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Sustainable Freight Transport Systems: Opportunities for Developing Countries

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**THE CASE FOR IMMEDIATE PRIORITIZATION OF A TRANSITION TO A LOW CARBON
FREIGHT FUTURE FOR PACIFIC ISLANDS STATES**

by

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14 October 2015

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The case for immediate prioritization of a transition to a low carbon freight future for Pacific Islands States



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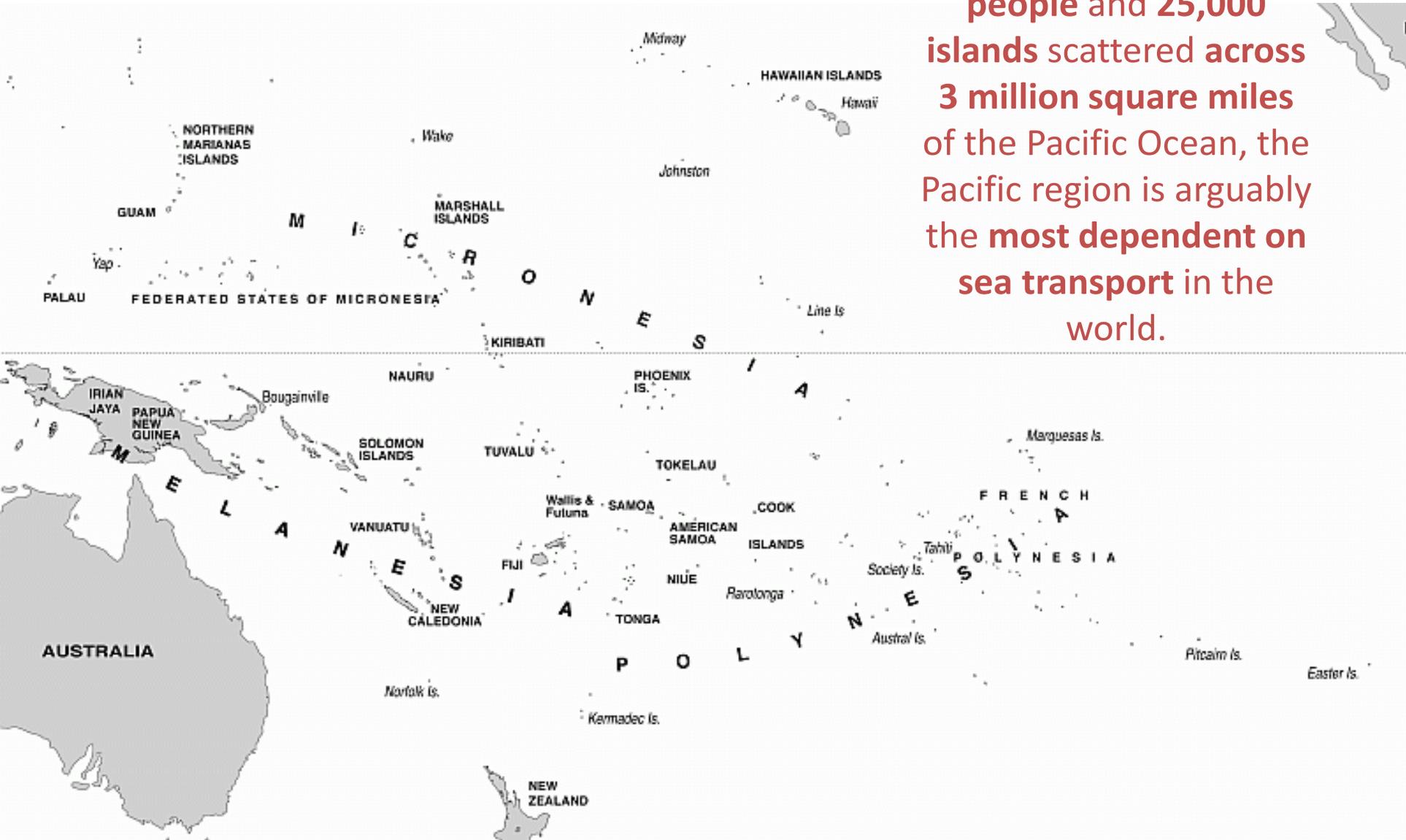
Pacific Centre for Environment and Sustainable Development

The University of the South Pacific

Suva, Fiji

The Pacific region

Around **10 million people** and **25,000 islands** scattered across **3 million square miles** of the Pacific Ocean, the Pacific region is arguably the **most dependent on sea transport** in the world.



The Transport/Climate Change Nexus

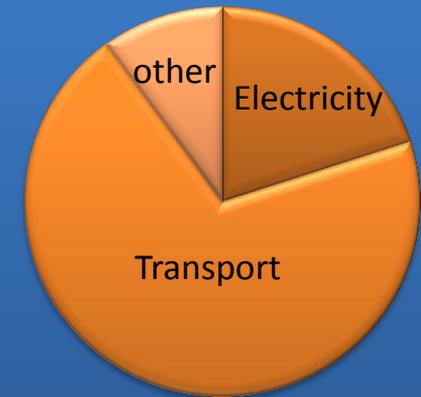
Pacific Leaders consistently identify two critical barriers to sustainable development:

- 1. Climate Change – “no more than 1.5°”** To achieve this:
 - rapid decarbonisation of the global economy must start now
 - all sectors must contribute their “fair share”
 - all countries, big and small, need to lead by example
- 2. Extreme regional imported fossil fuel dependency**
 - Most dependent region on imported fuel in the world (95%+)
 - Majority is for transport – sea and air both use more than land
 - Crippling for national budgets, highest world transport costs
 - Vulnerable to oil price and security changes

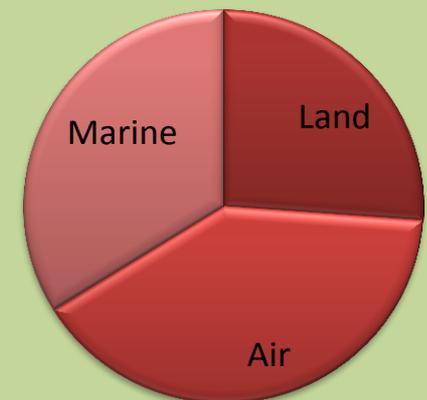
Transport is critically linked to both:

- If firm targets for decarbonisation of international ship and air transport are not set now, a 1.5° threshold will be exceeded
- Transport uses ~75% of the region’s fossil fuel and is largest contributor to the region’s GHG emission

Pacific Islands Regional
Fossil Fuel Use by Sector



Transport Fuel by
Sector (Fiji)



International Bunkers and Climate Change

Transport fastest growing international emissions sector.

