments in public infrastructure and specific ‘lump sums’ in annual budgets for its development; and reforms to water and electricity tariff structures that in turn affect urban development. It should be noted, therefore, that urban development has strong links to some of the other sectors covered in this report, including water management, energy, transport and waste management.

Table 7 Urban development-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to urban development</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax credits, concessions and exemptions</td>
<td>Tax credits on investments in building construction.</td>
<td>- Increased construction material use and construction waste generation; potential unsustainable practices if no / inadequate environmental criteria.</td>
</tr>
<tr>
<td></td>
<td>Variable tax rates for different construction materials.</td>
<td>+ Promoting use of sustainable materials (e.g. if rates for wood lower than concrete).</td>
</tr>
<tr>
<td>Fees for access to /</td>
<td>Tax on the extraction of aggregates.</td>
<td>+ Reduced extraction through application</td>
</tr>
<tr>
<td>Type of tax or subsidy</td>
<td>Examples related to urban development</td>
<td>Potential environmental impacts</td>
</tr>
<tr>
<td>-----------------------</td>
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<td>---------------------------------</td>
</tr>
</tbody>
</table>
| use of natural resources | | of user pays principle.  
+ Increased recycling of construction / demolition waste. |
| International donor financing | Loans/financing for Sea Water Air Conditioning (SWAC). | + Reduced energy / fuel use (and associated GHG emissions) compared with conventional air conditioning. |

### 2.7.2 Existing (potentially) harmful instruments

In French Polynesia, tax credits of up to 40% are available on investments in the construction of non-equipped buildings intended for the pursuit of economic activities (DICP 2017a). No specific environmental criteria are applied, other than the use of renewable energies where possible, and general efforts to reduce fossil fuel use. Some anecdotal evidence suggests that developers take advantage of these tax credits for financial gain without ensuring that the resulting buildings are well used (Lallement 2016, personal communication).

### 2.7.3 Reform efforts and existing ‘green’ instruments

In 2016, Fiji introduced a national residential housing development package to support the development of affordable housing. A developer of residential housing can receive the support measures for development projects of at least 20 unit strata titles or 20 lots. The first element of the package is a developer profit exemption, i.e. the income of the company undertaking the residential housing development is exempt from tax on profits from the sale of residential units. Secondly, the company is granted a subsidy of up to a rate of 5% of the total capital expenditure incurred in the residential housing development if capital expenditure is between FJD 2 and 10 million (EUR 908,700 and 4.5 million), up to a rate of 7% of the total capital expenditure of over FJD 10 million (EUR 4.5 million). Finally, the company is entitled to import duty exemptions for all capital goods (e.g. equipment, plant, machinery, but not kitchenware, raw materials, furniture, fittings or motor vehicles) required to carry out the residential housing development project.

Although this is a very new measure, it is anticipated that it will have positive environmental impacts because it has been introduced alongside other measures in the 2016 Fijian budget that aim to develop a ‘stronger, fairer and healthier’ Fiji. One such measure is an increase in taxes/reduction in subsidies for hotel development. It is yet to be seen how this will balance with the Fijian Government’s promotion of tourism (see section 2.8.2).

Fiji replaced its Land Sales Tax with a Capital Gains Tax (CGT) in May 2011. The CGT of 10% is levied on profits or gains realised on the disposal of capital assets. It is calculated based on the VAT Exclusive Price (VEP) of the capital asset in question, and is imposed and collected on a self-assessment basis. The vendor is liable for the tax. In general, the tax applies to items including: real property, structural improvement or an interest in real property; vessels of over 100 tonnes; yachts; airplanes, helicopters or other aircraft; membership interest in a company, security or other financial asset; intangible assets e.g. goodwill; an interest in a partnership or trust; and options, rights or other interests in an asset. Exemptions include: capital gains for individuals of less than FJD 16,000 (EUR 7,270); gains
made on disposal of an individual’s first residential property or principal place of residence; gains from the disposal of shares listed on the South Pacific Stock Exchange; gains from the disposal of an interest in a family home if the interest is transferred to an existing joint tenant or tenant in common; some gains made by the trustee or beneficiary of a deceased estate. Trading stock and assets not listed in the Income Tax Act 2015 are also exempt.

Revenues from the CGT are available to finance public services. Although no specific information has been found on environmental impacts, they should be positive as the CGT acts as a dampener for development transfers.

Air conditioning represents a significant use of energy in many PICTs. It is estimated that 40% of the electricity consumed in French Polynesia is used by conventional air conditioning units. In 2012, the European Investment Bank pledged around EUR 8 million to the Government of French Polynesia to install Sea Water Air Conditioning (SWAC) at the territory’s main hospital, the Centre hospitalier de Polynésie française (CHPF) in Pirae. The project, which is also co-financed by the AFD, ADEME and the Government of French Polynesia, is due to be completed during 2017. SWAC, developed in Polynesia, pumps sea water to a depth of 900 metres and uses it to cool buildings. SWAC was installed at the Intercontinental Hotel in Bora Bora in 2006, and installation was finalised at the Brando Hotel in Tetiaroa in 2016. The system uses between 70 and 90% less energy than conventional air conditioning. It is estimated that the system will save around 13 GWh of electricity per year, halving the hospital’s energy bill to around EUR 3.7 million. (EIB 2012)

French Polynesia is also in the process of introducing two materials-related instruments: an adjusted tax rate for wood for use in construction (to favour the use of wood rather than concrete, and reduce the use of sediments in concrete manufacture) (Fauvet 2016, personal communication) and a tax on the extraction of aggregates (with the latter due to be in place from 1 January 2017) (Dexter 2016, personal communication).

2.8 Tourism

2.8.1 Introduction

Tourism is of crucial economic importance in the PICTs, in terms of generating employment, income and foreign exchange, with an increasing dependence on income generated by foreign tourism. In 2014, travel and tourism accounted for 14% of GDP in Fiji, 18% in Vanuatu (with some estimates as high as 65%) and 10% in Kiribati. Estimates for some of the smaller island economies for 2012 were more substantial: 20% for Samoa and 50% in Palau, with tourism making up more than 75% of economic growth in the latter (World Bank 2016b). For most PICTs, tourism is the primary export earner.

