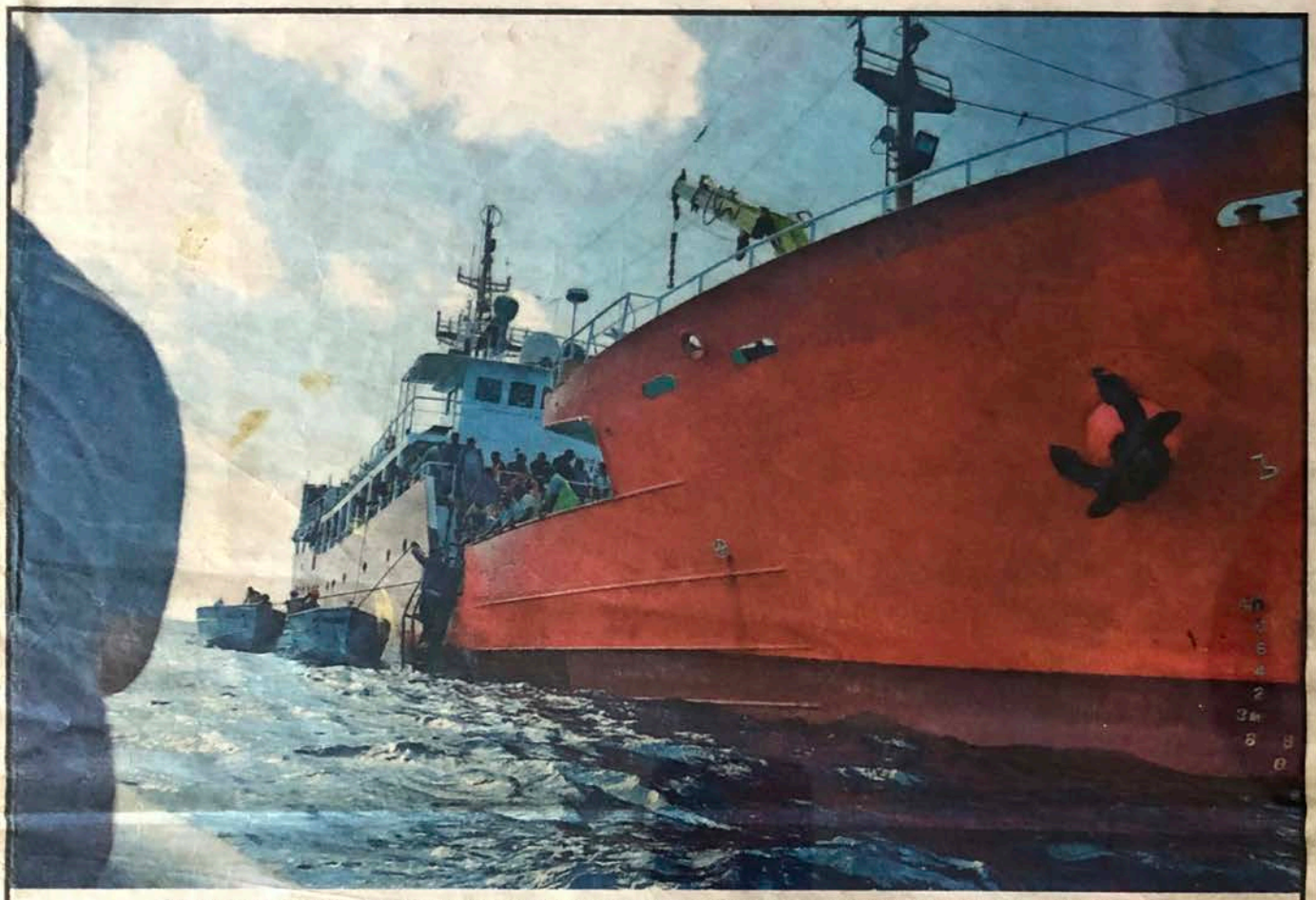
Fiji Time

Alison Newall & Peter Nuttall



Shipping is the lifeline of all Pacific countries and shipping scenarios are unique and do not mirror the international industry. Picture: FILE

Global target

To reduce shipping emissions by 50 per cent

By ANA MADIGIBULI

FIJI and other Pacific countries have pressed hard on all international forums in all countries and all sectors to decarbonise consistently, achieving no more than 1.5 degrees of global warming.

In order to do this, the Marshall Islands and Fiji have co-chaired a Pacific Blue Shipping Partnership (PBSP) in a multi-country initiative which calls for an immediate blended finance investment by the international community of about $500 million in a co-ordinated 10-year program.

University of the South Pacific's Micronesian Centre for Sustainable Transport scientific and technical adviser Dr Peter Nuttal said the program was to get six to eight Pacific countries to transition from fossil fuel powered shipping.

He said Fiji and other Pacific countries had pressed hard on all international forums and all sectors to decarbonise consistently with achieving no more than 1.5 degrees of global warming.

"Standing beside the Marshall Islands, Tuvalu, Solomons, Tonga and others, Fiji has now successfully pressured the International Maritime Organisation to set an initial global target of about 50 per cent reduction in shipping emissions," he said.

"There are clear and increasing signs the shipping industry is responding and new technologies, fuels and operational practices are being researched and now coming on stream across the developed world. But there is no guarantee the solutions being developed for large-scale shipping will be appropriate for small island states."

Shipping is the lifeline of all Pacific countries.

"Our shipping scenario is unique it does not mirror the international industry. So, unless the Pacific match steps with this international change to design and implement its own bespoke solution, we run a high risk of being increasingly stranded with old, outdated, diesel technologies that will become ever more expensive to operate," he said.

He says the PBSP is an ambitious and innovative solution to allow the Pacific to get in front of the ball and use international climate financing to invest in, not only cleaner shipping, but more affordable and appropriate shipping solutions.

"Two countries have been leading this charge to date, the Marshall Islands and Fiji, and it is encouraging to see them continuing to provide leadership in this sector."

Shipping Times
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A vicious cycle

Dependence on old ships, often at the end of their economic life and often highly inefficient and expensive to fuel and in maintaining has become the business-as-usual model for Fiji and the Pacific. Picture: ANA MADIGIBULI

Dependence on old ships has become the norm

By ANA MADIGIBULI

FOR Fiji and the rest of the Pacific, dependence on old ships, often at the end of their economic life and often highly inefficient and expensive to fuel and maintain has become the business-as-usual model.

University of the South Pacific's Micronesian Centre for Sustainable Transport scientific and technical adviser, Dr Peter Nuttal said it had created a vicious cycle that left many countries dependent on outdated and inefficient assets that provide only a marginal service.

"Especially for outer island and maritime communities, the cost and quality of shipping is a key cross-cutting issue impacting all aspects of social and economic development," he said.

"Shipping is our equivalent of highways and railways in other countries, it provides the basis of all connectivity.

"The current climate crisis actually provides an opportunity to address this long-standing problem and deliver a shipping sector with lower overheads and operational costs and better services"

He said political willingness and private sector buy-in were now needed to effect the essential change.

There seems to be multiple solutions to achieving full decarbonisation in Fiji.

"Ultimately to get to 100 per cent we will need new fuels and there is now substantial work happening internationally on methane, ammonia and hydrogen but there are immediate steps that can be taken now," he said.

"At the small boat scale, a transition from two-stroke to four-stroke outboards nets around 40 per cent in efficiency savings.

"Over time we then need to transition to electric motors and fuel cells. For larger vessels, retrofits and new builds using wind hybrids — using soft sails and wind rotors in conjunction with conventional motor propulsion — can achieve savings between 10 per cent and 40 per cent with current technology for a substantial range of ships."

■ Continue on PAGE 2

PM proposes regional IMO office

By LUKE NACEI

PRIME Minister Voreqe Bainimarama has proposed to the secretary-general of the International Maritime Organization (IMO) the possibility of having a regional office set up in Fiji.

He said this would further enhance the organisation's relations with the Pacific.

Mr Bainimarama said this would also have Fijian officials seconded to the IMO headquarters for further learning and training opportunities in the maritime transport sector and the need for more technical co-operation.

