3RD PIDF CONFERENCE

"Building Climate Resilient Green Blue Pacific Economies"

TRACK 3: TRANSPORT & ENERGY

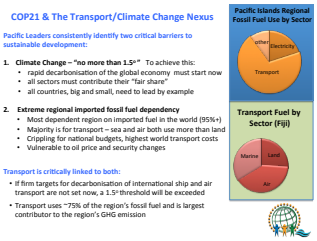
COP21 & The Transport/Climate Change Nexus

[Slide 1]

This paper has been prepared to provide explanation to the PPT slides for this track which summarises the nexus between climate change and transport. It provides principal messages and recommendations for Pacific leaders to consider in the lead up to COP21 in December.

[Slide 2]

Pacific Leaders have consistently identified two critical barriers to sustainable development:



1. Climate Change.

Pacific Island countries are the most vulnerable to the increasing effects of anthropocentrically caused climate change. Pacific Leaders through the Majuro Declaration have now called on all parties to do all they can to mitigate climate change (Majuro Declaration, 2013[1]) Pacific island countries' contribution to climate change is negligible and expert analysis is that the region's carbon budget is negative (Holland 2014).

The Copenhagen Accord 2009 set an agreed international target of not exceeding a 2° global warming target. Pacific Island countries and others are calling for no more than 1.5°. Exceeding this target will almost certainly cause grave and unaffordable consequences for all Pacific countries 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 can not be maintained it will require greater effort and expense to be made in the future (Bows-Larkin, 2012 & 2015).
- 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, the excess would need to be taken up by greater contributions from others.
- All actors, big and small, need to lead by example (Majuro Declaration, 2013). Climate change has largely been caused by the industrialized development of the 'First World' (Stern, 2009). Kyoto established the principle of CBDR. While this onus of responsibility remains, the situation is now such that all must

[1] **Majuro Declaration, Our Responsibility to Act**

6. We confirm the responsibility of all to act to urgently reduce and phase down greenhouse gas pollution in order to avert a climate crisis for present and future generations.

7. The responsibility of all to act falls to every government, every company, every organization and every person with the capacity to do so, both individually and collectively.

effect change if a 1.5º threshold is to be maintained. The lack of a CBDR principle in the IMO is a major impediment to consensus on issues concerning climate change.

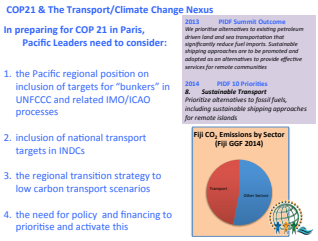
2. Fuel dependency.

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 (ESCAP, 2013; UNCTAD, 2014). Our small scale and length of transportation routes makes Pacific fuel and transport costs the highest in the world.

Transport is the majority fuel user burning 70%+ of imports. (Mofor, 2013; SPC, 2011). Air and maritime are the largest subsectors. For example in Fiji, where transport comprises ~66% of imported fuel, the subsector breakdown is 27% for aviation, 23 % for maritime transport with 16% for land transportation (Fiji Dept. of Statistics, 2013). For some countries maritime bunker uses a majority of the transport fuel. Tuvalu, for example, reported that 38% of total fuel imports or 64% of all transport fuel in 2012 was for maritime use (Tuvalu Department of Energy, 2013). Even allowing for a 22% regional carbon budget from biomass, transport is the singe biggest GHG emitting sector for the region (Holland, 2013). The Fiji Green Growth Framework 2014, for example, estimates that transport emits approximately 47% of Fiji's total annual carbon dioxide emission.

[Slide 3]

Key considerations for COP21.



1. **The Pacific regional position on inclusion of targets for "bunkers" in UNFCCC and related IMO/ICAO processes**

The failure of the international transport sector to contribute its "fair share" and decarbonise beyond currently planned scenarios will mean the future contribution of this sector makes a 1.5º target unachievable without extra contributions from other sectors. Under the expiring Kyoto Accord, international transport bunker was excluded from UNFCCC. RMI is leading a Pacific supported position in IMO for a sector target. At Bonn in June RMI and Fiji both called for COP21 to direct that transport sets clear targets. A collective Pacific and SIDS position needs to be established and advocated for in the Paris Accord if this is to have sustained weight. A post COP21 strategy needs to be established to ensure a Pacific position is maintained in future UNFCCC, IMO and ICAO processes.