Tourism has increased over the past decades and has had a knock-on effect to the service sector with heightened demand for the production of goods and services such as transport, communication, wholesale and retail trade, banking, insurance, hotel and accommodation services (Pacific Economic Monitor 2015). Tourism in the Pacific Islands has increased steadily since 2010, with Fiji accounting for nearly 40% of all visitors to the region (SPTO 2016). Visitors to Fiji increased by 5% between 2015 and 2016, and by 24% since 2010, with
roughly 75% visiting for holiday purposes (Fiji Bureau of Statistics 2016a and 2016b; SPREP 2012b). Holiday visitors injected over FJD 1.2 billion (EUR 544 million) in 2015 into the Fijian economy, with similar figures projected for 2016. Other key tourist destinations include the Cook Islands (where 86% of visitors are tourists), French Polynesia (86%) and Vanuatu (70%).

Although tourism has many positive impacts, it also brings potential for environmental damage and socio-cultural disruption (Maheshwar 2002). In particular, hotel septic tanks and swimming pools generate liquid waste which may exceed the capacity of existing treatment facilities at peak times, and hotels also generate substantial solid waste (packaging, kitchen waste etc.) which needs appropriate disposal. Hotel construction to meet increasing demand can also potentially create environmental damage (SPREP 2012b). However, the PICTs are by nature very diverse and accurate data on the magnitude and distribution of the environmental effects of tourism is difficult to obtain.

Since environmental quality is intricately linked to the tourism experience in the PICTs, tourism can also contribute to environmental conservation. Beaches, coral reefs, rainforests and other natural features are all key attractors of tourism in the region. For tourism to be sustainable, these natural features need to be effectively managed and conserved, and financial resources obtained through tourism taxes or levies can be used to support environmental management.

Some straightforward examples of taxes that are directly levied on tourists include, for instance, airport taxes, tourist taxes, and charges for tourism activities (e.g. diving) that involve the use of the natural environment, e.g. marine protected areas (MPAs). Tourism businesses and operators may also be subject to many taxes and subsidies that are levied as a component of other economic sectors. For example, tourism infrastructure is a component of urban development and tourism logistics fall under transport issues. On the other hand, explicit or de facto subsidies may also be afforded to the tourism sector, for example through subsidies for the development of tourism-related infrastructures (e.g. hotels, transportation services) or a reduction in (or lack of) certain charges, e.g. berthing fees or waste-related fees for cruise ships calling at port. Overall in the PICTs the revenue derived from visa fees (mostly from tourism) has increased (Pacific Economic Monitor 2015 #1175).

A series of taxes are levied on tourist vessels and cruise ships that visit the PICTs. Vessels arriving in Vanuatu face a clearance fee\(^{15}\). In addition there are port dues and sometimes a fee to anchor (especially close to urban areas). In Fiji the main fees are Bio-security Clearance and Health Clearance fees. The Ports Authority of Fiji levies a fee applicable to all vessels entering a number of ports. Some villages may levy an anchoring charge. On departure there is an exit fee or departure tax (Supplement 2015 #1176). Fiji also has multiple conveyancing costs for cruise liners, the number of which are increasing in the PICS (mostly originating in Australia) (Supplement 2015 #1176). The Solomon Islands levy a

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\(^{15}\) [http://www.noonsite.com/Countries/](http://www.noonsite.com/Countries/)
clearance fee, immigration charges, quarantine fees, a visitors permit and a daily anchoring charge\textsuperscript{16}. (See also section 2.4.2 for fees and exemptions for yachts in the PICTs.)

Table 8 Tourism-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to tourism</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tax credits, concessions and exemptions</strong></td>
<td>Duty free stay periods for yachts.</td>
<td>- Increased impacts from increased yacht stays (e.g. waste generation, water use).</td>
</tr>
<tr>
<td></td>
<td>Tax concessions/credits for development and operation of tourism facilities.</td>
<td>- Increased impacts (e.g. waste generation, water use, ecosystem damage due to construction) if no / inadequate environmental criteria.</td>
</tr>
<tr>
<td><strong>Fuel duty</strong></td>
<td>Duty free fuel for yachts.</td>
<td>- Increased GHG emissions due to cheap fuel.</td>
</tr>
<tr>
<td></td>
<td>Subsidies / support for specific air routes.</td>
<td>- Increased impacts from increased yacht visits (e.g. waste generation, water use).</td>
</tr>
<tr>
<td><strong>Air transport taxes / subsidies</strong></td>
<td>Airport departure tax.</td>
<td>+ Potential to support environmental projects through revenue use.</td>
</tr>
<tr>
<td></td>
<td>Entrance fees for access to conservation areas.</td>
<td>+ Application of polluter pays principle.</td>
</tr>
<tr>
<td><strong>Fees for access to / use of natural resources</strong></td>
<td>Tax / VAT on hotels e.g. premises tax, turnover tax, occupancy tax. Environmental levy for tourism-related businesses. Departure tax for tourists. Cruise ship levy / head tax.</td>
<td>+ Revenues available for environmental uses (conservation, waste management, water infrastructure etc.) through application of user pays principle.</td>
</tr>
</tbody>
</table>

2.8.2 Existing (potentially) harmful instruments

Most of the PICTs have an objective of increasing tourist numbers, and actively support tourism marketing activities and infrastructure development aimed at improving access for tourists and therefore increasing tourist numbers. While this has positive economic benefits for the PICTs, it has the potential for adverse environmental impacts unless other compensating actions are undertaken. Many PICTs offer subsidies for the tourism sector, including Fiji, Vanuatu, French Polynesia and Tonga. A number of examples are summarised in Box 19 below.

\textsuperscript{16} http://www.noonsite.com/Countries/
Box 19 Tourism related subsidies: Tax concessions and credits (Fiji, Vanuatu and French Polynesia)

Fiji has been fairly aggressive in terms of attracting tourism development, with substantial tax concessions to both development and operation of tourism facilities. For example, hotels can deduct 55% of capital expenditure (in addition to normal depreciation) against business income, while capital investments in excess of FJD 7 million (EUR 3.2 million) attract a 10 year tax holiday. Smaller operators with annual turnover of less than FJD 1 million (EUR 453,000) (e.g. backpacker hotels) receive income tax exemptions and duty exemptions on imports of raw materials and building equipment. Small tour operators with a turnover of less than FJD 0.5 million (EUR 227,000) also receive income tax exemptions (WTO 2016).