He also requested that Fiji be considered in the contest for membership of the IMO Council C category, a board which no Pacific Island country has ever been a part of.

During their bilateral meeting, Mr Bainimarama acknowledged the two-pronged IMO strategy which is aimed at reducing the international shipping's total annual greenhouse gas emissions by at least 50 per cent by 2050 — a strategy that Fiji fully supports.

IMO secretary-general Kitack Lim reassured Mr Bainimarama that IMO was considering areas of mutual interests to further boost bilateral relations with Fiji and the Pacific region.

Mr Bainimarama also highlighted the Pacific Blue Shipping Partnership which was a multi-country initiative that required half a billion dollars of financing to see the full decarbonisation of our national fleets by 2050.

HAVE YOUR SAY

Write to us at letters@fijitimes.com.fj to share your views on this topic

Prime Minister Voreqe Bainimarama (left) with International Maritime Organization secretary-general Kitack Lim. Picture: SUPPLIED

Call for prompt action

By LUKE NACEI

CLIMATE change can no longer remain a mere topic of discussion, says Prime Minister Voreqe Bainimarama.

He echoed these sentiments during a bilateral meeting with the secretary-general of the Commonwealth Secretariat, Baroness Patricia Scotland in London.

Mr Bainimarama said climate change needed a decisive and immediate action from everyone.

With the annual UN climate meetings presently in progress at the COP25 in Madrid, Spain, he said it was equally important for every nation to continue to raise concerns about this climate emergency and to never give up on any opportunity to take deep and decisive action.

Mr Bainimarama said Fiji would continue to support the work of the Commonwealth Secretariat and its leadership role at the Commonwealth Heads of Government Meetings (CHOGM), and also towards the Pacific Small Island Developing States (PSIDS), education and youth and the Commonwealth diaspora survey project.

Baroness Scotland thanked Fiji for expressing support towards the automatic renewal of her term, which is due to expire before the CHOGM to be held in Rwanda next year.

Prime Minister Voreqe Bainimarama with Commonwealth Secretariat secretary-general Baroness Patricia Scotland in London. Picture: SUPPLIED

Fiji passport service in UK

By LUKE NACEI

FIJIANS living in United Kingdom and nearby countries will no longer have to make the journey back to Fiji to obtain or renew their passports.

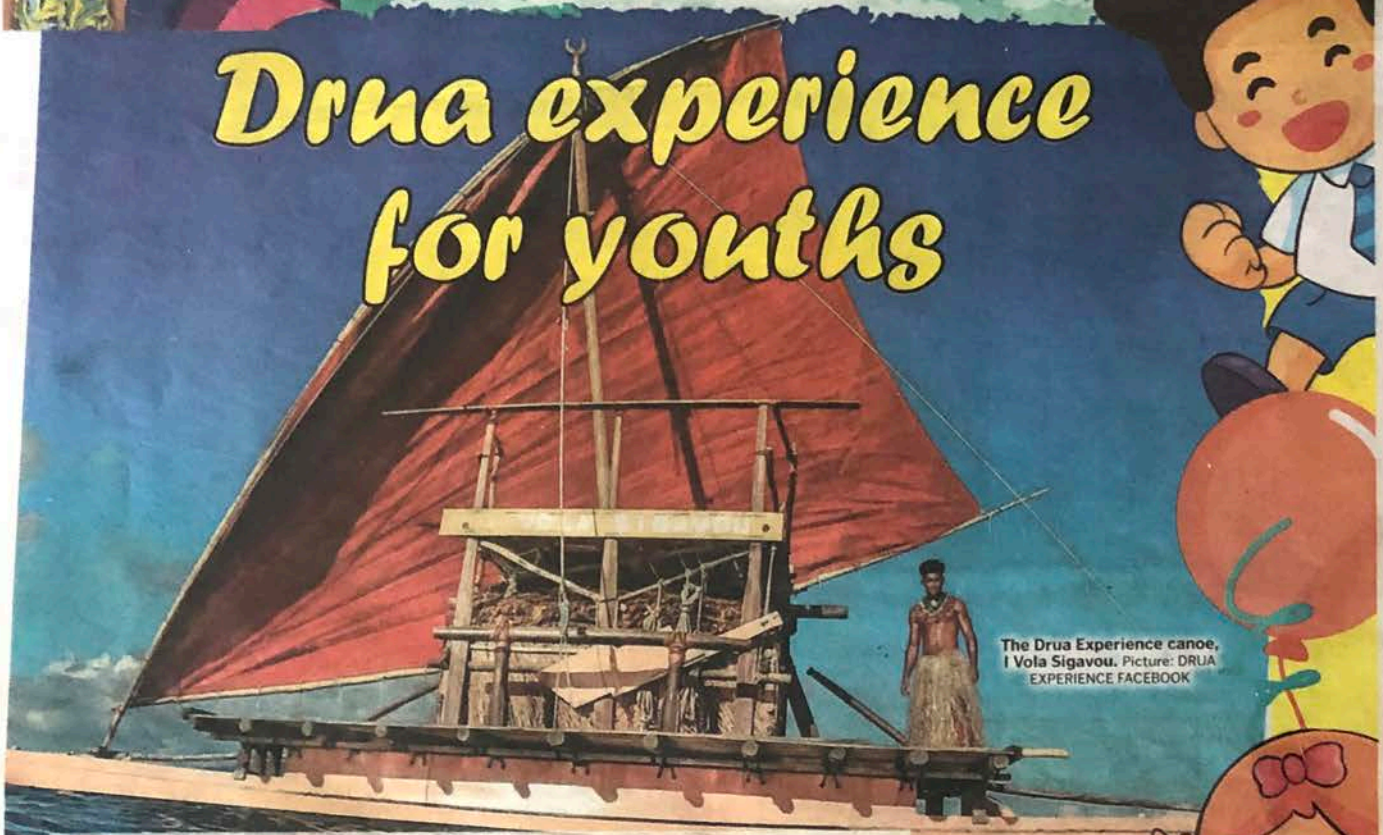
This after the opening of the first e-passport enrolment kit at the Fiji Mission in London by Prime Minister Voreqe Bainimarama.

"Given the size of our diaspora community in the UK, we saw our High Commission here in London as a fitting first location for our decentralised passport issuance system," he said.

Mr Bainimarama said in the coming weeks, these same services would be made available across our foreign missions.

By ANA MADIGIBULI amadigibuli@fijitimes.com.fj

Drua experience for youths



The Drua Experience canoe, I Vola Sigavou. Picture: DRUA EXPERIENCE FACEBOOK

THE Drua Experience crew will be running a traditional Fijian sailing and basic navigational classes for youths from November 1 until April next year.

With the generous support of the United States Embassy, the classes will be provided to 200 youths from the ages of 10 years to 20 years within the Nadi, Vuda, and Lautoka area.

The Drua Experience crew members are delighted to be working in partnership with Vuda Marina and Vuda Sailing Club to deliver this short course of theory and practical sailing on board the Drua I Vola Sigavou.

It is focused on the fundamental aspects of traditional sailing and navigation.

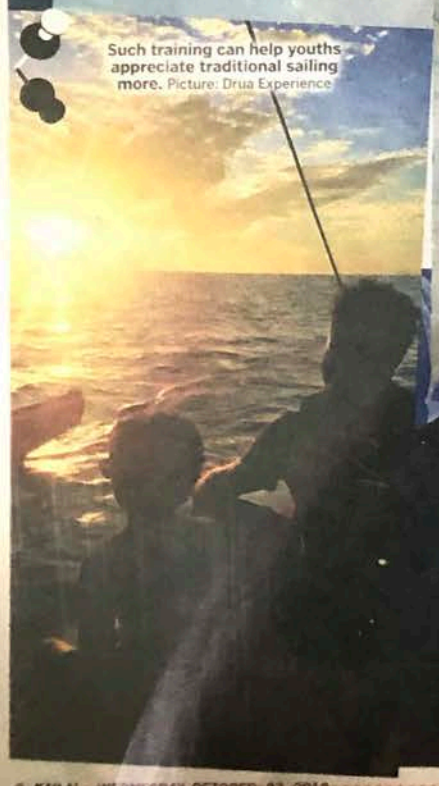
"Traditional Fijian sailing is a dying art and Drua Experience aims to not only revitalise the traditional Fijian sailing culture in Fiji but help to promote more low carbon shipping practices within Fijian waters," Drua Experience operation manager Agnes Sokosoko said.