2. **Inclusion of national transport targets in INDCs**

A focus on the role of transport in national and regional fuel dependency and emissions reduction policy has been poorly visible to date. For example, in the Majuro Declaration commitments, only RMI has set a target for transport fuel (20% by 2020). The SIDS-Dock initiative emanating from the Barbados Declaration, to which 13 Pacific countries are signatories, set a generic reduction target of 25% by 2032. No concrete pathway towards this target has been initiated. A regionally generic target for this sector in Pacific INDCs would send a strong global signal of the critical importance of this sector and the need for its prioritisation.

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 national roadmaps.

This strategy needs to be compatible and complementary to existing regional and national transport frameworks and work programmes. Research and education, with a strong long-term in-country capacity building foundation is the logical starting point. USP and its partners have prepared such a strategy for Leaders consideration.

4. The need for policy and financing to prioritise this

Policy and financing have been identified in regional and international research (Lloyd's Register, 2015;, Nuttall 2014; Prasad, 2013; Rehmatulla, 2013; Rojon, 2013) as the 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.

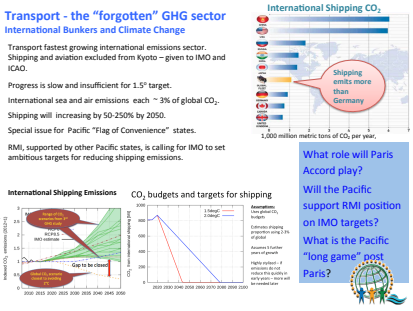
Even without the pressures generated by climate change, the Pacific transport scenario is challenging and requires significant and increasing national and international investment. The future post-COP21 will only increase this need. Investment in high quality research and long-term capacity building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

International decarbonisation of transport, especially air and sea, will have a much greater cost penalty for Pacific countries than any others (Faber, 2010). Given the critical importance of the sector 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 to determine a Pacific position and strategy for IMO/ICAO/UNFCCC engagement post-Paris.

[Slide 4]

Transport as an international emitter and its role at Cop 21 Paris

In the global frame, transport is the fastest growing emissions sector. In 2010 transport contributed 23% of total energy-related CO_2 emissions, with emissions projected to approximately double by 2050 (Sims et al, 2014). In the transports global carbon footprint, land transport is the largest sub-sector. This is the inverse of the Pacific position where maritime and air are the greatest contributors.



Shipping and aviation present particular issues due to international bunkers being excluded from Kyoto. Each sub-sector is currently responsible for emissions of a similar scale to countries like Germany and Japan. While some initial steps have been taken by IMO and ICAO to promote individual vessel efficiency, 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 (Bows 2012). Under the IMO 3rd GHG report analysis, shipping will grow by 50-250% by 2050 and its emissions will not peak before this in all but one modelled scenario, resulting in its share of emissions growing to 6-14% of global totals in this time. (Smith, 2014). If shipping is to pay its fair share then it must peak in 5 years and achieve decarbonisation by 2080 to stay within 2° but by 2045 to achieve 1.5° (Bows-Larkin 2015). Given the length of asset replacement cycles for

shipping this means a sector target is required now if decarbonisation is to occur in a methodical phased approach.

There is a special role for Pacific states that host 'independent registries' under their national flags. RMI is the 3rd largest and fastest growing flag in the world with ~11% of world tonnage. Vanuatu, Kiribati, Tuvalu, Palau and Cook Islands also host such registries which also represent them in the IMO. The RMI situation represents the conundrum they and other SIDS are in. To achieve climate change targets necessary to ensure survival of the country they need all sectors, including transport, to decarbonise. To achieve economic objectives they need their registries to be healthy and profitable. The nature of ship registration means it is easy to reflag a ship so individual action by registries to support decarbonisation will likely be punished unless there is collective regulated industry targets set at a global level.

This situation creates a unique negotiation position for such states, more so if a collective Pacific and SIDS position can be formed. The drafting of the Paris Accord will reconsider the role of the IMO and ICAO. For a 1.5° target to be achieved COP21 will need to give clear guidance to IMO/ICAO that the time for ambitious sector targets has arrived. A unified voice and strong advocacy will be required for this to be achieved.