Vanuatu exempts international companies registering in the country from paying any tax for the first 20 years. While not specifically focused on attracting tourism development, this provides an incentive for tourism developers to establish their operations in Vanuatu.

In French Polynesia, tax credits of up to 60% are available on investments to build or expand hotels and residences for international tourism, and up to 40% for international golf courses attached to such hotels or residences, and for new cruise ships and boats for charter navigation within French Polynesian waters (DICP 2017a). No specific environmental criteria are applied, other than use of renewable energies where possible, and general efforts to reduce fossil fuel use.

2.8.3 Reform efforts and existing ‘green’ instruments

In spite of the economic importance of the tourism sector in the region, several PICTs (including Fiji, Vanuatu, Samoa, Kiribati, Tonga, Palau and the Republic of the Marshall Islands) nevertheless apply taxes and charges to the sector. These have largely been focused on raising revenue rather than changing behaviour, with revenues raised used for the provision of enhanced tourism infrastructure, and sometimes for environmental management.

Several Pacific Island states have introduced a tourism-based tax, usually on hotel accommodation, to generate revenue. This is not a green instrument per se, as the tourism-derived revenue is not necessarily diverted to environmental management or conservation. However, such taxes have the potential to support environmental based activities that might otherwise not be funded.

On 1 January 2016 Fiji changed the VAT tax base applying to hotels from 5% to 10% (at the same time reducing the general VAT rate from 20% to 15%) and introduced a 6% environmental levy (see below). This increased revenue, however, has coincided with increased funding for Tourism Fiji to attract new visitors, so the net effect on visitor numbers is unclear (World Bank 2016b). The environmental use of the funds from the levy is also unclear, other than to support environmental protection programmes. Vanuatu imposes a hotel and premises tax of 10% on the gross turnover of small businesses, and 12.5% on larger tourism based business. The value added tax (applied to all consumption goods) is the sole source of revenues raised by the Vanuatu Government and applies to both tourists and residents. Kiribati imposes a hotel turnover tax, departure tax and a Cruise Ship Head tax, with revenues going to the general budget (Ministry of Communications, Transport & Tourism Development 2009). Samoa has introduced a 5% hotel occupancy tax,
with most of the money raised used to support the administration and maintenance of the airport.

**Fiji** introduced an *Environmental Levy (EL)* in 2016 with the specific aim of generating revenue for environmental works and measures to reverse environmental degradation and decline. The EL is applied nationally to businesses in the tourism sector, including hotels, tourist vessels, bars, tour and recreational operators, cinemas, rental/hire car operators, licenced restaurants, bistro and coffee shops, aircraft operators, water sports operators, home stay operators and unlicensed service operators (Fiji Revenue and Customs Service 2016a). The EL is levied at the rate of 6% of turnover, i.e. 6% of the total charges for prescribed services billed to consumers. Various penalties apply if the EL is not paid.

Information on revenues raised by the EL, and on environmental and socio-economic impacts, is not available yet, given its recent introduction. The EL has been criticised by environmental groups as a result. Such criticism is supported by international research on similar funding arrangements. One study on green funds concluded that the clear direction of such funds toward environmental activities was crucial if they were to be effective (Bayon et al. 1999). If revenues from the tax are indeed earmarked for environmental protection, the environmental impacts would be positive. Earmarking does already occur in other PICTs. Some examples are provided in Box 20 below.

**Box 20 Use of tourism related revenues for environmental purposes: Tonga, Palau and the Republic of the Marshall Islands**

In **Tonga**, a cruise ship levy of USD 5 (EUR 4.70) per passenger is earmarked for waste management purposes and is channelled directly to the Waste Management Authority.

In **Palau**, a Green Fee raised through a departure tax of USD 30 (EUR 28) helps to finance improvements to the water and sewage system, as well as local community conservation efforts under the Protected Areas Network (SPREP 2012c). A proposal is in place to consolidate the departure tax and Green Fee into a single (higher) arrival fee for non-citizens (Pacific Islands Report 2015).

The **Republic of the Marshall Islands** has also recently established a Green Fund that accrues revenue from tourism. The fund is earmarked for environmental purposes.

Resorts have a direct interest in maintaining the natural environment in their immediate area. Some have supported environmental programmes independently (e.g. in Fiji), whilst in other cases entrance fees are charged for access to conservation areas (e.g. in Fiji and Samoa). For example, a resort on Navini (Fiji) has implemented a marine management area around the island in collaboration with the indigenous island residents. The resort offers compensation to local residents for the value of fish previously taken from the area (Niesten et al. 2013). Access to most marine reserves in Fiji attracts a charge, with the funds used for site management. For example, access to Namena Marine reserve costs FJD 30 (EUR 13.60) for an annual pass\textsuperscript{17}, while visits to Waitabu Marine Park reserve cost FJD 20 (EUR 9)\textsuperscript{18}. In

\textsuperscript{17} [http://www.namena.org/](http://www.namena.org/)

Samoa, these fees are relatively modest (WST 2 – 5, EUR 0.74 – 1.85) and apply to both tourists and residents\textsuperscript{19}.

2.9 Energy

2.9.1 Introduction

The energy sector must be reformed for global climate change mitigation targets such as those recently agreed in the Paris Agreement (2015) to be met. Taxes and subsidies can either provide incentives for the development of renewable energies or for the consumption of fossil fuels. In 2014 global subsidies for fossil fuels were estimated at USD 490 billion (EUR 467 billion), whilst subsidies for renewable energy were only USD 112 billion (EUR 107 billion) (Financial Times 2016). Taxes and subsidies can also incentivise either energy over-consumption or energy efficiency. Examples in the energy sector include energy taxes and subsidies, emissions trading and feed-in tariffs for power generation from renewables. The development of renewable energy in Germany has successfully illustrated how feed-in tariffs can be a key factor in rapidly redirecting a country’s energy mix towards a sustainable path (IEA RETD TCP 2016, forthcoming).

