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# King Canute muses in the South Seas: Why aren't Pacific Islands transitioning to low carbon sea transport futures?

Avnita Goundar[a,*,1], Alison Newell[b,1], Peter Nuttall[a,1], Isabelle Rojon[c,2], Jale Samuwai[d,1]

[a] The University of the South Pacific, School of Marine Studies, Lower Laucala Campus, Suva, Fiji
[b] The University of the South Pacific, Lower Laucala Campus, Suva, Fiji
[c] University Maritime Advisory Services, 14 Upper Woburn Place, WC1H 0NN London, United Kingdom
[d] The University of the South Pacific, Pacific Centre for Environment and Sustainable Development, Lower Laucala Campus, Suva, Fiji

## ABSTRACT

Transition to low carbon sea transport is a logical response to the extreme dependency of the Pacific Islands region on imported fossil fuel, its significant vulnerability to the effects of climate change and the critical shipping needs of Pacific Island countries (PICs). Building on previous work in low carbon sea transport in the Pacific, this paper further considers the barriers to achieving such transition by assessing, through a 'post-Paris Agreement' lens, the Intended Nationally Determined Contributions (INDCs) submitted by PICs and contrasting these to the near total lack of investment and planning for low carbon transition in the transport sector with the parallel occurrence in the electricity sector where ~USD 2 billion of donor investment is deployed or queued despite electricity using only ~20% of fossil fuel across the region. Consistent with recent international studies, inadequate and inappropriate financing and policy have been identified as dominant transition barriers for low carbon sea transport development in PICs. This paper further examines the regional level barriers to policy development, and finds them inhibited by the silo nature of the major regional actors. The implications that the Paris Agreement has for climate financing to support the essential research and capacity development needed to underpin a successful low carbon sea transport transition strategy at any useful scale and speed are also considered in this paper.

## 1. Introduction

Pacific Island countries (PICs) have a long history of seeking sustainable low carbon solutions for sea transport, particularly domestic, that warrant reactivation now as a legitimate mitigation and adaptation response to climate change. The case for this has been set out in previous studies [1–5]. With transport consuming ~75% of imported fuel regionally [6,7], the justification was strong enough following the 1970s oil crisis to attract a number of donor-funded shipping efficiency pilot projects [3,5]. These proved that strong fuel savings and operational efficiency gains were achievable with minimal financial investment but were curtailed because of the global fall in oil prices [5]. Since 1986, these pioneering low carbon shipping projects were lost to history while the region continued to maintain a high fuel dependency status, reportedly spending USD 6.39 billion importing fuels in 2013, the highest petroleum fuel dependency of any sub-region in the world [8,9]. Papua New Guinea (PNG) is the only PIC that has fossil fuel reserves.

Extreme fuel dependency is not the only factor driving the transition toward low carbon shipping. The Pacific's extreme vulnerability to

*Abbreviations:* ADB, Asian Development Bank; BAU, business as usual; COP, Conference of the Parties; CROP, Council of Regional Organisations in the Pacific; EC, European Commission; EU, European Union; FAESP, Framework for Action on Energy Security in the Pacific; FATS, Framework for Action on Transport Services 2011–2020; FSM, Federated States of Micronesia; GCF, Green Climate Fund; GEF, Global Environment Facility; GHG, greenhouse gas; IMO, International Maritime Organization; INDC, Intended Nationally Determined Contribution; IRENA, International Renewable Energy Agency; LDCs, Least Developed Countries; MIAs, Multilateral Implementing Agencies; NIAs, National Implementing Agencies; NZ, New Zealand; PNG, Papua New Guinea; PICs, Pacific Island countries; PIDF, Pacific Islands Development Forum; PIFS, Pacific Islands Forum Secretariat; RMI, Republic of Marshall Islands; RIAs, Regional Implementing Agencies; SIDS, Small Island Developing States; SPC, Secretariat of the Pacific Community; UK, United Kingdom; UNEP, United Nations Environment Programme; UNFCCC, United Nations Framework Convention on Climate Change; USD, United States dollars; USP, The University of the South Pacific

* Corresponding author.
*E-mail addresses:* avnitag@siyaahi.com.fj (A. Goundar), alison.newell@usp.ac.fj (A. Newell), peter.nuttall@usp.ac.fj (P. Nuttall), isabelle.rojon@u-mas.co.uk (I. Rojon), jalecuruki5@gmail.com (J. Samuwai).
[1] Postal address: The University of the South Pacific, Private Bag, Laucala Bay Road, Suva, Fiji.
[2] Postal address: UCL Energy Institute, University College London, Central House, 14 Upper Woburn Place, WC1H 0NN London, United Kingdom.

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effects of climate change has become a primary driver influencing all development agendas of PICs. The justification is steadily increasing, with many already experiencing the devastating impacts of climate change. At the 21st Session of the Conference of the Parties (COP 21), Pacific leaders were strident in calling for global warming thresholds of no more than 1.5 °C. The resultant Paris Agreement includes a commitment to keep the rise in global temperatures "well below" 2 °C while striving for no more than 1.5 °C. Achieving this requires rapid and deep transition to low carbon futures across all sectors and in all regions. Without serious participation from the transport sector, there will be little real opportunity to limit the rise in global temperatures to these levels [10,11]. Minimal investments in low carbon shipping since the 1980s, both in the Pacific and globally, maintain the status quo contrary to the context of a global agreement to address climate change. There is little evidence to indicate that change is being planned for at a scale or speed sufficient to make any substantial impact.