In May 2015 RMI, supported by other Pacific states, called for IMO to set ambitious targets commensurate with 1.5° in advance of COP21. IMO rejected this stating it needed to consider the outcomes from Paris before debating this position further. The IMO has consistently argued that given the importance of shipping to world trade, any sector target must be a global political decision. RMI will return to IMO in September and November to continue to stress the case for IMO processes to be accelerated.

In June, Fiji and RMI delegations at Bonn called for bunker targets to be included in the Paris Accord. However, a consolidated regional position has yet to be established. COP21 is only a milestone, albeit a critical one, and Pacific leaders need to consider the strategic regional strategy post-Paris in regards both UNFCCC and IMO/ICAO processes.

[Slide 5]

Transport - largest fuel user for Pacific countries.

Transport is the majority imported fossil fuel user in the Pacific and the majority source of GHG emissions (SPC, 2011; ESCAP, 2013; Holland, 2013; Mofor, 2013; UNCTAD, 2014). Fuel and transport costs are the highest in the world. Especially for remote maritime communities, sea transport is often the biggest component of localised fuel budgets (Newell, 2015).

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

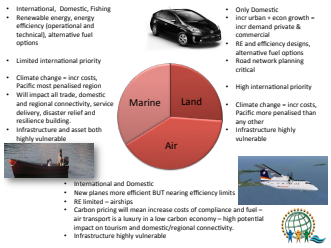
The importance of sustainable transport for Pacific countries can not be understated. Inversely to the continental world, sea followed by air are higher fuel users than land transport. Shipping moves the vast majority of Pacific goods. Sea and air are essential for connectivity for many communities and for the most vulnerable, sea transport is the only physical connector (Prasad, 2013). It is crucial for trade and economic development and impacts upon virtually every sustainability and adaptation initiative (ESCAP, 2013; UNCTAD, 2014). Land transport, although the smallest sector, is fast growing, especially in expanding urban areas reflecting increased private motor vehicle ownership and commercial vehicle use. Public expectation is of ever increasing availability and higher standards of transport service across all sectors.

Even in times of relatively low fuel costs, the Pacific faces unique challenges. Long thin routes, minute narrow economies, imbalance in inward and outward loadings, financing barriers, high risks and high infrastructure costs means Pacific countries have struggled to find long-term, sustainable, and cost-viable solutions for transport (ADB, 2007; AusAID, 2008; SPC, 2011; ESCAP 2013, Nuttall, 2014). Sea and air transport underpin all economic opportunity. Domestic connectivity is the most critical sector to address; many routes are unviable and uneconomic (ADB, 2007; ESCAP, 2013; Nuttall, 2014).

Ever increasing policy, regulatory and technical complexity places increasing and unrealistic strains on Pacific capacities and resources to operate and administer the 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.

The regions primary energy sources are petroleum oil, biomass and renewable's including hydro, geothermal, wind and solar. Petroleum oil products are the most dominate. Despite transport using three-quarters of the import fuel, only decarbonisation of electricity has to date received priority. Significant contributions from the Pacific Energy Summit 2013 and ADB 2015 now see funding in the region of ~$1billion available for this sub-sector. A corresponding investment into low carbon transport has yet to arrive. While initial research work is happening in research, including fuel substitution and renewable energy for transport, this is well shy of the effort needed to achieve any significant paradigm shift.

[Slide 6]
The impact of climate change on Pacific island transport.



Climate change will increasingly affect all aspects of the transport sector in the Pacific. For land transport, the Pacific can benefit from the high profile this subsector has internationally for vehicle and fuel replacement technologies. Increased demand for private vehicles, especially in growing urban centers, plays against the green benefits of public and shared transport. In air transport renewables have a highly limited role and fuel substitution is also limited. The Pacific has no alternative but to follow international technology. New vessels are much more efficient than old. The maritime subsector offers much stronger potential for renewable energy and energy efficiency applications.

Infrastructure for all subsectors is highly vulnerable to effects of natural disasters and sea level rise.