The 2015 OECD climate financing report raises concerns over some developed countries around the Pacific region (notably Japan and Australia) calling for financing of high efficiency coal plants to be considered a form of climate finance (OECD-CPI 2015). If clean coal technology sales to large Asian nations like China, Indonesia and India are prioritised, this is likely to distort international climate financing away from crucial adaptation needs in PICTs, where potential for significant private sector co-financing is limited (Oxfam 2016, forthcoming). The proposed Pacific Climate Treaty, presented at the 2016 Pacific Islands Development Forum Leaders’ Summit, includes several commitments towards phasing out fossil fuels, including a regional ban on mining of coal and fossil fuels, and elimination of subsidies for fossil fuel production or consumption. Pacific leaders will further consider the proposal (Oxfam 2016, forthcoming).

Over the last decade PICTs have established some of the most ambitious renewable energy targets in the world (Dornan 2014b) to strengthen their position in international climate change negotiations and support the push for ambitious global targets. The promotion of renewable energy has also been motivated by a desire to lessen dependence on costly imported fossil fuels (which account for almost half of Fiji’s energy consumption). Energy efficiency measures are also considered to be the most cost-effective means of reducing reliance on fossil fuels in the PICTs (Dornan and Jotzo 2015).

Despite ambitious renewable energy targets, however, the use of renewable energy technologies for power production has to date been limited in most PICTs, and the economies of PICTs remain very energy intensive. PICTs have so far primarily relied on development assistance for renewable energy development.

\textsuperscript{19} http://www.samoaatoz.com/p/
Table 9 Energy-related instruments in the PICTs and potential environmental impacts

<table>
<thead>
<tr>
<th>Type of tax or subsidy</th>
<th>Examples related to energy</th>
<th>Potential environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tax credits, concessions and exemptions</strong></td>
<td>Tax relief for biofuel production.</td>
<td>+ Reduced GHG emissions from increased biofuel use for energy production.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Increased GHG emissions due to land use change.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Risk of developing monoculture / intensification of agriculture, with associated impacts on biodiversity.</td>
</tr>
<tr>
<td></td>
<td>Tax credits / lower tax / tax exemptions for renewable energy companies / equipment.</td>
<td>+ Reduced GHG emissions from increased renewable energy production replacing fossil fuel energy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Risk of habitat degradation if no / inadequate criteria applied.</td>
</tr>
<tr>
<td><strong>Fuel duty</strong></td>
<td>Variable duties on imported fuels.</td>
<td>+ Potential to encourage cleaner fuels through environmental criteria or differentiated pricing.</td>
</tr>
<tr>
<td><strong>Energy subsidies, price support</strong></td>
<td>Tax exemptions for fuel imported for electricity generation.</td>
<td>+ Increased GHG emissions from energy production (from fossil fuels).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ Potential to encourage cleaner fuels through environmental criteria or differentiated pricing.</td>
</tr>
<tr>
<td></td>
<td>Differentiated pricing to promote renewable energy generation.</td>
<td>+ Reduced GHG emissions from increased renewable energy production replacing fossil fuel energy.</td>
</tr>
<tr>
<td></td>
<td>Feed-in tariffs for renewables (e.g. wind, hydro, solar).</td>
<td>+ Reduced GHG emissions from increased renewable energy production replacing fossil fuel energy.</td>
</tr>
<tr>
<td></td>
<td>Price controls / tax reductions to subsidise fossil fuels.</td>
<td>- Increased GHG emissions (or missed opportunity to reduce emissions).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ Potential to encourage cleaner fuels through environmental criteria or differentiated pricing.</td>
</tr>
</tbody>
</table>

2.9.2 Existing (potentially) harmful instruments

Fuel subsidies have led to detrimental environmental outcomes in a number of PICTs. In many countries, fuel imports used for electricity generation by the power utility are not charged import duties or other taxes. This is currently the case in Tuvalu and Kiribati. In Fiji, the Fiji Electricity Authority was previously allowed to import diesel fuel for its generators on a duty-free basis, but this is no longer the case.

The control of retail fossil fuel prices, which is common in the region, also has the potential to lead to hidden subsidies. For example in French Polynesia, the Hydrocarbon Price Regulatory Fund (Fonds de régulation des prix des hydrocarbures, FRPH) regulates and supports the price of fuels to allow them to be sold at the same price across the whole territory. For many years, increased global oil prices led to a persistent deficit in the FRPH (XPF 3 billion, EUR 25.1 million at the end of 2012). However, the decline in global oil prices had resulted in a surplus of XPF 2.9 billion (EUR 24.3 million) by the beginning of 2016. On 1 February 2016, the cost of a litre of unleaded petrol fell by XPF 15 to XPF 128 (EUR 1.07),
whilst the diesel price fell XPF 10 to XPF 130 (EUR 1.09) per litre. (IEOM 2016) This very small difference in price represents a missed opportunity to encourage the use of cleaner unleaded petrol over diesel. A recent SPC study of fuel subsidies in Kiribati concluded that price controls had led to subsidised prices, with adverse environmental and social impacts (see Box 21 below).

**Box 21 Fuel subsidies (Kiribati)**

Kiribati is highly dependent on fossil fuel imports. All petroleum products (e.g. diesel, benzene, kerosene and lubricants) are imported, amounting to 26% of the total value of imports in 2013 and slightly exceeding the export value of all goods and services. Fuel subsidies also increase their consumption, increasing oil dependency and vulnerability to volatility in international prices. Price controls and tax reductions are used to subsidise fuel consumption, with benzene and kerosene prices controlled by a price ordinance. Whilst diesel is not formally included in the ordinance, data suggest that in practice the price of diesel is also controlled. Prices appear to be subject to political decision, with no apparent pricing formula.