"We are happy to support local efforts teaching youth not only important traditional skills and practices, but also the sustainable and responsible use of natural resources, healthy lifestyles, leadership, and self-confidence," US Embassy public diplomacy officer Rebecca Archer-Knepper said.

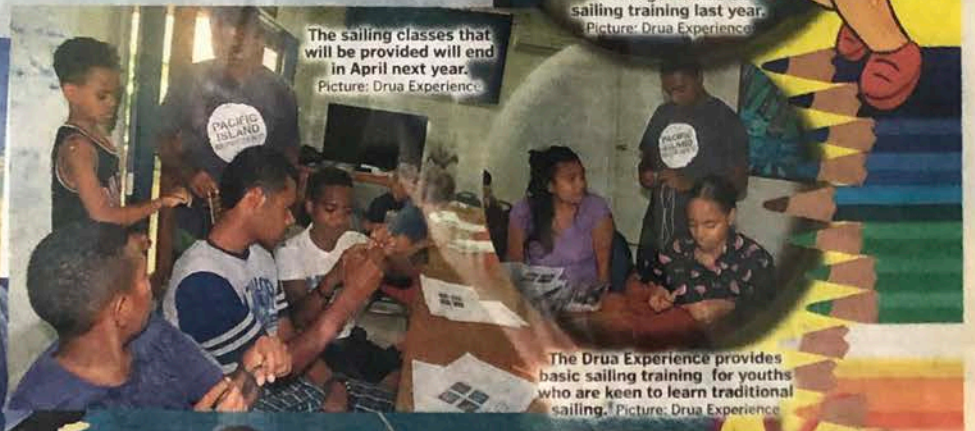
"Through the reach of our Small Grants Program, the embassy continues to reach its end goal of building capacity within key sectors and important audiences throughout Fiji and the region.

"We wish the Drua team all the best with this program and look forward to seeing how the youth capitalise on this amazing opportunity."

Youths get hands on sailing training last year. Picture: Drua Experience



Such training can help youths appreciate traditional sailing more. Picture: Drua Experience



The sailing classes that will be provided will end in April next year. Picture: Drua Experience

The Drua Experience provides basic sailing training for youths who are keen to learn traditional sailing. Picture: Drua Experience

University of the South Pacific students also were part of the Drua Experience sailing exercise. Picture: Drua Experience

'Swiss Army Knife of the Navy'

By ANA MADIGIBULI

THE *BSAOM D'Entrecasteaux* which is called the "Swiss Army Knife of the Navy" was in the country on a five-day port call.

The vessel and its crew had visited Fiji earlier in June at the Port of Suva but last week berthed at the Lautoka Queens Wharf.

According to the French Embassy, the port call was a success as the naval personnel on board were able to meet the new French ambassador to Fiji, Jean-François Fitou and his wife Alexandrine Bouffiers.

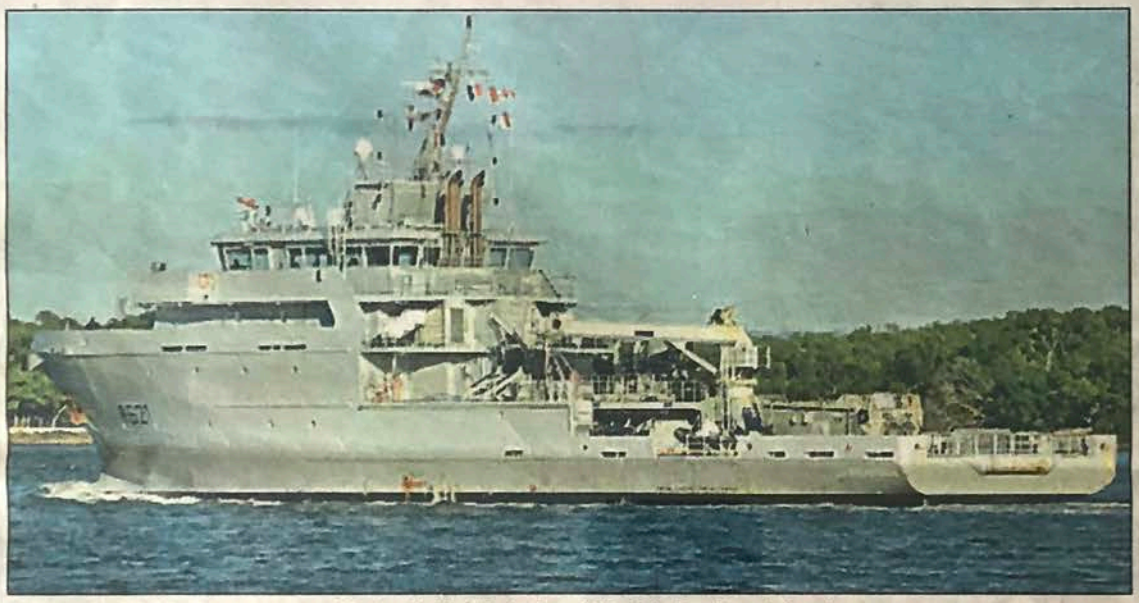
This is also the first French Navy vessel that ambassador Fitou has had a tour of here in Fiji.

The ship's designation is Bâtiment multi-mission in French (B2M, "multi-mission ship") and is also dubbed the "Swiss Army knife of the Navy".

According to the embassy, it is a type of ship designed to perform sovereignty, law enforcement and logistics missions (such as policing illegal fishing, traffics and mining; assisting distressed ships, and search and rescue; and contributing to the logistics of overseas collectivities).

One of its main task is maritime law enforcement, particularly in the domain of commercial fishing and against illegal immigration, drug trafficking and piracy.

The *D'Entrecasteaux* has been to Fiji three times this year and during those times; it has done surveillance on Fiji's Exclusive Economic Zone and sent reports to the Fiji Navy. The vessel departed for New Caledonia on Monday.



The BSAOM *D'Entrecasteaux* which is called the "Swiss Army Knife of the Navy" was in Lautoka. Picture: EMBASSY OF FRANCE

Traditional sailing

■ From PAGE 29

Drua Experience traditional navigator and captain Setareki Ledua said the crew members were excited about its traditional sailing classes that would be held in the West on November 1.

"It's great to show our youth how amazing our traditional boats are," he said.

"We get a real buzz from being able to do that.

"Our ancestors built boats from sustainable resources and used renewable energy to sail wherever they wanted, and we're going to need that knowledge and those skills more and more as we have to stop using fossil fuels for maritime transport."

He said earlier this year the team also completed a similar program for youths in Suva.

"We delivered traditional sailing classes in partnership with the International Union for Conservation of Nature with support from the Government of Spain," he said.

"So we are delighted to now be able to extend the program to youths in the West, all thanks to the support of the US Embassy.

"We had really positive feedback from the kids and young adults in Suva, and we're really looking forward to seeing the same enthusiasm and enjoyment from the youths in the West.

"We hope that we will be able to spread this vital knowledge throughout Fiji in the coming years."

Drua Experience operates *I Volasiga Vou* commercially under the flagship of Sailing for Sustainability, a company dedicated to working with various organisations throughout the Pacific and internationally on the pilot trials, research, and policy of low carbon sea transportation.

Youths from Suva on board the *I Vola Sigavou* drua during their practical training session. PICTURE: SUPPLIED

TRANSAM (FIJI) PTE LTD- KENUA FIJI

CRUISELINER SCHEDULE - OCTOBER

1. ***Majestic Princess*** is to arrive in Dravuni on October 24 at 8am and to depart at 5pm.
2. ***Majestic Princess*** is to arrive in Suva on October 25 at 7am and to depart at 6pm.
3. ***Pacific Explorer*** is to arrive in Dravuni on October 26 at 8am and to depart at 5pm.
4. ***Majestic Princess*** is to arrive in Savusavu on October 26 at 8am and to depart at 6pm.
5. ***Majestic Princess*** is to arrive in Lautoka in October at 8am and to depart at 4pm.
6. ***Pacific Explorer*** is to arrive in Suva on October 27 at 8am and to depart at 6pm.
7. ***Pacific Explorer*** is to arrive in Denarau on October 28 at 8am and to depart at 6.30pm.
8. ***Noordam*** is to arrive in Savusavu on October 31 at 8am and to depart at 5pm.