Decarbonisation implies an increasing penalty and compliance cost for carbon users. Unless compensatory mechanism can be negotiated to offset these in recognition of the unique position Pacific countries are in, the increase in costs for the Pacific will be the highest per captia in the world (Faber 2010).

[Slide 7]

The case for prioritising transport now.

The reasons for this current prioritisation of the Pacific energy landscape are complex and include assumptions that solutions for transport are not available and a focus on electricity substitution, as 'the low hanging fruit', leads to most demonstrable results (Mayhew, 2011).

There can be no dispute that electricity is a legitimate and needed target for change and development in the region. However, this is not a sound rationale for not addressing the need to transition to low carbon solutions for the transport sector given its share of fuel use and strategic importance. This will of course require additional commitment of carbon financing for the transport sector. It is not being suggested that existing programmes should be sacrificed or redirected.

Addressing transition of the Pacific transport scenario to a low carbon future requires a 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, training and education aspects are all important (Prasad, 2013; Newell, 2015). Current energy efficiency initiatives and research need to be scaled up and expanded.

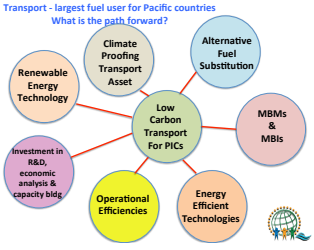
The historic lack of focus on a transition to low carbon transport, comparative to the electricity sector, makes this the ideal time to initiate a coordinated regional strategy. This needs to be built on development and implementation of national roadmaps backed up by a strong integrated support programme of technical assistance, capacity building, economic analysis and tool development and knowledge exchange. Robust data acquisition and analysis is an essential building block (Moon, 2013; Prasad, 2013; Newell, 2015).

A strong network of leading international centres of research excellence is ready to assist 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 technologies and approaches. A Pacific approach can provide leadership to other SIDS and LDCs (Newell, 2015). USP and IUCN have prepared a Regional Research and Education Strategy to set the platform for action in the maritime sector.

The Marshall Islands, with the support of neighbouring countries, has called for establishment of a Micronesian Sustainable Transport Centre as a sub-regional catalyst for change (Boknake Haus Communiqué, 2015). RMI's INDC sets a target of reducing its transport emissions by 17% by 2025. The recent Green Growth Framework (2014) includes strong policy direction for Fiji's national action. These two countries present as logical options for developing a regional approach from.

[Slide 8]

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 both vessels/vehicles and their associated fuels is of critical importance, technical solutions cannot be effected in isolation and this is being increasingly highlighted in all

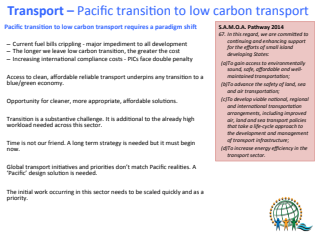
research of this sector.

Advancing technology, whether for asset, fuel or infrastructure, is insufficient unless the policy and economic context is provided to allow private sector or PPP uptake. The introduction of hybrid cars in Fiji is a classic example. Despite the proved advantages and savings of the technology, initial introduction failed to achieve any market penetration. It took an enabling policy environment through the Fiji Green Growth Framework and financial tools in the form of reduced import levies to herald a change. The private sector responded by ensuring introduction of the technology was backed by service and maintenance capacity. The resulting uptake by consumers speaks for itself.

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. 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.

[Slide 9]

Pacific transition to low carbon transport requires a paradigm shift



If constraining global warming within a threshold of no more than 1.5º requires a global programme of decarbonisation of all sectors, then it follows Pacific states need to be part of this solution. To not do so exposes Pacific countries to numerous risks. These include: loss of leverage and the moral high ground in global climate change negotiations; continued dependency on imported fossil fuels with related issues of vulnerability to price and supply security; 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.

Just as the importance of sustainable transport for Pacific countries can not be overstated, the size of the low-carbon transition challenge should not be underestimated. Maintaining the current transport agenda is already highly taxing on Pacific resources and capacity at local, national and regional levels. A regional strategy must therefore dovetail with and leverage off existing policy frameworks. Effecting change at any relevant scale will require additional prioritisation of policy and financing mechanisms.