The estimated average subsidies from 2011-2015 were AUD 0.60 (EUR 0.42) per litre for kerosene, AUD 0.45 (EUR 0.32) per litre for benzene and AUD 0.20 (EUR 0.14) per litre for diesel. This results in estimated annual subsidies of AUD 7.1 million (EUR 5 million) for the three fuels (equivalent to around 4-5% of GDP, 42% of education expenditure and 53% of health care expenditure between 2011 and 2014). In 2011 the subsidies would have corresponded to 8.6% of Government revenues, which is high compared to other countries in the world.

Whilst subsidies generally aim to make fuels affordable for the poor, experience from other countries shows fossil fuel subsidies are inefficient at doing so. For example, benzene subsidies tend to favour private car owners, who are often in wealthier households. The limited available data suggests this may also be the case in Kiribati, with no solid evidence to support that idea that diesel and kerosene subsidies would effectively help the poor. Compared to general fuel subsidies, targeted transfers and other social policy instruments are generally considered more effective to support the poor (see e.g. Komives et al. 2005; and Sdralevich et al. 2014). Regarding environmental impact, it is estimated that eliminating the subsidies would cut Kiribati CO2 emissions by almost 7% compared to 2008 levels, making a significant contribution to its Nationally Determined Contribution (INDC) target of a 13.7% reduction in GHG emissions by 2025. In addition, subsidising kerosene has adverse health impacts on the people in the form of indoor air pollution.

(Pacific Community 2016b)

### 2.9.3 Reform efforts and existing ‘green’ instruments

Many instruments are in place in various PICTs that can help to reduce environmental impacts from energy consumption and generation. For example, energy pricing reforms have been used in Fiji and Vanuatu to promote the development of energy generation from renewable sources. For example, the Fiji Government has established ambitious targets for renewable energy supply (initially 90% by 2011 (delayed to 2015), then 81% by 2020, currently 100% by 2030). Its electricity pricing reform is summarised in Box 22 below.
The reform of national electricity prices in Fiji aimed to facilitate investment in renewable energy technologies by making such investments profitable. Financial support was given to the Fiji Electricity Authority (FEA)\(^\text{20}\) to enable investment in renewable technologies, and through higher FIT for independent power producer (IPPs) (see separate instrument description in Box 23 below). Since 2009 the Commerce Commission (the independent regulator established by the Fiji Government) has increased electricity prices by approximately 90%. A uniform customer tariff applies, which involves cross-subsidisation of rural areas by urban areas. The current residential electricity price is FJD 0.331 (EUR 0.15) per kWh, but a governmental subsidy allows for a ‘lifeline tariff’ of FJD 0.172 (EUR 0.08) per kWh for household usage below 3.12kWh per day, to address concerns over the impact of higher prices on low-income households (although some still argue that the policy is insufficient and does not account for household size). Commercial/business customers and high volume customers are charged a higher price.

The pricing reform is largely regarded as a success. Higher electricity prices have improved the FEA’s financial performance, and higher revenues combined with Government guarantees on FEA debt have enabled several new renewable energy investments, to mitigate risks from high oil prices. Although climate change mitigation is a secondary objective, renewable energy production has increasingly replaced oil-based power generation. However, this has not gone uncriticised. Much renewables expansion has taken the form of hydropower, and environmental groups have criticised the construction of dams in pristine forest environments. The rigour and independence of the environmental approval process is clearly important in this context.

Subsidies to promote energy generation from renewable sources are in place in several PICTs. Through the Vanuatu Rural Electrification Project, the Government has used donor funding to subsidise the purchase of 5W to 30W ‘Plug and Play’ solar systems to provide lighting and charge mobile phones. Phase two is expected to expand the scheme to include the establishment of mini-grid systems. The initiative is important in a country where only 27% of households have access to electricity.

Feed-in tariffs (FIT) are a more common means of promoting renewables. These are in place in several PICTs, including Fiji (biomass) and French Polynesia (the Rachat de l’électricité d’origine renouvelable for wind, hydro and solar). The FIT for Fiji is outlined in Box 23 below.

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\(^{20}\) The Fiji Electricity Authority (FEA) is the state-owned monopoly provider of all grid-supplied electricity. IPPs can however supply electricity to the FEA, which then sells it on to consumers. The Fiji Government has had plans since 2010 to sell a 49% stake in the FEA, and has incorporated revenue from this sale into consecutive Government budgets, but the sale has not yet proceeded.
Box 23 Feed-in tariffs for renewable energy: Fiji

A minimum national *feed-in tariff* (FIT) is paid to independent power producers (IPPs) to encourage investment in renewable energy technologies. The FIT is offered for a 15 year period at a fixed rate. When introduced in 2010, the rate was FJD 0.27 (EUR 0.12) per kWh, but in 2011 it was reduced by 5% to FJD 0.2565 (EUR 0.116) per kWh. This was nevertheless still significantly higher than rates previously paid (just FJD 0.088 (EUR 0.04) per kWh to the Fiji Sugar Corporation (FSC) in 2009 and FJD 0.13 (EUR 0.06) per kWh to Tropik Wood in 2008, to produce electricity as a by-product of sugar production and timber milling respectively). FSC and Tropik Wood, the two main IPPs in Fiji, represent only around 2% of total generation. In environmental terms, there are no obvious impacts on biodiversity/climate adaptation, although the proposed establishment of biomass facilities may pose potential risks for food security if not managed well.

The FIT reform was part of a broader ‘Tariff Alignment’ which increased consumer power prices to facilitate renewable energy development and allow an increase in FIT rates. The impact of the reform has been disappointing. Whilst the FEA has signed a number of Power Purchase Agreements with new IPPs, poor contract design has allowed these companies not to invest. The small-scale of production, difficulties in accessing land, and FEA development of attractive hydro-power resources has hindered investment by IPPs.

Several PICTs provide various *fiscal incentives* for renewable energy generation. In **French Polynesia**, tax credits of up to 40% are available on investments in renewable energies, including energy generation from solar, wind, hydro, geothermal, wave, biomass and waste sources (DICP 2017a). In addition, since 2015 energy companies generating energy from only renewable sources pay a lower rate of corporate tax than other energy companies (20% compared with 25% or 35%), and new renewables companies also enjoy a longer exemption period than other new energy companies (four years rather than two) (IEOM 2016).