Shipping and aviation excluded from Kyoto – given to IMO/ICAO

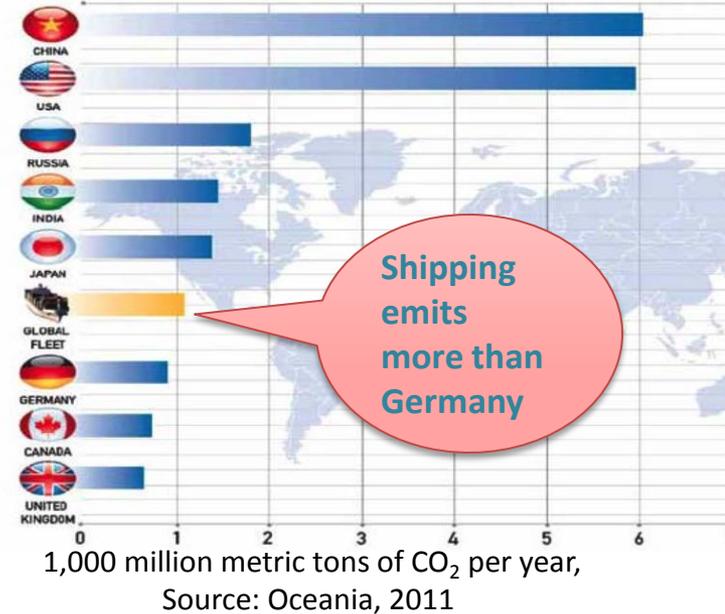
Progress is slow and insufficient for 1.5° target.

International sea and air emissions each ~ 3% of global CO₂.

Shipping will increase by 50-250% by 2050.

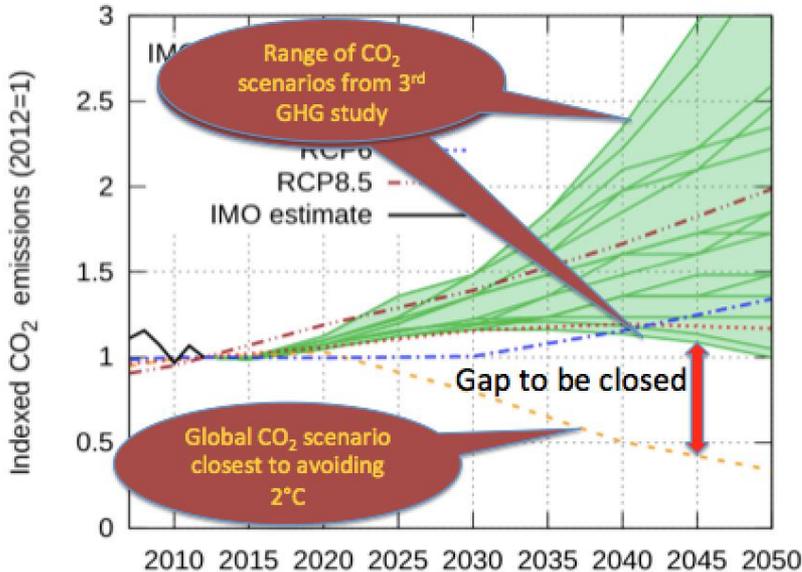
Decarbonisation requires a methodical phased approach if it is not to be disruptive to trade

International Shipping CO₂

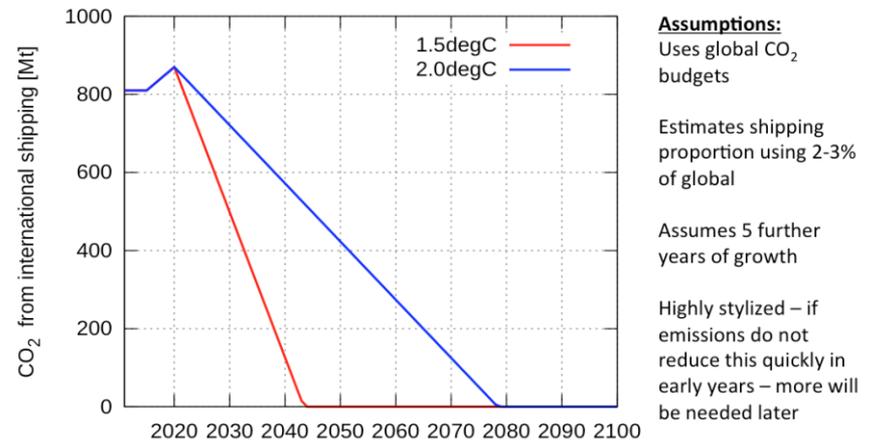


International Shipping Emissions.

Source: Bows-Larkin et al., 2015



CO₂ budgets and targets for shipping



Source: Smith et al., 2015

Transport - largest fuel user for Pacific countries

The Pacific's transport scenario is unique and faces major challenges.

- Sea then air are higher priority than land transport – shipping moves most goods.
- Long routes, minute narrow economies, imbalance in inward and outward loadings, financing barriers, high risks and high infrastructure costs.
- Domestic connectivity is most critical sector to address - many routes uneconomic.
- Pacific countries struggle to find long-term, sustainable, and cost-viable solutions for transport, even in periods of relatively low energy costs.
- Transport sector highly vulnerable to climate change effects and natural disasters.

Transport uses most imported fuel – ~75% of regional totals.

- It has not received the same priority as electricity in the current energy revolution.
- ~\$1billion dollars available today for “reducing the Pacific's dependency on diesel” - almost all is for electricity substitution.
- Some work happening on research of renewable energy, fuel substitution and alternative fuels, much more is needed.



Typical Domestic Vessels in Fiji



Small ports, old wharves, narrow reef passages are common



Infrastructure often poorly maintained and vulnerable to extreme weather events



Links between Constraints and Consequences



Transport - largest fuel user for Pacific countries

What is the path forward?

- A range of solutions required – whole of sector, multiple stakeholder and multidisciplinary approach needed that builds long term in-region capacity.
- A coordinated regional strategy to support national country low carbon transition plans is required.
- RMI supported by neighbouring states has called for a Micronesian Sustainable Transport Centre as a catalyst for change.
- Leading international researchers are offering technical, research and capacity support.
- Especially for shipping, our small scale makes us the ideal testing ground for new technologies and approaches.



Transport – Pacific transition to low carbon transport

Pacific transition to low carbon transport requires a paradigm shift

Access to clean, affordable reliable transport underpins any transition to a blue/green economy.

Opportunity for cleaner, more appropriate, affordable solutions.

Transition is a substantive challenge. It is additional to the already high workload needed across this sector.

Time is not our friend. A long term strategy is needed but it must begin now.