The need for low carbon transition is more than an emission reduction or Sustainable Development Goals driven agenda. After completing a recent assessment of five PICs following the devastation caused by Tropical Cyclone Pam in Vanuatu in 2015, the World Food Programme described “shipping as the single issue which has clearly emerged as being of vital importance to the overall development of the region, its ability to respond to emergencies and to build resilience in the recovery phase” [12]. Sea transport is the single biggest cost factor for the International Organization for Migration’s current Micronesian drought relief efforts. An effective regional low carbon transition programme targeting domestic and inter-regional shipping, could afford new and potentially game-breaking transport options to all disaster preparedness and response activities in the Pacific.

In light of new developments in the climate change discourse, with the signing of the Paris Agreement and the lodgement of the Intended Nationally Determined Contributions (INDCs), it is timely to assess their role in driving low carbon development in PICs’ shipping sector. Given that they set commitment targets, some binding, INDCs can be considered to be the most recent and highest level policy drivers. They provide a lens to derive PICs’ future intent and priority related to climate change policies.

In order to gauge the potential of INDCs to drive low carbon development in the Pacific, this paper: (i) critically analyses the INDCs of 14 PICs for the provisions therein relating to transport emissions; (ii) assesses the adequacy of supporting regional policy mechanisms through a case study of the *Framework for Action on Transport Services* (FATS) [6]; and (iii) briefly examines the current climate financing opportunities to support low carbon transition.

## 2. Setting the scene

Though it is widely agreed that addressing the often chronic domestic shipping needs is a priority for PICs’ sustainable development [3,8,13,14], investment in low carbon solutions has yet to occur. In 2011, regional analysts recognised that transport was the dominant fuel user but favoured a low carbon electricity priority citing this as the ‘low hanging fruit’ and the ‘absence of transport solutions’ [15]. But neither rationale was subject to real scrutiny. There is insufficient data available to test the low hanging fruit assumption. However, there is now sufficient research to question the real size of the perceived technology barrier [16–18].

### 2.1. UNFCCC and shipping emissions

Maritime transport is already penalised in terms of visibility in climate change discourse due to its (and international aviation’s) separate treatment from other emitting sectors. The linkages between the United Nations Framework Convention on Climate Change (UNFCCC) and shipping emissions trace back to the adoption of the 1997 Kyoto Protocol, the first international agreement that committed UNFCCC parties to reduce greenhouse gas (GHG) emissions. Commitments made by industrial nations under Annex 1 applied to domestic flights and shipping only, not international bunker [19,20]. The International Maritime Organization (IMO) was entrusted with working with Annex 1 parties to limit emissions from the international shipping sector [20].

Not only did the Kyoto Protocol fail to induce any progress in the reduction of emissions from the domestic shipping sector, its overall ‘coverage was insufficient to stop the growth of global GHG emissions’ [21], further impacted by the lack of commitment from the world’s major GHG emitters, including the United States (US), China, Brazil and India, to set targets. Since 2005, the only substantive progress that the domestic transport sector has seen globally is in the aviation sector of the European Union (EU) and to a lesser degree in the electric and hybrid car market. The EU emissions trading system, comprising 28 EU Member States as well as Iceland, Liechtenstein and Norway, covers commercial airlines flying within and between these countries [22].

More than a decade later, UNFCCC introduced INDCs, inviting its parties for the first time to manage their GHG emissions by setting timeframe-based reduction targets in their national climate change action plans. Born out of COP19 in 2013, INDCs now form an important implementation element of the Paris Agreement. There is some assurance that the INDCs’ bottom-up approach could make it more successful than the Kyoto Protocol, noting that INDCs covered approximately 85% of global GHG emissions in 2010, including the top ten largest emitters in the world [23,24]. INDCs are reviewable at 5-yearly intervals, although they are not legally binding.

### 2.2. PICs’ GHG emission targets

The contribution of PICs to global GHG emissions is negligible, accounting for ~0.03% of the global emissions of $CO_2$ from fuel combustion [25]. Against this background and the fact that they are all Small Island Developing States (SIDS), PICs are not compelled to set ambitious emission reduction targets in their INDCs but they have done so, demonstrating solid commitment of a region that is already experiencing the devastating effects of climate change, and facing the existential threat of loss of cultures and countries.

As of 11 February 2016, 161 countries have submitted their INDCs, including 14 PICs – Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Nauru, Niue, Palau, PNG, Republic of Marshall Islands (RMI), Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. RMI was the first to submit (July 2015) and all had submitted by 4 December 2015.

#### 2.2.1. Data availability and reliability

The overall assessment of PIC INDCs reveals a high number of inconsistencies and data gaps (see Appendix Tables 1–3). A full discussion of these anomalies is beyond the scope of this paper but some key points are noteworthy.

The need for better data to support maritime transport decision-making at both national and regional levels has long been identified as a critical barrier for the sector [8,13]. Despite various programmes and funding being allocated to address this shortcoming via the regional architecture, no reliable data sets yet exist as discussed in previous papers [2,4,5]. As such it is not possible to verify the exact proportion of regional fuel use for transport though this is generally held to be 70–75% of regional totals [6,7]. Data gaps and barriers prohibit accurate accounting between the transport subsectors. Fiji offers a possible case for extrapolation to the region. Of the 67% of imported fuel used for transport, 23% is accredited to maritime (as opposed to 27% for aviation and 17% for land transport). The often dramatic differences between reported fuel end use at country levels and lack of a reliable or comprehensive regional data set, mean much of the available transport