**Fiji** also has national *fiscal incentives for renewable energy*. A 100% tax write-off is available in the year of expenditure on renewable energy plant and machinery. A *5-year tax exemption for new renewables and power co-generation projects* is available to companies and taxpayers. In addition, *duty free importation of materials used for renewables* is available. The country has also cancelled a previous VAT and duty-free exemption for fuel imported by the FEA for electricity generation, to remove the promotion of oil-based power production. These measures aim to promote investment in renewables technologies amongst both households (in particular solar PV and solar hot water heating) and power producers (both the FEA and IPPs). Such incentives are likely to have promoted household purchases of renewable energy (mainly solar) technology through lower prices. This will contribute to the reduction of GHG emissions and the achievement of Fiji’s renewable energy targets for the electricity sector. On a global scale, although renewable energy investments in the PICTs are insignificant, they are notable at a national level. In socio-economic terms, higher income households are more likely to benefit from duty-free exemptions on PV and solar hot water systems, so there may be some concerns over the distributional impacts of the instruments.

Variable duties on the import of fuels are also applied in the PICTs. Whilst **Vanuatu’s fuel import and excise duties** are primarily a revenue raising measure, with import duties the second most important revenue source for government after VAT (excluding donor funds),
they may also make the blending of diesel and coconut oil for electricity generation (by UNELCO, Vanuatu’s largest power utility) more commercially attractive. The country’s National Energy Roadmap aims to produce 40% of electricity from renewables by 2015, 65% by 2020, and 100% by 2030.

VAT of 12.5% is applied on all fuels in Vanuatu, but import and excise duties vary according to fuel type:

- Diesel: VUV 20/litre (EUR 16/litre) import duty and VUV 15/litre (EUR 12/litre) excise;
- Unleaded petrol: VUV 15/litre (EUR 12/litre) import duty and VUV 20/litre (EUR 16/litre) excise;
- Aviation fuel: 5% import duty and VUV 4/litre (EUR 3/litre) excise;
- Kerosene and residual fuel oil (the latter used for electricity production): 5% import duty and zero excise; and
- Biodiesel: 5% import duty and zero excise.

Excise revenues from motor spirits in 2015 amounted to VUV 675,795,889 (EUR 5.5 million) and import duties received were VUV 534,180,934 (EUR 4.3 million), representing 7.5% of total government revenue (including donor funding). The revenues are not earmarked for any specific purpose.

Whilst the import duties for other fuels may make the use of domestically-produced coconut oil in mixed fuel for electricity generation somewhat more attractive, other factors are also important. UNELCO has made efforts to address issues around quality of the oil (important for generator performance) and consistency and reliability of supply. UNELCO has set up a company to manage its own coconut plantation and enter into long-term supply arrangements with other copra farmers. The company sells the manufactured oil to UNELCO and may not export it without UNELCO approval, which has contributed to the relative success in Vanuatu of the use of a coconut oil-diesel fuel blend for power production. Looking ahead, continued use of coconut oil in electricity production may be challenged by higher prices being paid for copra and coconut oil, with the latter receiving very high prices in the cosmetics market.

Increased use of copra and coconut oil will generate associated environmental benefits from reductions in diesel and heavy fuel oil use (although there may be implications for food security if more agricultural land is used for fuel production). Since production of copra and coconut oil is a rural activity, this may also benefit lower income rural areas, which are primarily of lower socio-economic status. However, these can be seen as unintended positive side-effects of the duties, which are primarily a revenue raising measure. In addition, revenues from import duties are likely to decline in coming years as part of Vanuatu’s accession to the WTO and its likely signature of the PacerPlus trade agreement with Australia and New Zealand.
This report provides a review of information on taxes and subsidies in the PICTs in nine economic sectors that have, or have the potential for, either positive or negative environmental impacts. It should be noted that the report is not intended to be an exhaustive regional review, but rather to present interesting illustrative examples of existing instruments and reform efforts from the region, with a particular focus on three of the PICTs involved in the RESSCUE project (Fiji, French Polynesia and Vanuatu). It should also be noted that limited quantitative information has been found on the environmental effects of the instruments, which makes assessing their actual environmental impact difficult. However, based on the expertise of the report’s authors, the instruments have been categorised as either broadly positive or (potentially) detrimental in terms of their environmental contribution.

The following sections provide some initial conclusions on the current situation with regards to harmful instruments, reform efforts and potential future actions. These will be further discussed during a regional workshop to be held during the first half of 2017, and developed into a roadmap for the further greening of taxes and subsidies in the PICTs.

### 3.1.1 Existing (potentially) harmful instruments in the PICTs

There are still many taxes and subsidies in the PICTs that may be detrimental to the environment and may be hampering the achievement of broader environmental objectives, including those related to climate change and biodiversity.

*Tax concessions or exemptions* are in place in many PICTs for companies investing in several economic sectors with the potential to be environmentally damaging. Examples include:

- Tax credits or tax, import or export tariff exemptions for mining and prospecting activities in **New Caledonia** and **Fiji**; for investments in the fisheries sector in **Fiji**, **French Polynesia** and **Vanuatu**; for the dairy industry in **Fiji**; for investments in agriculture and livestock farming in **French Polynesia**; for new tyres for buses in **Fiji**; for building construction in **French Polynesia**; for tourist developments in **Fiji**, **Vanuatu** and **French Polynesia**;

- Fuel duty concessions or exemptions for fisheries in **Fiji** and **French Polynesia**; for aviation fuel and fuel oil in **Vanuatu**, for yachts in **French Polynesia** and **New Caledonia**; for fuel imported for electricity generation in **Tuvalu** and **Kiribati**; and

- Reduced duty fees or duty-free periods for yachting in **Fiji**, **Vanuatu**, **French Polynesia** and **New Caledonia**.

Whilst these instruments are undoubtedly beneficial in terms of supporting and maintaining activity, employment and productivity in vital economic sectors in the PICTs, many do not adequately consider environmental externalities in their design, for example where tax concessions or subsidies are not subject to any specific environmental criteria. This could lead to support for activities that cause detrimental environmental impacts, including
increased mining activity, increased GHG emissions, greater imports of tyres (a difficult to manage waste stream) or overfishing.