Global transport initiatives and priorities don't match Pacific realities. A 'Pacific' design solution is needed.

The initial work occurring in this sector needs to be scaled quickly and as a priority.

S.A.M.O.A. Pathway 2014

67. *In this regard, we are committed to continuing and enhancing support for the efforts of small island developing States:*

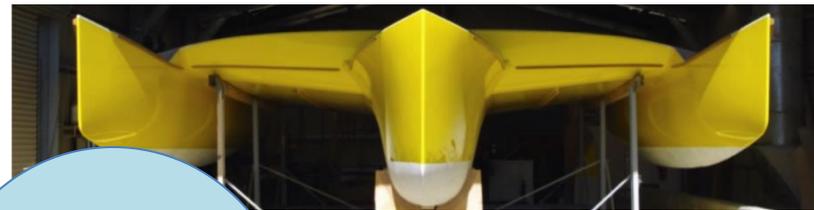
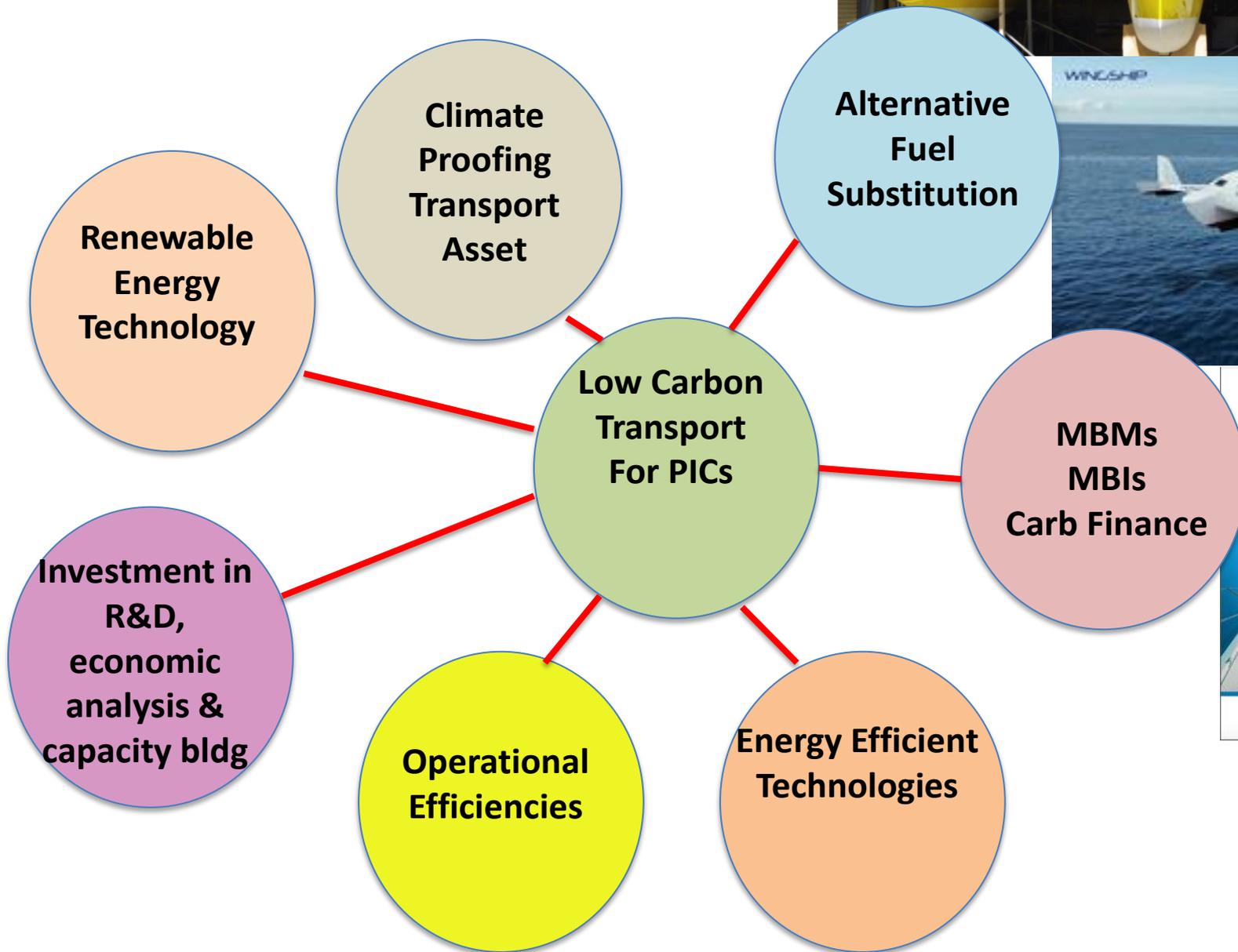
- (a) To gain access to environmentally sound, safe, affordable and well-maintained transportation;*
- (b) To advance the safety of land, sea and air transportation;*
- (c) To develop viable national, regional and international transportation arrangements, including improved air, land and sea transport policies that take a life-cycle approach to the development and management of transport infrastructure;*
- (d) To increase energy efficiency in the transport sector.*

Barriers to transition to low carbon sea transport

Policy	<p>All Pacific countries have set electricity fuel reduction policies and targets. Only RMI and Fiji have transport targets. Donors won't fund because they say the countries haven't asked.</p> <p>Transport and Energy policies not synergised.</p>
Financing	<p>Majority of 'energy' funds currently to electricity.</p> <p>Generic expectation that private sector will provide best solutions but ignores Pacific realities. PPP approach essential.</p> <p>Range of financing mechanisms/incentives needed.</p> <p>Donors must provide R&D and technical assistance/capacity building financing.</p>
Perception	<p>Lack of awareness/misinformation of options, alternatives. Perception there are no solutions. Mind set that answers must come from the global to the local. Global, not Pacific, priorities dominate.</p>
Proof of Concept	<p>R&D investment into 'proof of concept' of technologies and methods needed at all scales.</p>
Silo-ing	<p>Regional agencies/NGOs/industry need to collaborate fully</p> <p>Full coordination across government departments needed</p> <p>UN Agencies, Development Banks, Bilateral's need to coordinate/streamline funding and technical assistance</p>

Transport - largest fuel user for Pacific countries

What is the path forward?