■ Compiled by ANA MADIGIBULI

BRIEFLY

Fisheries reforms

DEPUTY Prime Minister, General Prawit Wongsuwan, has committed Thailand to protect and build on recent fisheries reforms during a meeting with the Environmental Justice Foundation's Executive Director, Steve Trent. For the past five years, EJF has worked closely with the Royal Thai Government to eradicate the illegal fishing and human rights abuse that has plagued its fishing industry. Over that time, Thailand has implemented substantial reforms.

No signs of impact

WHITE smoke that was coming from the car carrier *Golden Ray* being salvaged in St. Simons Sound, Georgia, has now been stabilised. The cause of the smoke is unknown. The Unified Command says the situation is being monitored and a safety boat and a tugboat equipped with firefighting equipment are on-scene. Air monitoring around the vessel and in the community has shown no signs of impact. Water was sprayed on the vessel in order to contain the smoke.

Bunker vessel

TOTAL has launched its first large LNG bunker vessel, after a long-term charter contract between Total and Mitsui O.S.K. Lines (MOL) in February 2018. After delivery in 2020, the bunker vessel will operate in Northern Europe, where she will supply LNG to commercial vessels, including 300,000 tons per year for CMA CGM's nine ultra-large new-build container ships in Europe-Asia trade, for a period of about 10 years.

Kafala system

QATAR has announced reforms aimed at ending the kafala system and therefore upholding the rights of migrant workers. "Kafala" is an Arabic word which means "sponsorship". Kafala is unique to the Middle East. The Kafala system allows nationals to employ non-Gulf nationals. The power is entirely in the hands of the employer/sponsor known as the kafeel. The kafeel can dictate the conditions and terms of work, including the accommodation of the work migrant. The subjugation of the Kafala system has resulted in migrant workers referring to the kafeel as their "owners".

Sea route change

MSC has announced it will not use the Northern Sea Route between Europe and Asia for container shipping. The announcement follows similar ones made by Hapag-Lloyd and CMA CGM. MSC says is convinced that the 21 million containers it moves each year can be transported around the world without passing through this Arctic route. Instead, the company will focus on improving environmental performance on existing global trade routes.

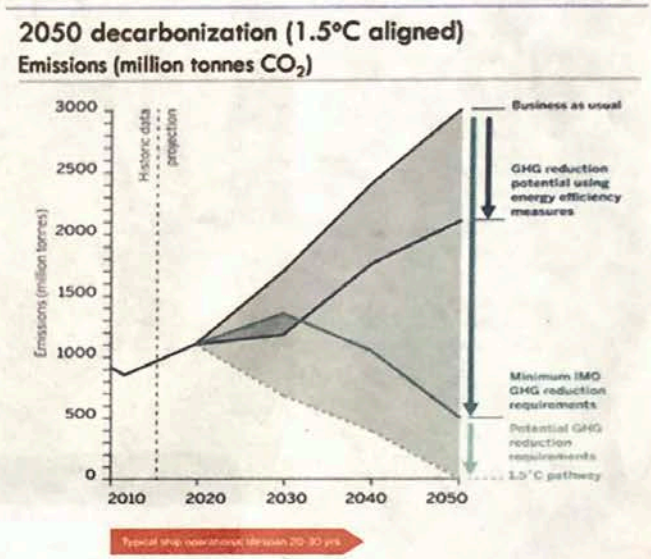
Source: THE MARITIME EXECUTIVE

CLIMATE CHANGE

'SHIP OWNERS MUST ADDRESS GREEN HOUSE GAS (GHG) EMISSION'

WHY IS SHIPPING IMPORTANT TO CLIMATE CHANGE?

And why are our Pacific delegations playing such a critical role in the International Maritime Organisation's current debates?



FOCUS

Analysis

by Peter Nuttall

For the past five years, our team of University of the South (USP) scientists with colleagues from leading European universities has been providing research and technical support to a coalition of Pacific Island members of the International Maritime Organisation (IMO) working with other high ambition countries, calling for ever increasing reduction in international shipping emissions.

The sustained, consistent pressure of delegations from Fiji, Republic of the Marshall Islands (RMI), Solomon Islands, Tuvalu, Kiribati, Tonga and others since 2015 is widely credited as a catalyst that has forced shipping to address its role as a major global Green House Gas (GHG) emitter and led to IMO setting firm targets in 2018 to begin decarbonising the industry.

The targets aren't as high as we need to stay under 1.5 degrees, but they are major step forward.

Five years ago, the discussions on this matter were very much a back-room affair, held outside the major global debates on climate change.

Today, shipping emissions are a high-ticket item, at the forefront of the United Nations (UN) Secretary-General's Climate Change Summit last year and they will be a centre-piece of the UN Oceans Summit in Lisbon in June. The Pacific can be justifiably proud of the work of its diplomats and delegations in driving this agenda.

International Shipping is a behemoth of a global industry. The enabler of all world trade, ships move 90 per cent by volume and 80 per cent by value of all goods in the world. No other form of transport can move the huge volumes of raw resources and finished products that keep the global economies gears grinding.

Ships are often the most energy efficient transport available compared with trucks and planes. It's an industry of big numbers, ships can cost $100's of millions to buy, a large oil tanker might carry a $100 million worth of crude, we have container ships that carry more than 20,000 containers at a time. Here in the Pacific we have some of the highest shipping costs in the world, but generally global shipping is relatively inexpensive.

So why the concern? Because big ships burn large quantities of dirty fuels and shipping emissions of greenhouse gasses is high and increasing. Because global trade is forecast to grow, so shipping must also expand. If shipping was a country, it would be an emitter of the same size as Germany. And if we do not change shipping's carbon footprint now, by 2050 it could emit as much as the continent of Europe. Ships are expensive assets and have a working life of 20-30 years or more. This means we have to make the decisions about how to change shipping to non-carbon fuels and technologies now, not in 2030 or 2050. It will be too late then.

Shipping, and its cousin aviation, are international industries, servicing across and beyond national borders. And so it was left out of first Kyoto and then the Paris Agreements on climate change.

Those agreements are for national emissions. Instead shipping is regulated at the global level by another UN Agency, IMO headquartered in London. In the build-up to the Paris Agreement, shipping stayed out the limelight of the global debates on climate change.

It tends to be an 'out sight, out of mind' industry for most people and the IMO has a heavy industry presence and influence. Previous IMO discussion on regulating ship emissions using market-based measures such as carbon or fuel taxes had created large divisions between the member states and were abandoned a decade ago.

One of the leading architects of the Paris Agreement was the then Marshall Islands Foreign Minister Tony de Brum. But the Marshall's is also host to the second largest ship registry in the world and this makes it a superpower in shipping.

In 2015 Minister de Brum led a Pacific delegation to the IMO calling for reductions commensurate with 1.5 degrees. Since then, we have been joined by other high ambition countries, including many from Europe, NZ and Canada. Working closely with other UN partners such as United Nations Conference on Trade and Development (UNCTAD) we are reaching out to other Small Island Developing States (SIDS) and climate vulnerable.

While our shipping interests are quite different to those of Europe and large developed trading nations, we are proving that we all face a common threat in this climate crisis and that mature, measured debate is still the best path to durable solutions. The Shipping High Ambition Coalition (SHAC) we have forged since 2015 provides a space for this to occur. It is a unique approach.

Collectively, the IMO member states must now agree a managed step change from fuel oil powered to non-carbon ships. That will be no small feat, given that some of the major actors do not see the climate crisis with same the urgency as the Pacific. Some do not admit to seeing it at all.