However, the consequences of not acting are also likely to be high. The likely effects of future climate change have significant implications for the Pacific transport sector with particular downstream implications. 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 maritime. 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.

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

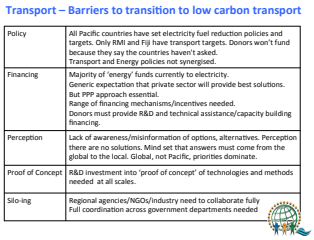
low carbon pathway offers the opportunity for cleaner, more appropriate and affordable transport solutions. But realising this at any scale sufficient to demonstrate results requires a dedicated programme leading to building and retaining in-country and in-region capacity (Prasad, 2013; Newell, 2015).

Internationally, transport is undergoing an energy efficiency revolution unprecedented in its history since the use of fossil fuel propulsion. However most effort is directed at the transport needs of continental and developed nations. 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 Pacific countries. A Pacific low carbon transition strategy for transport will require a 'Pacific design' solution. Current initiatives in transport efficiency and sustainability including fuel substitution, alternative fuels and renewable energy research need expanding and up-scaling.

[Slide 10]

Barriers to transition

Recent regional and international research into barriers to low carbon transition for sea transport show a consistent pattern (Rehmatulla, 2012; Rojon, 2013; Prasad, 2013; Nuttall, 2014; Lloyd's Register, 2015). For the Pacific the key challenges are grouped as:


Transport – Barriers to transition to low carbon transport

Policy	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. Transport and Energy policies not synergised.
Financing	Majority of 'energy' funds currently to electricity. Generic expectation that private sector will provide best solutions. But PPP approach essential. Range of financing mechanisms/incentives needed. Donors must provide R&D and technical assistance/capacity building financing.
Perception	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.
Proof of Concept	R&D investment into 'proof of concept' of technologies and methods needed at all scales.
Silo-ing	Regional agencies/NGOs/industry need to collaborate fully Full coordination across government departments needed

1. **Policy**

Policy-led change at international, regional and national levels is required. Recognition of this has increasing but specific provision lags behind development of electricity and broader energy policy and there is urgent need for greater synergies between transport and energy policy generally. Recent Pacific policy milestones are set out in Appendix 1.

2. **Financing**

Internationally recognised as the major barrier, access to financing to both prepare for transition and then to implement market solutions is a critical barrier for the Pacific. The region's transport costs are already the highest in the world and industry and government access to appropriate financing is a historic barrier for this sector.

Achieving transition to low carbon for the Pacific will require prioritised climate financing assistance. There is a generic expectation that the private sector will provide the best solutions in existing donor policy. Unaided this is unrealistic. Private/public partnerships are needed and there is a demonstrable case for investment in research and capacity building. Governments need to consider a range of financing mechanisms and incentives and strong economic analysis is needed to support the development of these.

3. **Perception**

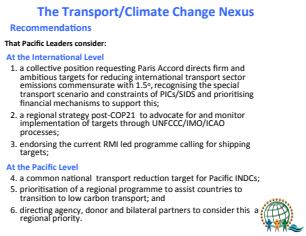
Low carbon transport faces critical perceptual barriers. For transport this means changing the current context where energy and electricity tend to become synonymous and dominate a wider sector focus. There is lack of awareness and information of options and alternatives. A mindset that 'answers must come from the global to the local' prevails. Global and not Pacific priorities dominate.

4. **Proof of Concept**

Recent research in the maritime sector (Smith, 2014; Lloyd's Register, 2015) points out the essential need for demonstration of 'proof of concept' for alternative technologies and methods in real world and time deployment before the private sector can be expected to show interest in up-take. The lack of financing available for either public or private sectors for this necessary research and development component is a significant barrier and currently creates a 'valley of death' spiral. Adequate data and economic analysis is required from the outset.

[Slide 11]

Recommendations for Leaders Consideration:


The Transport/Climate Change Nexus
Recommendations
That Pacific Leaders consider:
At the International Level
1. a collective position requesting Paris Accord directs firm and ambitious targets for reducing international transport sector emissions commensurate with 1.5°, recognising the special transport scenario and constraints of PICs/SIDS and prioritising financial mechanisms to support this;
2. a regional strategy post-COP21 to advocate for and monitor implementation of targets through UNFCCC/IMO/ICAO processes;
3. endorsing the current RMI led programme calling for shipping targets;
At the Pacific Level
4. a common national transport reduction target for Pacific INDCs;
5. prioritisation of a regional programme to assist countries to transition to low carbon transport; and
6. directing agency, donor and bilateral partners to consider this a regional priority.