Island Ventures Ltd - S.V. Kwai

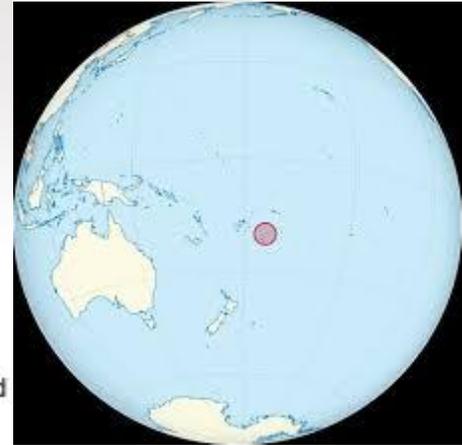
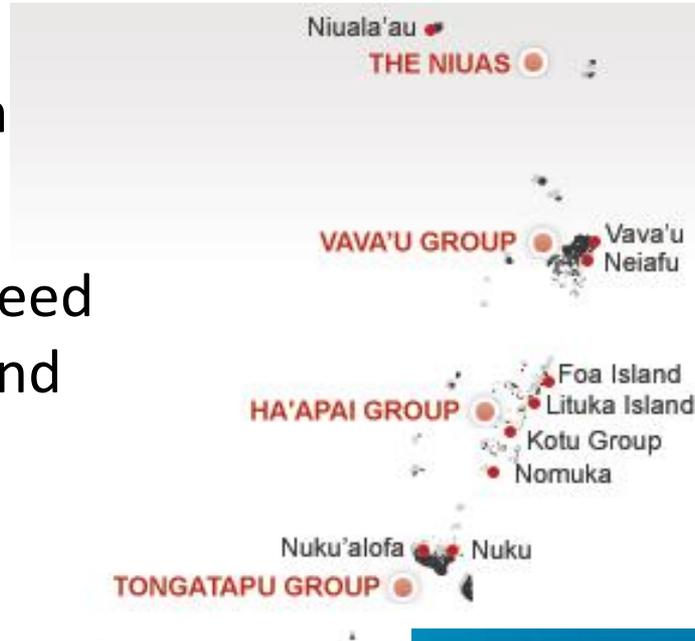
- Operating since 2008
- Regularly services routes from Hawai'i, Line Islands, and Cook Islands
- Uses profits to retrofit soft sail rig, and thus further reducing fuel use (and cost)
- Operation is based on community need and support for the venture
- Local crews and communities benefit
- 60% fuel savings
- Commercially viable wind hybrid propulsion shipping operation



Source: www.svkwai.com

Project Vaka Fanāua

- Nuia Islands, Tonga
- Community owned, driven and funded solution
- Focussed on community need and on building capacity and resilience at grass roots
- Builds on cultural heritage
- Creates local employment and skills
- Projected 80% fuel savings



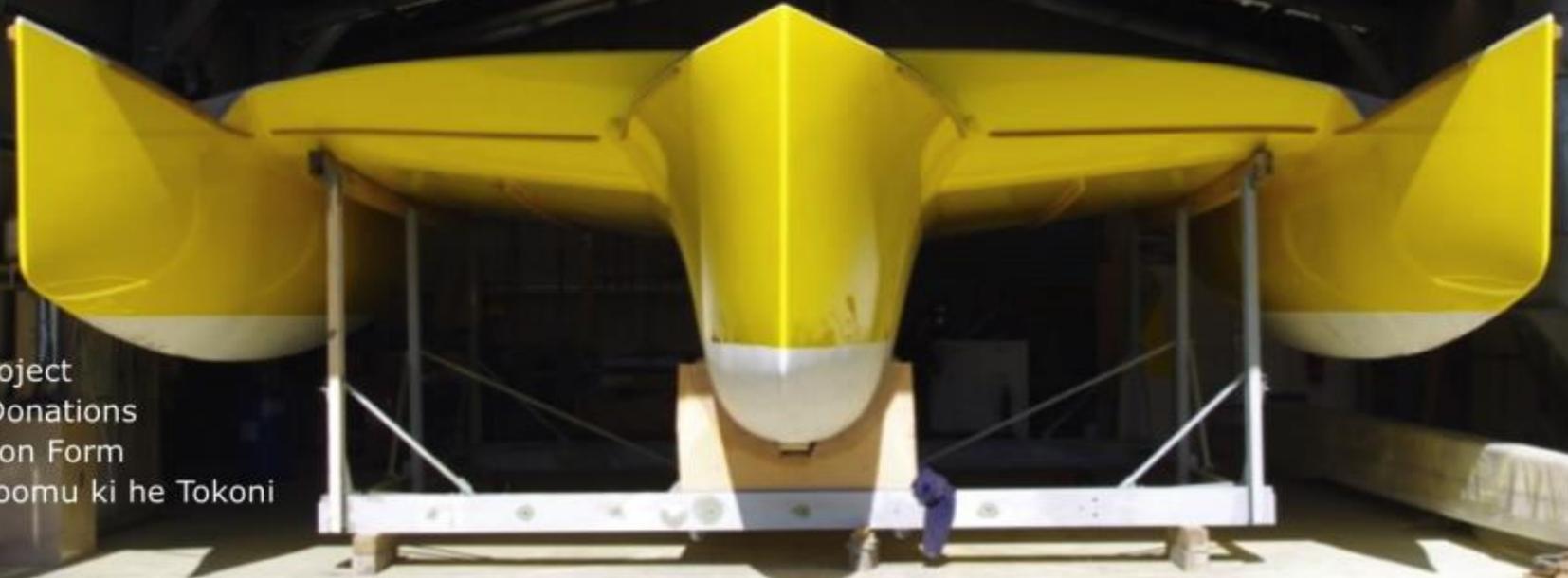
Source:

http://talanoa.org/TDP_Development_Projects.html

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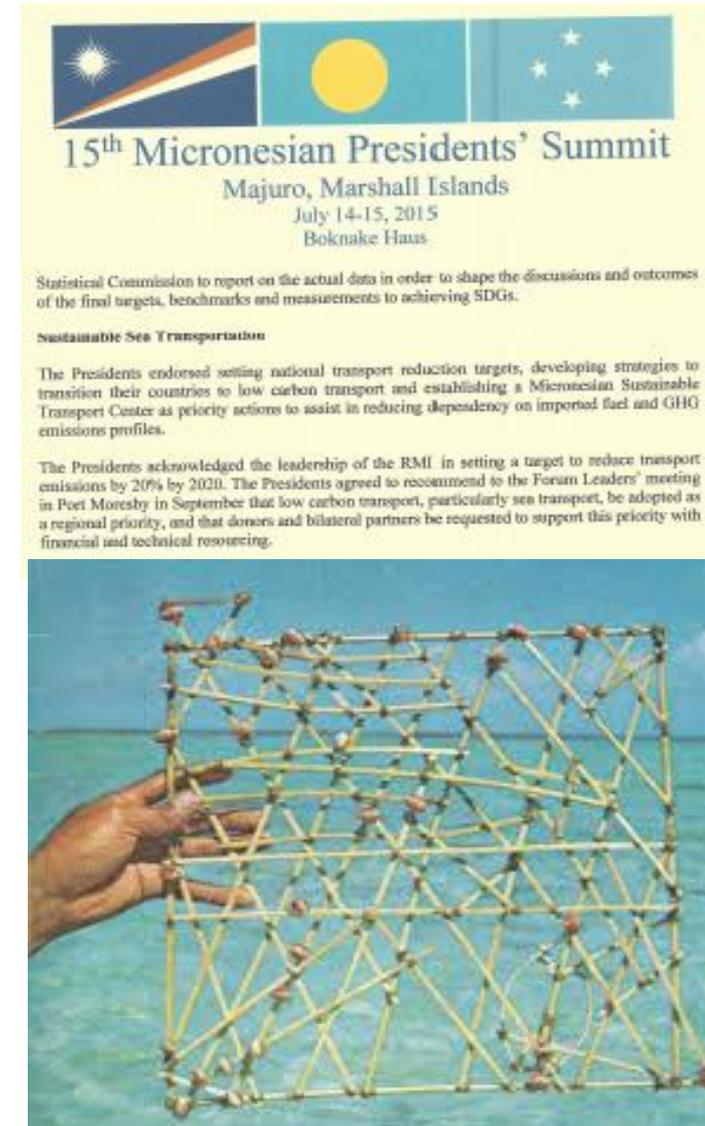
Micronesian Sustainable Transport Centre

Micronesian Presidents Summit July 2015 communiqué calls for action to transition Micronesia to low carbon transport, with sea transport as a starting point

Federated States of Micronesia and Republic of Palau endorse following lead of Republic of Marshall Islands in setting national policy to reduce transport emissions

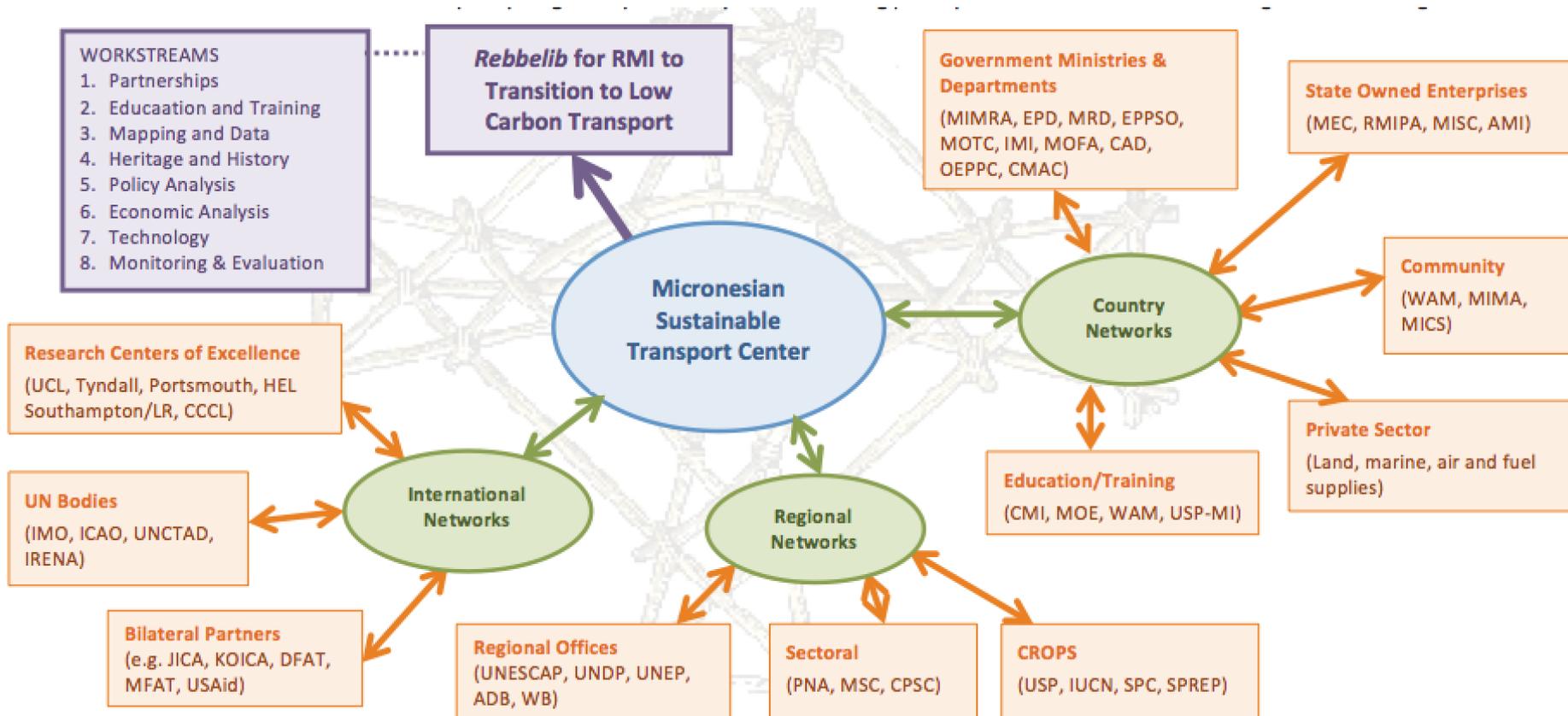
Priority actions for transition to low carbon transport include establishment of MSTC to develop/implement national transition plan

‘Testing ground and display window’ for other Pacific states and SIDS



Rebbelib: Marshallese navigation chart

Marshall Islands *Rebbelib* for Transition to Low Carbon Transport



Take Home Messages

- Projects to increase trade opportunities for PICS will not succeed until solutions to the transport issues are fully integrated.
- Given climate change, this implies a transition to low carbon solutions.
- A comprehensive programme is needed now – small, ad hoc pilots are not going to be adequate to achieve transition at scale or speed.
- A ‘Pacific design’ solution is essential.
- A multi-disciplinary, ‘whole of sector’ approach required.
- Climate Financing provides opportunity to resource a paradigm shift.
- RMI and Fiji are logical starting points for a regional transition.
- Strong support from ‘willing partners’ is needed NOW.

The case for immediate prioritization of a transition to a low carbon freight future for Pacific Islands States



Vinaka Vaka Levu

Malo

Kommoltata

Thank you

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The Case for Immediate Prioritization of a Transition to a Low Carbon Freight Future for Pacific Islands States

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Small Island Developing States (SIDS) are amongst the smallest and most remote communities on earth. Facing a future whose only certainty is change, SIDS remain a special case for sustainable development in view of their unique and particular vulnerabilities and because they remain constrained in meeting their goals in all dimensions of sustainable development. They share a commonality in that they are entirely bounded by the sea. They are maritime peoples.