Small and poor countries, the climate most vulnerable, don't usually have a loud voice in IMO. They aren't normally associated with the major shipping powerhouses or the shipping interests of large states. It's very expensive to maintain delegations to the IMO in London. But with technical support from our international university partners and funding support from NZ, UK and more recently the EC we have been able to sustain an increasing Pacific voice to the unique concerns and interests of SIDS and Least Developed Countries (LDCs). As our small delegations shuttle back and forth to London it sometimes feels a total David and Goliath struggle. However, there is also immense pride in watching our officers and diplomats grow in confidence and stature. They are certainly earning global respect.

Now that the IMO has set its initial target of at least 50 per cent overall emissions reduction by 2050, the real debates over what measures to employ and how to enforce them are coming to the fore. These are highly technical in nature and will become increasingly so. There is a lot at stake. Our latest science is that an investment of at least $1 trillion is needed to transition global shipping to new generation green fuels – most likely ammonia, hydrogen, and bio-fuels. Industry leaders are moving quickly to position themselves to benefit from this massive investment opportunity.

But it raises particular questions for our small islands. Will we also benefit, or will we will be left behind and increasingly penalised? We are increasingly dependent on shipping for our connection to the rest of the globe, our transport lines are long, thin, expensive and vulnerable, we are the 'maritime continent'.

Our work of the past five years has demonstrated that with the right support a Pacific voice can be heard despite our small stature. But a lot more work lies ahead if the interests of our islands in this huge international debate are to be protected.

Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

Fiji Can Achieve Paris Agreement Temperature Goals, says Advisor

WATI TALEBULA

University of the South Pacific (USP) Independent Advisor Alison Newell says Fiji can achieve the Paris Agreement temperature goals.

The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change, dealing with greenhouse-gas-emissions mitigation, adaptation, and finance, signed in 2016 which Fiji is a part of.

Fiji in 2018 had announced domestic shipping emissions reduction targets of 40 per cent by 2030 and 100 per cent by 2050.

According to Mrs Newell, Fiji has done a lot of thinking and planning for tackling emissions from domestic fleet (vessels) over the past few years, and that need to continue and expand, particularly in strengthening enabling environment and supporting monitored pilot trials.

"Fiji, alongside its neighbours, is already heavily active in the International Maritime Organisation (IMO) Green House Gas (GHG) emissions debate and their input is highly valued," Mrs Newell said yesterday in Suva.

"Fiji isn't just relying on IMO, she is also actively using all diplomatic channels including its role in the high-level panel on oceans and the important role that Ambassador Peter Thompson plays as the UN Special Envoy on oceans to drive its low carbon shipping message. This is proving highly effective.

"It's really important that Fiji continues to do so as change at international shipping level is essential if we are to have any hope of achieving the Paris Agreement temperature goals.

"Fiji has also done a lot of thinking and planning for tackling the emissions from the domestic fleet over the past few years, and that needs to continue and expand, particularly in strengthening the enabling environment and supporting monitored pilot trials.

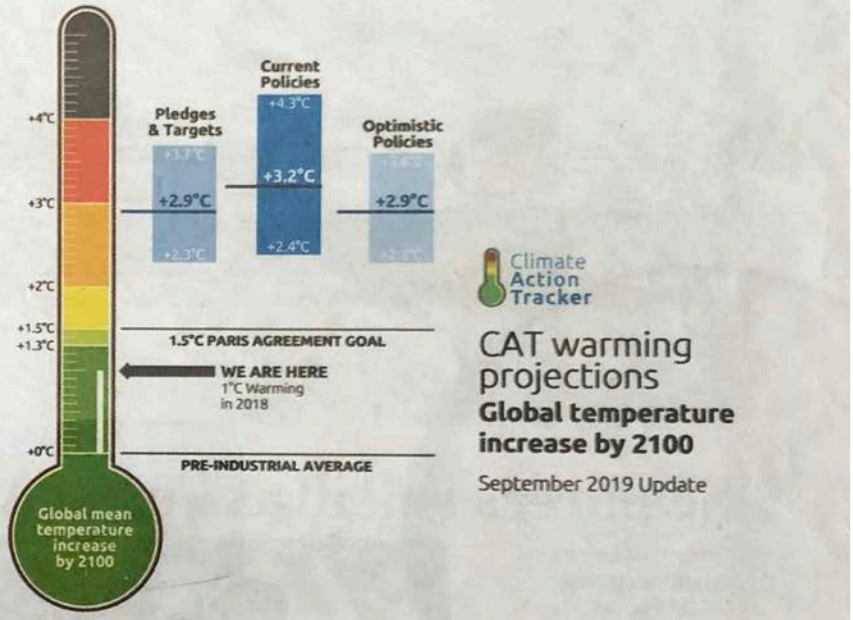
"Domestic decarbonisation needs everyone to be involved, not only for Government and private sector, but also everyone who owns a small boat powered by an outboard motor (one of the single largest sources of GHG emissions from Fiji's domestic maritime transport sector).

"Decarbonising shipping is a new, exciting and expanding area that Fiji is well positioned to take advantage of. In the past, no-one was really interested in this debate.

"Now there are increasing numbers of researchers, agencies, partners and private sector representatives involved in the field.

"One of the largest challenges for Government is how to coordinate and manage this growing effort to ensure that it is the need of the local businesses and communities that is being addressed."

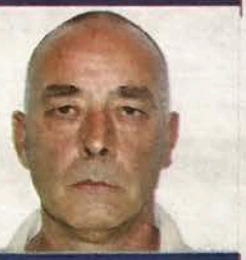
Feedback: wati.talebula@fijisun.com.fj



SEA TRANSPORT

'DECARBONISING OUR DOMESTIC SHIPPING FLEET: THE PACIFIC BLUE SHIPPING PARTNERSHIP'

Analysis



by Peter Nuttall

The critical importance of sea transport to Pacific countries and its interrelationship to all levels of socio-economic development are widely recognised and documented.

The sector currently has a range of challenges including the prevalence of old, inefficient and undermaintained vessels, and a lack of supporting modern infrastructure including ports, facilities for bunkering, ship building, maintenance, and repair.

Existing vessels service and underpin micro-economies at the end of long and narrow operating routes, with the consequence that sea transport within and between Pacific countries is the most expensive per unit distance and per capita in the world.

Transportation and mobility is a cross-cutting issue central to the sustainable development of Pacific Island countries.

ESSENTIAL LIFELINE

In the Pacific we do not have fast rail, concrete freeways and big bridges.

Shipping is the essential lifeline that connects our scattered island communities on this, the world's greatest Ocean.

200 years ago, Fiji did not have a shipping problem.

Fleets of large drua, at that time the fastest, most efficient ships in the world, underpinned a vibrant trading economy within Fiji and with its neighbours.

There was constant commerce between our islands.

Early Europeans described the Pacific as 'an Ocean of Sails'. Fiji's shipping then was entirely locally built, owned and operated.

It was sustainable, affordable and carbon neutral.

Fast forward to 2020. Today it is the reverse.

Ever increasing fuel and operational costs, marginal returns and high infrastructure investment needs leaves us with a domestic fleet that is more often than not old and at the end of its service life, expensive for both operators and consumers and requiring heavy government subsidies to ensure even basic connectivity.

There are not many silver linings to the climate crisis that now threatens to engulf us all.

But the opportunity to transition from our current fossil fuel dependant and inadequate shipping using climate financing is one.

If, and it's a big if, we can get our governments, local industry and international development partners all working from the same page we have the chance to transition to a new generation of cleaner, more affordable, more appropriate and accessible shipping solutions.

It's a big ask, but it is achievable.

To be successful it needs to be well-planned and coordinated. It needs a group of willing Pacific countries to work together.

It needs dedicated and committed support from international partners, researchers and big shipping. And above all, it needs an immediate serious financial investment.

We estimate $500million in a package of grants, concessionary loans and R&D funding is needed to get 6-8 Pacific countries moving in the right direction.

PACIFIC BLUE SHIPPING PARTNERSHIP

This is what the Pacific Blue Shipping Partnership, announced last year by Fiji's Prime Minister Voreqe Bainimarama and Marshall Islands President Hilda Heine, is designed to achieve.