All PICTs offer **direct subsidies for specific activities in certain economic sectors**. Examples include:

- In the agriculture sector, the Sugar Development Programme in Fiji, the price support fund for copra/coconut in French Polynesia, support to the dairy industry in Fiji, and subsidies for agricultural fuel use in Vanuatu;
- Subsidies for marine transport in French Polynesia, Vanuatu, Fiji and New Caledonia, and for certain air transport routes (e.g. the underwrite agreements in the Cook Islands);
- A drainage subsidy in Fiji; and
- Price controls for fossil fuel consumption, such as the Fonds de régulation des prix des hydrocarbures (FRPH) in French Polynesia and the price ordinance for benzene and kerosene in Kiribati.

Whilst generally successful in increasing economic activity (e.g. crop production, tourist numbers, fuel consumption) in the sectors concerned, without the application of specific environmental criteria to the provision of subsidies, they could lead to various detrimental environmental impacts. In the agriculture sector this could include land use change to increase and intensify production, and impacts on ecosystems and biodiversity (e.g. from monoculture, increased fertilizer use polluting water). In the energy and transport sectors in particular, the additional activity resulting from subsidies will generate increased GHG emissions. For example, it is estimated that eliminating fuel subsidies in Kiribati could cut CO₂ emissions by almost 7% compared to 2008 levels. Instruments that offer support for increased tourism may contribute to increased environmental impacts in terms of water use, fuel consumption and waste and wastewater generation.

International agreements can be harmful in some sectors. One example is the payment of access fees by foreign vessels to fish in the waters of the PICTs, including in Kiribati, Fiji and Papua New Guinea. Whilst such agreements may include environmental considerations (e.g. complying with certain sustainability and conservation requirements), they may also allow agreed quotas to be exceeded by payment of an additional fee, which effectively allows overfishing and the depletion of stocks.

Failure to adequately charge for certain vital services, including water and waste management, can act as a **de facto subsidy to poor environmental management**. This is the case for waste management fees in French Polynesia and Vanuatu, and for water supply fees in Fiji and French Polynesia, which are either too low to cover the full costs of waste management, or simply not paid by those who should pay. This can result in a lack of adequate financial signals for behaviour change (e.g. reduced waste generation, reduced water consumption) and therefore failure to realise the potential associated environmental gains (e.g. increased recycling, enhanced efficiency, preservation of freshwater resources).
3.1.2 Reform efforts and existing ‘green’ instruments

A substantial number of efforts have already been made in the PICTs to use taxes and subsidies to contribute to the achievement of environmental objectives. Such instruments have been found across the whole range of economic sectors studied, which is an encouraging sign that the PICTs are already aware of the potential of such instruments to achieve environmental outcomes, and are taking steps towards realising them. Nevertheless, as noted above, a lack of information on quantified environmental impacts means that their specific impacts in addressing externalities remains somewhat unclear.

**Taxes or charges for the use of resources, or for certain activities** with the potential for negative environmental impacts can help to generate revenue which, if earmarked for environmental purposes, can help to finance environmental improvements (e.g. through improved infrastructures for water and waste). Such taxes are particularly relevant for activities that must, or are likely to, continue but which have significant environmental impacts, such as water supply, waste management and tourism related travel. Existing examples in the PICTs include:

- Fixed and variable block tariff water pricing in Vanuatu, French Polynesia and New Caledonia; cross-subsidisation in water pricing in French Polynesia and energy pricing in Fiji;
- Royalty payments for material extraction and fees for the use of water for bottling, both in Fiji; an aggregates extraction tax in French Polynesia; environmental bonds or financial guarantees for mining operations in Fiji and New Caledonia;
- Landfill tipping fees in Vanuatu; pay-as-you-throw schemes for household waste in Vanuatu and Kiribati; deposit refund schemes for beverage containers in French Polynesia and Palau; and
- Tourism-based taxes (e.g. airport departure taxes, taxes on hotel stays or construction), in Fiji, Vanuatu, Samoa, Kiribati, Tonga, Palau and the Republic of the Marshall Islands.

Revenues raised through such instruments can be used for environmental improvements including management of the environmental impacts of mining and tourism, and improved water and waste management. For example, tourism related revenues are used for waste management, water and sewerage services and conservation in Tonga, Palau and the Republic of the Marshall Islands; in some cases, such instruments may also encourage more environmentally friendly behaviours, such as reduced waste landfilling and increased recycling.

**Tax-related incentives**, including differentiated rates, tax exemptions and concessions, are used in several PICTs to offer financial incentives for more environmentally friendly choices, such as the growth of crops for biofuels or switching to cleaner vehicles. Examples include:

- Fiscal incentives (tax credits and exemptions and duty free imports of equipment) for investments in renewable energies in French Polynesia and Fiji; tax relief and duty free imports of equipment to farm biofuel crops in Fiji; and lower corporate tax rates for renewable energy companies in French Polynesia;
- Lower import and excise duties for biodiesel in Vanuatu;
Exemptions from fiscal duty and import excise for electric/hybrid vehicles (together with a luxury vehicle levy) in Fiji; exemption from the circulation tax for electric/hybrid vehicles in French Polynesia;

Tax credits on investments in waste management related activities in French Polynesia; and

An adjusted tax rate for wood for use in construction in French Polynesia.

Such measures can have beneficial environmental impacts including reductions in fossil fuel use and energy consumption, GHG emissions reductions, substitution to less environmentally damaging materials and improved waste management.

**Direct subsidies/support for specific activities in certain economic sectors** can, if applied carefully with environmental considerations taken into account, encourage greener activities or technologies. Examples include:

- Energy pricing reforms and subsidies in Fiji and Vanuatu to promote the development of energy generation from renewable sources;
- Feed-in tariffs (FIT) for the promotion of renewable energy generation in Fiji and French Polynesia;
- Support for the provision of public transport in Fiji and French Polynesia;
- Purchase subsidies for greener vehicles in French Polynesia (through Opération voiture propre);
- Support for agricultural adaptation to the impacts of climate change in Vanuatu; and
- International donor financing for the installation of Sea Water Air Conditioning (SWAC) at French Polynesia’s main hospital.