It is not possible to overstate a. the importance of transport to SIDS; b. the unique transport challenges they face; c. the urgent need for transition to low-carbon transport futures, or d. the challenge this presents to island decision-makers in government and industry. However, not initiating such a transition now will likely mean facing increasing dependency, cost and lost opportunity penalties and future technology slip in an already marginal sector. The issue has not to date received the priority or profile of other development sectors, nor sufficient investment in public finance. Climate financing presents a unique opportunity to rectify this imbalance. Institutional barriers must be correctly identified and addressed. This requires questioning of previous assumptions, particularly the role of the private sector as change agent in a Pacific development scenario. Nothing short of a paradigm shift is required.

This paper focuses on one transport freight sector – shipping, and domestic sea transport in particular, in the context of Pacific Island Countries (PICs). It is set against the context of next month's COP21 in Paris, and last month's adoption of the SDGs. Neither challenge can be met to the Pacific's benefit without full consideration and inclusion of the essential interface with sea transport.

1 Transport and the Climate Change/Sustainable Development Nexus

Pacific Leaders have consistently identified two critical barriers to sustainable development. Sea transport plays a central role in both.

i. Climate Change

PICs are the most vulnerable to the increasing effects of anthropocentrically caused climate change. Pacific Leaders through the [Majuro Declaration 2013](#) and the [Suva Declaration on Climate Change 2015](#) have called on all parties to do all they can to mitigate climate change. PICs' contribution to climate change is negligible. Expert analysis is that the region's carbon budget is negative.

The [Copenhagen Accord 2009](#) set an agreed international target of not exceeding 2°C global warming. PICs and others are calling for no more than 1.5°C. Exceeding this will almost certainly cause grave and unaffordable consequences for all PICs including the physical destruction of some.

Not exceeding this threshold requires a global paradigm shift and makes the following assumptions:

- Rapid decarbonisation of the global economy must start now. By 2020 all sectors need to have peaked and have firm pathways to agreed targets. If these pathways cannot be maintained it will require greater effort and expense to be made in the future.

- For the transport sector this must include international and national bunkers, assuming that a principle that all sectors must contribute their “fair share” is accepted. If some sectors do not fully contribute, then greater contributions will be required from other sectors to compensate.
- All actors, big and small, need to lead by example. Climate change has largely been caused by the industrialized development of the ‘First World’. Kyoto established the principle of CBDR. While this onus of responsibility remains, the situation is now such that all must effect change if a 1.5°C threshold is to be maintained.

Shipping and aviation present particular issues due to international bunkers being excluded from the [Kyoto Protocol](#). While some initial steps have been taken by IMO and ICAO, these are inadequate to counter the sheer scale at which transport sector emissions will increase and the time lag for sector wide reduction measures to bed in. The [IMO 3rd GHG analysis](#) has shipping growing by 50 - 250% by 2050 and its emissions not peaking before this in all but one modelled scenario, resulting in its share of emissions growing to 6 - 14% of global totals in this time. If shipping is to pay its fair share then it must peak in 2020 and achieve decarbonisation before 2080 (to stay within 2°C) or by 2045 (to achieve 1.5°C). Given the length of asset replacement cycles for shipping this means a sector target is required now if decarbonisation is to occur in a responsible and methodical phased manner.

ii. Fuel Dependency

The Pacific Island region is the most dependent on imported fossil fuel with a dependency of 95%, 99% if PNG and Fiji are excluded. Such dependency is crippling for national economies and a major barrier to all socio-economic development. Transport is the majority fuel user burning 70%+ of imports. Our small scale and length of transportation routes makes Pacific Island fuel and transport costs the highest in the world.

Inversely to global trends, air and maritime are the largest subsector users. In Fiji, where transport uses ~66% of imported fuel, 27% is used for aviation, 23% for maritime and 16% for land transport. For some countries maritime bunker uses the majority of the transport fuel. Tuvalu reported 38% of total fuel imports or 64% of all transport fuel in 2012 was for maritime use. Even allowing for a 22% regional carbon budget from biomass, transport is the single biggest GHG emitting sector. Fiji’s 2014 Green Growth Framework estimates that transport emits ~47% of Fiji’s total annual CO₂ emissions.

2 The Pacific Transport Scenario

Sea transport is the lifeline of SIDS, moving the vast majority of freight and considerable passenger loads. It is crucial for trade and economic development. For PICs, sea transport is arguably more critical for connectivity than for any other society. Yet for many, existing maritime transport services are increasingly unaffordable and unsustainable.

This is particularly true at the domestic level and the failure to address this reverberates up the entire logistics and trade chain. The cost and irregularity of domestic inter-island shipping services has a negative compounding impact on the production and income generation potential of islands. Consequently, we are faced with a circular problem, where the lack of adequate shipping services limits the ability of islanders to generate the income sufficient to pay for the shipping services. Full cost recovery now and in the future for many domestic routes is not realistic.

PICs’ transport issues are unique; minute and narrow economies scattered at the ends of some of the longest transportation routes in the world and arguably the most challenging to maintain per capita and per sea mile. Sea transport, especially at the domestic level, has always presented a difficult issue for PICs to find long-term, sustainable and cost-viable solutions for, even in periods of low fuel costs. The unique characteristics of Pacific shipping (e.g. high imbalance in inward/outward

loadings, financing barriers, high operational risk, high infrastructural costs, extreme exposure to natural disasters and seasonal cyclones) present a greater challenge than for most other countries and regions. Yet the public expectation is for ever increasing availability and higher standards of transport service across all sectors.

Shore-side infrastructure is often old, in poor repair, expensive, difficult to maintain and highly vulnerable to extreme weather events. Ships are often old, poorly maintained and inefficient. Fossil fuel represents a significant proportion of ship operating costs, often the largest single cost. There is often insufficient throughput to economically justify higher quality standards. Accessing asset and operational finances and insurance is difficult and not cost effective, resulting in a vicious cycle of old ships being replaced with old ships, and the need for larger ships to achieve economies of scale. When combined with narrow reef passages, small or non-existent harbours, small cargos and passengers loadings, this leads to many routes being commercially marginal or unviable.

Governments are often required to subsidise such routes. Even then, there is often insufficient private sector capacity or willingness to provide the services in which case governments are required to service these routes, often lacking themselves the capacity to do so, the alternative being to leave such communities without access to regular or adequate transport. This negative expenditure cycle is exacerbated by disasters such as droughts or cyclones. The net result is decreased government budget for other socio-economic services, a continual state of disaster recovery, and increased dependency in the outer islands and hollowed populations as communities increasingly migrate to urban centres.