A country-led coordinated programme, to allow the Pacific join the international revolution happening right now, in big scale shipping to move away from fossil fuels.

Almost daily, news reports are flooding in of shipping being built in Norway, UK, Holland, Denmark that runs on batteries, wind, solar, hydrogen and ammonia.

The world's biggest shippers are planning to have commercial vessels operating at scale on zero emissions fuel by 2030. If the Pacific does not match step, we will be left behind paying ever increasing cost penalties for diesel and carbon levies.

The Pacific Blue Shipping Partnership is a pro-active and ambitious plan led by Pacific governments to avoid this trap.

We know the solutions being developed for large, developed trading nations are unlikely to a clean drop-in fit here.

We need to design and implement bespoke Pacific scale solutions.

There are an increasing number of technology tools available to us.

Wind hybrids. Ships fitted with auxiliary sails, were being trialled in Fiji in the 1980s of government ships.

Back then they easily achieved 30 per cent fuel savings.

Colleagues are working in Marshall islands on similar innovations today – they are projecting savings closer to 50 per cent.

Solar for axillary power systems, new efficient hull designs, smarter operating procedures, new fuels.

All these are now available for us to assess and adapt to local operating conditions.

OLD SHIP REPLACES OLD SHIP

The University of the South Pacific is very fortunate to be working with some of the leading researchers internationally on such solutions.

But this is not really a technology issue – there are numerous solutions, the science is there, we just need to apply it. It is fundamentally a financing problem.

Because of our situation – long routes, dangerous conditions, poor infrastructure, marginal economic returns – we simply lack access to affordable maritime financing and insurance underwriting.

Today, the inability to borrow at affordable rates to invest in new shipping and to insure those assets at reasonable prices is what keeps us trapped in this "old ship replaced by old ship" scenario.

But if we could change this we would move to a new era where it is economically attractive to invest in the purchase of new generation vessels, knowing the operational cost over the lifetime of the ship will be so much lower.

Imagine a shipping line serving Fiji with a new vessel that only used 20 per cent per cent of the fuel of current vessels, and had motors with only a few moving parts to service.

The Pacific Blue Shipping Partnership is primarily a financing mechanism to overcome these barriers.

We have a lot of work to make this a reality.

We need to bring banks, financiers and development partners onboard.

SHIPPING DECARBONISATION

The Pacific has earned major kudos for its sustained principled stand in the IMO calling for shipping decarbonisation. In this we have the support of major nations in Europe, NZ, Canada.

We need to leverage that to now address our chronic domestic shipping needs. Fiji and Marshall Islands are positioning for this at the UN Oceans Summit in Lisbon in June. There we will share a stage with other leading programmes to decarbonise world shipping.

So, is $500 million a lot to invest in this sector? It sounds a lot but let's put that in context. There is currently more than US$2 billion being poured into renewable electricity projects across the Pacific.

There is less than $20 million invested so far in decarbonising Pacific island shipping.

At a global scale Shell Oil reported more than $1billion in profit in one year from moving to low sulphur ship fuels. Australia is investing $2 billion in 20-odd small navy patrol vessels.

And there is a fake news story just this week that Bill Gates is spending £500 million on a new hydrogen powered luxury superyacht. So yes, it sounds a lot. But in reality, it is the bare minimum needed.

The Pacific Blue Shipping Partnership is a major opportunity to turn around our current shipping and prepare the Pacific for a new, low carbon future.

The trick is going to be getting all onboard the same canoe and sailing in the same direction. History proves Fiji did this in the past – now Fiji needs to do it for the tomorrow.

Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

REDUCING GHG EMISSION

PACIFIC ISLAND COUNTRIES WAKE IMO FROM ITS SLUMBER

CALL FOR 1.5°C-ALIGNED ACTION, INSISTING THAT ANYTHING LESS SIMPLY WASN'T GOOD ENOUGH.

Shipping industry to move away from fossil fuel towards zero-carbon alternatives.

International Maritime Organisation meetin

FOCUS

Comments

by Isabelle Rojon

Shipping along other sectors need to decarbonise

For a long time, greenhouse gas (GHG) emissions from the shipping industry have been largely unregulated - even though international shipping as a whole emits more than Germany and despite expectations for shipping emissions to increase significantly in the coming decades.

However, this is now changing.

In April 2018, the International Maritime Organisation (IMO) - the United Nations' agency for shipping – adopted an Initial Strategy for reducing GHG emissions from ships which commits international shipping to at least halve its emissions by 2050 and to phase them out as soon as possible in this century consistent with the Paris Agreement temperature goals.

The IMO's initial strategy is a major achievement and has sent a clear signal to the industry that shipping, along with all other sectors, will need to decarbonise.

Pacific Island Countries (PICs) have played a remarkable role in securing this agreement.

The IMO GHG negotiations had been mostly dormant after discussions on a maritime carbon price failed in the early 2010s.

It was the late Tony de Brum, then Foreign Minister of the Marshall Islands, who in 2015 woke IMO up from its slumber by calling for the organisation to set a 1.5°C compatible emissions reduction target and take the necessary action to achieve it.

The Marshall Islands alongside its Pacific island neighbours have upheld this call for 1.5°C-aligned action in the IMO, insisting that anything less simply wasn't good enough.

The IMO is a highly technical organisation which is somewhat removed from the wider political debates on climate change, so these calls for urgency from the most climate-vulnerable were pivotal in changing the minds (and hopefully also the hearts) of less progressive or hesitant countries and for securing an absolute GHG reduction target for shipping.

Even though this target currently is not compatible with a 1.5°C pathway, it will require the shipping industry to move away from fossil fuel towards zero-carbon alternatives and it contains strong levers to be tightened significantly.

Now we must ensure the IMO Strategy isn't just a paper tiger but has teeth which means that the IMO urgently needs to adopt regulations that effectively set the shipping industry on a low-carbon pathway.

This needs to happen in a way that doesn't leave the most vulnerable behind: PICs alongside other Small Island Developing States (SIDS) and Least Developed Countries (LDCs) already have some of the highest maritime transport costs and are dependent on shipping to provide essential goods and services, so they stand to lose a lot should ambitious climate action impose further costs.

In order to move the debate forward in a fair and equitable manner, PICs have already come up with constructive ideas, including to conduct maritime research focused specifically on SIDS and LDCs, to phase-in regulation, as well as to provide dedicate funding to support R&D and uptak of technological solutions for the shi types that serve SIDS and LDCs.

This would not only improve th situation for PICs, but also help othe similarly vulnerable countries.

Going forward, the active particl pation of PICs in the shipping GHG debates will remain crucial to ensur the shipping industry lands on the right side of history by taking ambi tious climate action and embraces the various opportunities the low-carbon economy holds.

Isabelle Rojon is a leading expert on international maritime GHG policies at UMAS, a sector focused commercial advisory service that draws upon the world leading shipping expertise of the Energy Institute of University College London (UCL). UCL is a partner with the University of the South Pacific's (USP), Micronesian Centre for Sustainable Transport.

With these canoes, fuel is not required. We can save fuel money to buy essential items for our families.

Vilive Waqavuka
Nasesara Village elder

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UTO NI YALO

Trust Delivers Five Camakau Canoes, Brings Joy to Villagers of Nasesara

LAISEANA NASIGA
MOTURIKI ISLAND, LOMAIVITI

It was a joyful occasion for families of Nasesara Village on Moturiki Island who received five camakau sailing canoes from the Uto Ni Yalo Trust.

The traditionally-designed canoes were officially handed over on February 15 in a ceremony at the village hall.

Nasesara Village elder, Vilive Waqavuka, said the camakau canoes would be beneficial in many ways to their families on the island.

"Transportation has always been a challenge because fuel is costly and we have to use fibreglass boats to travel to Levuka Market to sell our produce," Mr Waqavuka said.

"With these canoes, fuel is not required. We can save fuel money to buy essential items for our families."

Village elder Vilive Waqavuka.

The 67-year-old said it was the first time for some villagers to see camakau canoes.

"People are now more used to fibreglass boats, but in former years sailing used to be the mode of transportation," he said.

"It's great to see camakau sailing canoes still exist."