That Pacific Leaders consider:

At the International Level

1. a collective position requesting Paris Accord directs firm and ambitious targets for reducing international transport sector emissions commensurate with 1.5º, recognising the special transport scenario and constraints of PICs/SIDS and prioritising financial mechanisms to support this;

2. a regional strategy post-COP21 to advocate for and monitor implementation of targets through UNFCCC/IMO/ICAO processes;

3. endorsing the current RMI led programme calling for shipping targets;

At the Pacific Level

4. a common national transport reduction target for Pacific INDCs;

5. prioritisation of a regional programme to assist countries to transition to low carbon transport; and

6. directing agency, donor and bilateral partners to consider this sector a regional priority

Appendix 1:

Recent Pacific low carbon transport policy milestones include:

2013 Majuro Declaration.
RMI Country Commitment *5: A 20% efficiency improvement in transportation sector fuel use by 2020;*

2013 Suva Declaration, Outcome of the High-level Meeting on Strengthening Inter-island Shipping and Logistics in the Pacific Island Countries.,
(b) (xiii) Explore opportunities to increase the sustainability of shipping and reduce reliance on fossil fuel use in the shipping sector;

(vi) Support improved planning to respond to climate change and enable effective disaster risk management;
(d) Support research and development on renewable sources of energy, such as solar and wind, as well as their deployment, to foster sustainable maritime transport;

2013 PIDF Summit Outcome Document
We prioritise alternatives to existing petroleum driven land and sea transportation that significantly reduce fuel imports. Sustainable shipping approaches are to be promoted and adopted as an alternatives to provide effective services for remote communities.

2014 PIDF Outcomes Statement – 10 Priorities
8. Sustainable Transport
Prioritize alternatives to fossil fuels, including sustainable shipping approaches for remote islands.

2014 Pacific Transport Ministers Forum Denarau Declaration
Ministers *encouraged a shift towards higher quality fuels* and *exploration of alternatives to petroleum products* and *agreed, in relation to transport, that the following would be high priorities for implementation in the next three years:*
17. Energy efficiency and sustainable transport – Acknowledged the need to investigate alternative sources of energy to support the shipping industry.

2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway
Sustainable transportation
66. We recognize that transportation and mobility are central to the sustainable development of small island developing States. Sustainable transportation can enhance economic growth, promote trade opportunities and improve accessibility. Sustainable, reliable and safe transportation achieves better integration of the economy while respecting the environment. We also recognize the importance of the efficient movement of people and goods in fostering full engagement in local, regional and global markets and the potential for sustainable transportation to improve social equity, health, the resilience of cities, urban-rural linkages and the productivity of rural areas of small island developing States.
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.

2014 A Green Growth Framework for Fiji
i) Encourage the use of fuel efficient vehicles to reduce transport sector's dependence on imported fossil fuels, including through the review of existing relevant policies.

(v) Provision of a regular, affordable and sustainable domestic shipping industry.

- Improve the operating efficiency of vessels, for example efficient slipways, introduction of age limits on second hand vessels, weather routing and slow steaming and support technological innovation for example, better hull and propeller designs which could result in fuel savings.
- Reinvigorate traditional knowledge of using small "canoe" and "camakau" boats for accessing jetties to reduce the use of fossil fuel operated outboard motors.
- Purchase of a renewable energy vessel through a partnership between Government Shipping Services and the private sector investors in close consultation with interested communities.
- Support initiatives that assist in the transition to a low carbon sea transport future such as the Oceania Centre for Sustainable Transport.
- Build relationships with global and regional industry leaders and researchers working in the field of sustainable sea transport.
- Incorporate incentives for trialling and adoption of low carbon technologies for domestic shipping in relevant strategies, policies and plans.
- Revitalisation of the local boatbuilding, shipbuilding industry and vessel slipping.
- Affordable and regular shipping services to the outer and isolated islands and between coastal communities to be sustained in the future