Ever-increasing policy, regulatory and technical complexity places unrealistic and increasing strains on already minimal Pacific capacities and resources to operate and administer the transport sector. Climate change will magnify these barriers and costs to governments, industry and communities. All aspects of the transport sector are highly vulnerable to climate change effects and natural disasters.

Most PICs lack access to current and reliable transport data and information needed for effective planning and decision-making. There is an acute lack of specialized transport planning capacity or training. Despite its critical role for SIDS, preparation and investment in capacity for transitioning to low carbon transport futures has until now being consigned to the 'too-hard basket' and largely ignored. A sea change is required. Harnessing climate change financing provides an opportunity to finally address the so far neglected domestic freight sector.

Despite the identified need and the increasing availability of technological alternatives, meaningful measures to address this sector are proving slow to eventuate. Low carbon sea transport solutions and transition strategies have been almost invisible in the policy space at national, regional and particularly donor levels across the Pacific region. The regional renewable energy discourse has become largely synonymous with electricity, reflecting global perceptions and development agency bias but not necessarily Pacific realities or priorities. Despite transport using three-quarters of the imported fuel, only decarbonisation of electricity generation has received priority to date. Significant contributions from the Pacific Energy Summit (2013) and ADB (2015) now see funding in the region of ~\$1billion available for the electricity sector. A corresponding investment in low carbon transport has yet to arrive. While initial research work is happening, e.g. on fuel substitution and renewable energy for transport, this is well shy of the effort needed to achieve any significant paradigm shift.

While all PICs have set targets, many extremely ambitious, for reducing fuel dependency for electricity generation, only the Marshall Islands and Fiji have so far set national targets for the transport sector. The large scale and rapid access to climate financing promised by the developed world has yet to materialise and, thus far, application process are extremely cumbersome and confused.

3 A Regional Strategy for Decarbonisation of National Transport Scenarios

For transition to a low carbon transport to occur at any meaningful scale, a coordinated strategy is required that provides all necessary support to PICs. This strategy needs to be compatible and complementary to existing regional and national transport frameworks and work programmes. It needs to start from a strong research and education base and requires a multi-disciplinary and whole of sector approach.

The historic lack of focus on a transition to low carbon transport, comparative to the electricity sector, makes this the ideal time to initiate a coordinated regional strategy. This needs to be built on development and implementation of national roadmaps backed up by a strong integrated support programme of technical assistance, capacity building, economic analysis, tool development and knowledge exchange. Robust data acquisition and analysis is an essential building block. A Pacific regional Centre of Excellence as a resource and knowledge transfer hub is an essential first step.

RMI, with the full support of neighbouring countries, has called for immediate establishment of a Micronesian Sustainable Transport Centre as a sub-regional catalyst for change. The centre will provide an experimental field and display window of research and trials designed to cascade to other Micronesian states. RMI's INDC sets a target of reducing its transport emissions by 16% by 2025 and 27% by 2035. Fiji's recent Green Growth Framework (2014) includes strong policy direction for Fiji's national action. These two countries present as logical options from which to develop a regional approach.

4 The Need for Policy and Financing to Prioritise This

Policy and financing have been identified in regional and international research as critical barriers to transition to low carbon transport futures. Strong perceptual, visibility and silo-ing barriers exist at all levels. If any substantive change is to be achieved all of these must be effectively addressed.

Even without the pressures generated by climate change, the Pacific transport scenario is challenging and requires significant and increasing national and international investment. The future post-COP21 will only increase this challenge. Investment in high quality research and long-term capacity building of current and future planning and decision-making actors is required immediately.

Decarbonisation implies an increasing penalty and compliance cost for carbon users. Unless compensatory mechanisms can be negotiated to offset these in recognition of the unique position PICs are in, the increase in costs for the Pacific will be the highest per capita in the world. Given the critical importance of freight logistics to all Pacific connectivity and economic activity and transport's crosscutting nature, these changes will have far reaching consequences. This must be recognised and provided for under climate adaption and mitigation funding. As policy for this is set internationally, it further underscores the immediate need for PICs to increase their participation in UNFCCC, IMO and ICAO to ensure international processes recognise and provide for the unique challenges of PICs. In-country resource and capacity constraints are the primarily barriers to this.

Almost all international initiatives targeting shipping efficiency are at the large-scale end of the industry and the needs of PICs are not being addressed or provided for currently. There is little correlation between the transport dilemma facing PICs and those of the continental world. Mega urban, rapid rail, inland waterways and electrification dominate global land transport priorities. In sea transport, energy efficiency investment is targeted almost exclusively at large scale and new build assets. Global transport initiatives and priorities don't yet address the unique transport scenarios and priorities of PICs.

The importance of developing locally appropriate and tailored solutions and not simply expecting a technology migration from the global to the local to occur cannot be overstated. Pacific low carbon transition for transport requires a 'Pacific design' solution. Current proposed international interventions, such as GloMEEP, while a step in the right direction, are insufficient in scale, scope and design to ensure meaningful or real change.

Addressing transition of Pacific transport to a low carbon future requires a coordinated range of solutions. All stakeholders, across government, industry and civil society, must be engaged. Policy, economic analysis, technology, climate proofing of existing and future assets, heritage, training and education aspects are all important. Current transport efficiency initiatives and research need to be scaled up and expanded.

A strong network of leading international centres of research excellence is already assisting Pacific countries wishing to transition to a low carbon transport pathway. The small scale of Pacific transport scenarios makes the region the ideal testing ground for a range of alternative technologies and approaches. A Pacific approach can provide leadership to other SIDS and LDCs.

5 What are the Solutions for the Pacific Transport Sector?

Achieving a transition to low carbon transport will require an integrated programme. There is no 'one size fits all' solution. While technology advances for vessels and their associated fuels is of critical importance, technical solutions cannot be effected in isolation.

Advancing technology, whether for asset, fuel or infrastructure, is insufficient unless the policy and economic context is provided to enable government, private sector or private/public partnership uptake. And here the local scenario constraints must be acknowledged and accommodated if real solutions are to be found. Transport freight solutions must include answers for all sectors of society, not only those who can generate sufficient economic return to justify a full private sector transport service. This has to be the underpinning logic behind development of blue/green economies for island states. While we might wish the situation were different, the simple reality will remain that countries such as Tuvalu will never be able to provide adequate transport services for its communities without on-going subsidisation and government participation.