Mr Waqavuka acknowledged and thanked the efforts of the Uto Ni Yalo Trust.

The camakau canoes will greatly help families of Moturiki Island.

Similar sentiments were shared by 51-year old Akanisi Kolinitini.

"These camakau canoes will help us preserve our fishing areas," Ms Kolinitini said.

"We can use them to go fishing, we will catch just enough to feed the family unlike using the fibreglass boat, we have to catch more to sell at the market to pay for fuel."

Nasesara villagers have other sources of income such as dalo and yaqona farming.

For Mrs Kolinitini, it was her first time to see camakau canoes. This made the handover ceremony a special occasion for her.

Uto Ni Yalo Trust president Colin Philp said the canoes were first built for the Eco-Challenge competition in 2019.

He said in a meeting the decision was reached to build canoes to be used after the race.

"The Uto Ni Yalo Trust was the perfect vehicle to make the canoes, do trainings and hand them over," Mr Philp said.

"We had a meeting with the Motiriki Island's eight clan leaders , Leleuvia Island Resort and Uto Ni Yalo Trust where it was decided to hand over one canoe for each of the marine protected areas around Moturiki Island which are Savuna, Wawa, Navuti, Uluibau and Yanuca."

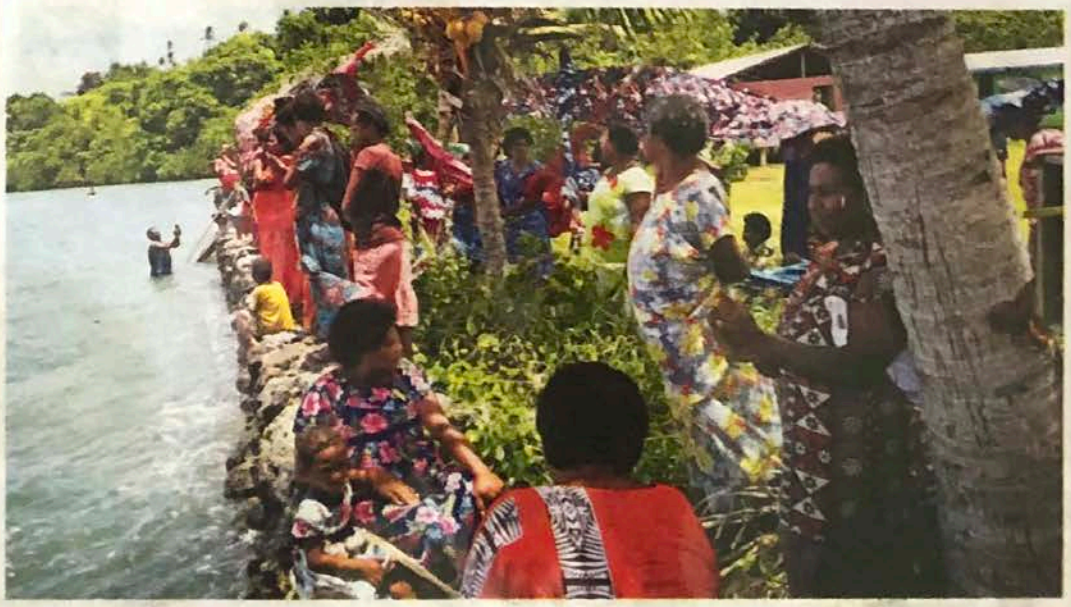
These canoes will assist Moturiki Island fish wardens support and maintain their marine protected areas.

Everything used to build the canoes were locally made except for the sailing cloth which was imported.

Mr Philp added that Nasesara Village was the first to be plastic free in May 2019 which is a good example for other villages in Fiji. **Edited by Percy Kean**

Feedback: laiseana.nasiga@fijisun.com.fj

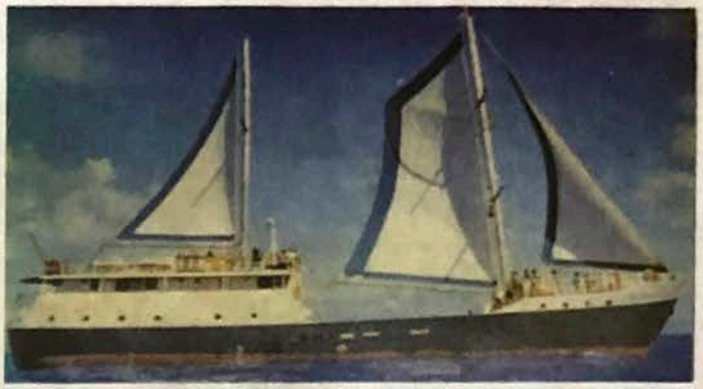
Camakau canoes assembled at Leluvia Island before its journey to Nasesara Village. *Photos:* Leleuvia Island Resort



Women of Nasesara Village awaiting the arrival of the camakau canoes. *Photos* Laiseana Nasiga

CARBON FREE

BACK TO THE FUTURE - LESSONS FROM THE PAST



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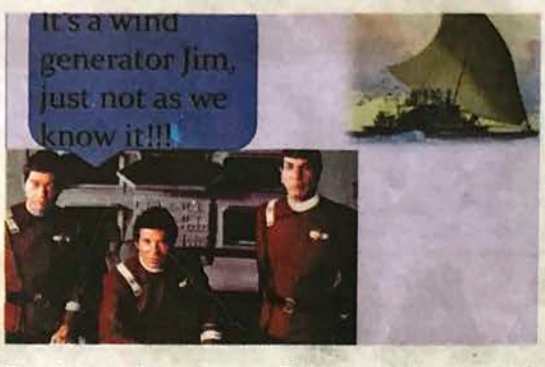
Analysis

by Peter Nuttall



In the build-up to the Madrid Climate Summit last year, Fiji leaders, alongside other Pacific states, announced new high ambition targets for its domestic shipping sector.

100 per cent carbon free by 2050 with a milestone of 40 per cent reduction by 2030.

Ambitious, challenging, even daunting.

But just like winning gold at Rio, it is achievable.

100-odd years ago shipping underwent a fundamental technology revolution, from thousands of years of primary wind and paddle propulsion to fossil-fuel powered underwater propellers.

BURNT COAL

First, we burnt coal to make steam and then we invented the Internal Combustion Engine (ICE) to burn heavy oil and then diesel.

Finally we could drive a ship against the forces of nature and get to market faster. More recently we have added LNG to this mix.

Such fuels are in plentiful supply, relatively cheap (although this is kept artificially low though various subsidies) and, until recently, no-one was overly worried by the harm it was doing our environment or our health.

Now shipping must undergo an even more fundamental shift, from carbon to non-carbon fuels and means of propulsion.

Our colleagues at University College London estimate the shift to fuels such as ammonia, advanced biofuels, hydrogen, etc will require an investment in excess of $1trillion by 2050.

The most progressive elements in international shipping have now pledged to have zero-emissions vessels commercially viable by 2030.

The first beneficiary will be large scale shipping serving the large and developed trading economies. For industry and research majors in Europe, Norway, United Kingdom, Korea, Japan and China the race is on to capture this emerging market.

But where will this leave our Pacific shipping operators? Fuel is already one of the major operational costs but the costs of transitioning to new generation vessels is well beyond the reach of most Pacific ship owners and operators, already working on marginal profit lines.

If new fuels are bought to market in the northern hemisphere, will we ever be able to afford to install the necessary bunkering infrastructure to support this here?

If the fuel is ammonia it may be that we can have a drop-in transition to existing bunkering networks. If its methane, then we would probably have to build a whole new system.

The point is, the solutions being currently developed to service the large trading economies do not necessarily provide affordable or sustainable solutions for remote island states.

We must develop a bespoke Pacific solution tailored to the unique shipping scenario that exists in Fiji and the Pacific.

ALTERNATIVE

The only alternative is to maintain a business as usual approach to our fossil fuel dependency using conventional ships and pay ever increasing fuel and carbon penalty costs for doing so.

Of course, alternative fuels are only one solution. We can be more efficient with what we have, improving operational practices and increasing maintenance to minimise fuel use.