These instruments can have several positive environmental impacts, including increased renewable energy generation, reduced GHG emissions, air pollution and congestion, and greater agricultural resilience to the impacts of climate change and extreme weather events. SWAC offers the potential to reduce the energy used for air conditioning by between 70 and 90%.

**Fees for licences, permits or registration** are applied to certain activities in many PICTs. Examples include:

- Mining permits in Vanuatu and New Caledonia;
- Registration fees for vehicles in Fiji, French Polynesia, Vanuatu and New Caledonia; annual circulation taxes in Fiji, Vanuatu and New Caledonia;
- Access fees for fishing in Fiji and Vanuatu; and
- Entrance fees for access to conservation areas in Fiji and Samoa.

Such fees can help to regulate the amount of certain types of activity and therefore the associated use of natural resources. For example, differentiated licence fees for fishing can support smaller-scale artisanal fishing, which may have less impact on fish stocks and can therefore contribute to stock sustainability, and to limit recreational and sport fishing.
3.1.3 *Suggestions for potential future reforms and actions*

Figure 10 below summarises some of the key features of taxes and subsidies that can contribute to their success in achieving beneficial environmental outcomes. For each key feature, examples of existing instruments from the PICTs that already apply the feature are listed, together with existing instruments from the PICTs that could benefit from reforms to apply the feature (with a particular focus on the RESCCUE PICTs of Fiji, French Polynesia and Vanuatu).

Figure 10: Key features and success factors of greener taxes and subsidies

<table>
<thead>
<tr>
<th>Clearly stated environmental objectives/criteria</th>
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<tbody>
<tr>
<td><strong>Current examples</strong></td>
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<tr>
<td>FJ, VU: Energy pricing reforms/ subsidies to promote RES</td>
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<tr>
<td>FJ, PF: Feed-in tariffs (FIT) for RES</td>
</tr>
<tr>
<td>PF: Vehicle circulation tax, VAT exemption &amp; subsidies for clean vehicles</td>
</tr>
<tr>
<td>PW: Beverage container deposit fee</td>
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<tr>
<td>VU: Support for agricultural adaptation</td>
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<td>PF: International donor financing for Sea Water Air Conditioning</td>
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<tr>
<td><strong>Reform potential</strong></td>
</tr>
<tr>
<td>FJ: Tax exemption for biofuel production (apply environmental eligibility criteria)</td>
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<tr>
<td>VU: Fishing licence fees (cap no. of licences/ attach quotas to licences)</td>
</tr>
<tr>
<td>NC, FJ: Tax credits/exemptions for mining &amp; prospecting (add environmental criteria)</td>
</tr>
<tr>
<td>FJ, VU, PF: Tax credits/exemptions for tourist developments (incl. environmental criteria)</td>
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<tr>
<td>FJ: Sugar Development Programme (apply environmental criteria)</td>
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<tr>
<th>Adopt coherent package of instruments/reforms</th>
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<tr>
<td><strong>Current examples</strong></td>
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<tr>
<td>FJ: Residential housing development package &amp; increased tax/ reduced subsidies for hotel developments</td>
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<tr>
<td>FJ: Fiscal incentives for RES</td>
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<tr>
<td>FJ: Bus operator &amp; travel incentives</td>
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<tr>
<td><strong>Reform potential</strong></td>
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<tr>
<td>FJ: Tourism-related taxes and subsidies.</td>
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</tbody>
</table>

*Packages of measures can help align taxes & subsidies towards a common objective*
Correct Pricing

Current Examples
- VU, KI: Pay-as-you-throw schemes.
- PW: Beverage container deposit fee.
- PF: Cross-subsidisation of water pricing on Bora Bora.
- FJ: Fees for water use for bottling.
- FJ, NC: Environmental bonds/financial guarantees for mining activities.
- PF: Aggregates extraction tax.
- PF, FJ: Fiscal incentives for RES.
- VU: Lower import & excise duties for biodiesel.
- FJ, PF: Incentives for electric/hybrid vehicles.

Reform Potential
- VU: Variable fuel import & excise duties (adjust to environmental impacts of fuel; consider additional support for coconut/copra for biodiesel).
- VU: Quarry permit fees (adjust based on level of environmental risk).
- PF, VU: Waste management fees (ensure fee level covers full cost of waste management).
- FJ, PF: Water supply fees (ensure fee level covers full cost of water supply).

Earmark Revenues for Environmental Purposes

Current Examples
- FJ: Environmental bonds for mining activities.
- NC: Financial guarantee for rehabilitation of mining sites.
- VU: Landfill tipping fee/waste collection fee.
- PW: Beverage container deposit fee.
- VU, PF, NC: Water pricing.
- PW, TO, MH: Tourism revenues.

Reform Potential
- VU: Quarry permit fees.
- FJ: Fees for water use for bottling.
- FJ: Environmental Levy.
- PF: Tax for environment, agriculture & fisheries.
- PF: Vehicle recycling tax.
Current examples

FJ, VU: Introduction of independent regulatory authorities to set electricity prices.

Reform potential

PF, VU: Waste & water related fees (enforce payment by all households)

FJ: Power tariff alignment (improve quality of contracts to ensure expected investment in RES)

Cooperation is needed between finance/tax ministries & sectoral ministries responsible for environmental management

Robust monitoring

Current examples

PF: Monitoring of circulation tax & VAT exemption for clean vehicles

Improved monitoring can help increase public support for taxes & subsidies by showing link between revenues & environmental improvements

Reform potential

FJ: Tax exemption for biofuel production (conduct rigorous EIA)

FJ: Air departure tax (list as separate item in ticket cost).

VU: Pay-as-you-throw scheme (specify how much of revenue used for waste collection)

FJ: Environmental levy (thorough monitoring)
In summary, this report reveals a mixed picture in terms of the greening of fiscal instruments and subsidies in the PICTs to achieve environmental objectives. Some progress is undoubtedly being made, but some instruments are more successful than others (both in terms of raising revenues and achieving environmental outcomes). As shown in the table above, some areas can already be identified for improvements to help instruments contribute further to climate change and biodiversity-related objectives.


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