For a transition to low carbon transport to occur at any significant scale, multiple priorities must be met. These include introduction of renewable energy technologies, energy efficiency operational and technological change, fuel substitution, and market based measures and incentives. 'Proof of concept' demonstration pilots of appropriate technology (sail powered catamarans, Flettner rotors, WIGs, etc) with monitored deployment in representative Pacific locations are essential. All must be underpinned by strong economic analysis (appropriate to Pacific scenarios and not simply extrapolated from the global discourse) and investment in research and development and capacity building across the sector.

6 Pacific Transition to Low Carbon Transport Requires a Paradigm Shift

If constraining global warming within a threshold of no more than 1.5°C requires a global programme of decarbonisation of all sectors, then it follows Pacific states need to be part of this. Not to do so exposes PICs to numerous risks. These include: loss of leverage and moral ground in global climate change negotiations; continued dependency on imported fossil fuels with related issues of vulnerability to price and supply security; and ever increasing compliance and penalty costs for use of outmoded fuels and technologies. Current transport costs and barriers to achieving socio-economic development goals in the region will continue to increase. Our more remote and vulnerable communities will continue to bear the greatest burden.

Access to clean, affordable, reliable transport underpins any transition to a blue/green economy. Low carbon trade assumes low carbon transport to facilitate it. Transition to a low carbon pathway offers the opportunity for cleaner, more appropriate and affordable transport solutions. But realising this at a scale sufficient to demonstrate results requires a dedicated programme leading to building and retaining in-country and in-region capacity. Governments need to consider a range of financing mechanisms and incentives and strong economic analysis is needed to support the development of these.

Just as the importance of sustainable transport for PICs cannot be overstated, the size of the low-carbon transition challenge should not be underestimated. While the overall cost of a transition strategy is likely small by global standards, it will require a significant investment by Pacific standards. Maintaining the current transport agenda is already highly taxing on Pacific resources and capacity at local, national and regional levels.

This needs to be put into context as the costs of not acting are also likely to be high. The likely effects of climate change have significant implications for the Pacific transport sector. By way of example, the international air passenger services, critical to the tourism industry and inter-regional connectivity, will likely face escalating carbon costs making long haul flights increasingly expensive. Any inter-regional trade initiative is inherently linked to access to affordable transport, particularly marine. Cyclone Pam clearly showed the critical importance of sea transport for disaster relief and response and the vulnerability of the sector to increasing risk of such events.

The sooner we start transitioning to low carbon transport, with sea transport as the priority for the Pacific, the better.

This paper describes a complex and often negative set of issues culminating in a difficult future challenge to now attempt. By way of balance three small contrasting examples of positive solutions from the private sector, community and governments are offered.

SV Kwai is a converted fishing vessel operated by a private trading company, Island Ventures Ltd. Since 2008 she has operated as a packet vessel between Rarotonga and Hawaii servicing the Northern Cook Islands and the Line Island group of Kiribati en route, which offers excellent year round sailing across the trade winds in both directions. Retro-fitted with an auxiliary sailing rig she is reporting fuel savings of up to 60% depending on the route.

The company website proudly proclaims that *“sails are our only subsidy, and the fuel in our tanks often goes ashore to run island generators”*. Anything and everything is carried from store goods to vehicles. Copra and seaweed make regular consignments. Many of the small islands en route are still not supplied on a regular basis and *Kwai*, despite her age, has proved herself the most reliable carrier available.

With approval and support from the local governments and island councils, Island Ventures Ltd provide a comprehensive service. The greatest strength of Island Ventures Ltd service is the lengths they have gone to integrate with the communities they serve, especially in the remote Line Islands of Kiribati. Island Ventures Ltd has built a strong and well-trained crew of local expertise. All crew receive a bonus based on the profit of each voyage and many own shares in the business. Services are tailored to the local communities with the *Kwai* providing not only trading opportunities but also a regular service of localized transport of goods and people between the scattered islands of the Line Group and Northern Cooks. Without the *Kwai* much economic and social activity in these remote islands would simply cease to exist. Island Ventures Ltd provides proof of concept that a renewable energy supplemented sea transport service is commercially viable in an extreme geographical and economic setting. It illustrates the absolute need for such ventures to be integrated into local communities' needs and culture.

Vaka Fanāua (literally “two-masted sailing vessel” in the Tongan language) is an innovative community driven project that promotes economic self-sufficiency, sustainability and environmental conservation. The project involves building and operating a prototype competitive cargo trimaran for the remote Niua islands communities in Tonga 260 nautical miles north of Tongatapu.

The project combines Pacific island traditions with modern construction to safely and quickly carry almost three tons of people and cargo. *Vaka Fanāua* is designed to average about 10 knots in usual trade wind conditions with a small diesel auxiliary. The size of the vessel and its load carrying is targeted at the needs of the community which is around 20 tonnes of cargo per month. By contrast, the current government boat irregularly serving the Niua group is about 1,500 tonnes, dramatically oversized for this market.

The project is entirely funded by people from those communities who have spread around the world in the Tongan diaspora that still feel connected to their islands. This diaspora have utilized their strong kinship network over the past 4 years raising nearly \$500,000 to fund the project.

The vessel is nearing completion at a boatyard in New Zealand. Several Tongans from Niua were apprentice builders during construction so that they can later help to maintain the boat. Now fast approaching ‘proof of concept’ stage, Project *Vaka Fanāua* demonstrates a true community driven and owned process capable of delivering essential and identified need back to community.

Micronesian Sustainable Transport Centre. In July 2015, the Micronesian Presidents’ Summit called for action to transition their countries to low carbon sea transport and have called on USP to establish a Micronesian Sustainable Transport Centre as the catalyst for this action.

The first priority of this centre for excellence to be based in Majuro is to prepare and implement a whole of country strategy for the Republic of the Marshall Islands to transition to low carbon transport in accordance with its national policy. This will be the pilot for a sub-regional program to cascade to other Micronesian countries and then to the wider region and other SIDS globally. The Presidents recognised that better transport solutions are essential for improved economic performance, trade, sustainable development and government service delivery to their island-based communities.

Numerous practical solutions are available or emerging for low carbon transport transition. It is clear that many of these will have greatest benefit at the small scale of shipping used by island countries. A growing number of international centres of excellence, especially in Europe, are offering to assist with cutting edge technological developments. There is no reason why Micronesia cannot be the proving ground for such technologies for other SIDS and LDCs. For such a transition to be sustainable long term it is critical that we begin training the current and future generations of transport planners, policy makers and operators. The proposed Micronesian Sustainable Transport Centre will partner with leading research centres and universities to prepare for this. It is not an initiative Micronesia can achieve unaided and we are calling on UNCTAD and all willing partners to assist us in this ground-breaking initiative.

Leading by example is not an option. It is the ONLY option (Gandhi)

Vinaka vaka levu, Malo, Kommoltata. Thank you for this opportunity.