Globally there is now large-scale research and trials into bringing back wind as an energy source for both propulsion and auxiliary power, massive advances in electric motors and batteries, new propeller designs and use of PV, etc.

There are multiple options and we need to choose wisely based on sound evidence. We will explore these in more depth in subsequent articles.

In the Pacific wind has to be a major source of propulsion for ships and this is clearly evident from both Pacific history and from the various trials that occurred here in Fiji in the oil crisis of the 1980s.

wind energy

Globally there is increasing interest in the use of wind energy in shipping with successful large scale trials of Flettner Rotors and fixed wing sails on ships up to 50,000 tonnes. Soft sails are entering the market in Europe now targeting commercial ships smaller than 5000 tonnes.

Colleagues from Germany are working on similar technologies for ships of 500-tonne in the Marshall Islands currently and Swire and University of the South Pacific (USP) are working on a 200-tonne design.

All of these have common elements. Wind is being seen as a hybrid fuel.

In other words the ship has two engines, one is a wind engine using some form of sail or rotor to propel the vessel, the other is mechanical engine driving a propeller, using either diesel or electricity or an alternative fuel.

Think of it like a Prius, you use the petrol motor to go up hill and recharge the batteries coming down hill. Such technology produces a vessel that is demonstrably faster, safer, cheaper to maintain, more stable, more comfortable and needs much less fuel.

How do we know that it works? Well it's already been well proven in Fiji.

The late Professor A.D. Couper wrote extensively about the sail auxiliary schooners, the "Adi" class, that were still working in all Fiji waters in the 1960s.

FUEL CRISIS

When the fuel crisis bit in the 1980s (fuel prices rose by 15 times in 3 years), the Government shipping service cargo passenger ship, the 274-tonne Na Mataisau was retrofitted with a ketch rig and soft sails.

Monitored trials by Southampton University funded by ADB clearly show this experiment, using a Colin Philp snr designed rig, all built and fitted in Walu Bay, and Colin Philp jnr built sails, Na Mataisau was averaging 23 per cent fuel savings across Fijian routes.

The ship was lost in a cyclone on Moala, but not before delivering the then (late) Prime Minister Ratu Sir Kamisese Mara and half his cabinet safely ashore under canvas alone when the main engine failed.

The rig was refitted on the larger Cagidonu where it achieved better than 30 per cent savings.

We are grateful to the foresight of having a major university involved in recording this experiment because it means we still have the data to use today.

Each of the trials USP is involved with currently also have such partnerships with specialist colleagues in Germany, Holland, UK and Australia.

If 30 per cent could be achieved with a retrofit option in 1984, what can be achieved today given advances in technology and materials available to us?

The current science is that these figures can now be substantially improved. Na Mataisau and Cagidonu are only two examples to illustrate the savings possible using local intervention and innovation, there are many others.

And of course, if Fiji goes back a little further into its history, it comes quickly to the most efficiently designed blue water ship in the world in its day – the drua.

I am not advocating here that we now go back to shipping goods to market in dugout logs made without metal.

I am strongly suggesting we learn the lessons from past generations of mata-i-sau that designed and built huge fleets of sailing ships powered by an indigenous sail design more efficient than any other in the world at that time.

When we launched i Vola Siga Vou in Navua in 2016, it easily topped 15 knots under a tarpaulin sail.

What is the lesson to be learnt here as we plan for a carbon-free future for Pacific shipping?

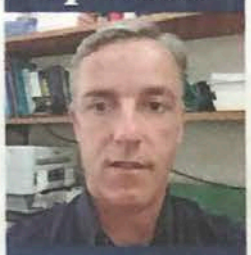
■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

FOCUS

NEGOTIATION

PACIFIC STATES BATTLE AT THE IMO NEGOTIATIONS TO REDUCE GHG EMISSIONS FROM SHIPPING

Opinion



by Professor Pierre-Jean Bordahandy

■ Professor Pierre-Jean Bordahandy is a specialist in Maritime Law at the University of the South Pacific (USP) campus in Vanuatu and a member for the Tuvalu delegation to International Maritime Organisation.

Prime Minister Honourable Josaia Voreqe Bainimarama met with the Secretary-General of the International Maritime Organisation Mr Kitack Lim on the margins of the biennial IMO in London last year.

Although very well entrenched in the Pacific psyche through the words of Epeli Hau'ofa in his 1993 work 'Our Sea of Islands', the peculiarity of the situation of Pacific States in relation to maritime connectivity is both poorly comprehended and not economically important enough to be considered with the attention it deserves on the international scene.

NEGOTIATIONS

In this context, the mere idea of Pacific States' delegates having any weight in the negotiations for the reduction of greenhouse gas (GHG) emissions from ships at the Marine Environment Protection Committee might seem quite laughable. Especially as the shipping industry likes to remind us that over 90 per cent of world trade is seaborne. It is therefore even more remarkable that a coalition of Pacific States, have been sending a handful delegates to participate in the International Maritime Organisation (IMO) negotiations.

Only about 10-15 per cent of Small Island Developing States (SIDS) and Least Development Countries (LDCs) have been represented at IMO meetings on GHG emissions reduction, and nearly all of these have been from the Pacific. This act of participation alone was a struggle given that the IMO Convention requires that each delegation pay for their own cost, which has the direct effect of preventing small Pacific Islands States as well as Least Developed Countries and developing countries more generally to be represented at the IMO, in London, for meetings that can extend for weeks. Other United nations (UN) organisations have trust funds that support the travel costs for SIDS and LDCs to participate in their meetings, but not the IMO.

Fortunately, there have been various countries that recognised the inequity of those most affected by climate change not being present, and over the past few years several different partners have stepped in to provide the necessary financing to enable Pacific Islands' participation.

Having passed this funding hurdle, for the time being at least, other challenges have faced the Pacific States participating in the IMO negotiations. These range from lack of trained, experienced and available staff, the need for detailed analysis of, highly technical submissions, interventions, and debates, to lack of data for the Pacific.

Two important legal issues, like elephants in the room, have led the IMO to embark in convoluted debates in order to reconcile opposing concepts, both of critical importance to the Pacific.

The first of these issues comes from the tension created between the "precautionary approach" relevant for environmental law (after all one would expect that this is what GHG emission reduction would be about) and the requirement for "science based" decision-making at the IMO.

PRECAUTIONARY APPROACH

Simply presented, the "precautionary approach" says that the "lack of scientific certainty about the actual or potential effects of an activity must not prevent States from taking appropriate measures when such effects may be serious or irreversible". Practically speaking, the precautionary approach has the effect of reversing the burden of proof requiring the actor intending to conduct an activity to prove that there is no risk to the environment.

One can easily see the tension resulting from the juxtaposition of this precautionary approach with the requirement of "science based" decision making whereby any regulation, even those intending to protect the environment, have to scientifically demonstrate the need for such a measure. Either the burden of proving the absence of risk of an activity is on the person willing to undertake it or it is on the person opposing it, at some stage a line needs to be drawn.

Some are often eager to recall that, although recognised in various forms of international treaty law, there isn't an absolute recognition of a formal "principle of precaution" in International law and that some International Courts have shown strong reluctance in going down that path. However, when it comes to legal value, the same can be said about the requirement of "science based" decision making, which does not appear in the text of the IMO Convention nor many of the IMO regulations.

This science based direction seems to have conveniently slipped from Trade Law (GATT, WTO, etc.) into the IMO modus operandi. One might question the legitimacy of this slip as one thing is for the IMO to create rules applicable to the shipping industry and another is to create the rules by which it is going to regulate shipping.

Is it reasonable to allow IMO member to have such a power? As a basic principle, no lawmaker should have the freedom to decide the rules by which it is going to make laws.

Furthermore, the adequacy of the "science based" requirement with the original IMO convention is not necessarily self-evident, which raise a concern about the hierarchy of norms with the necessity to give preference to the letter and the intention of the IMO Convention.

REQUIREMENT

Lastly, this quantum leap of the "science based" requirement from the WTO to the IMO is all the more regrettable that a more formal transposition would have probably led to the realignment of its balancing provisions in place under the GATT and the WTO, which provide for exceptions in order to protect the environment or the health.

The second of these issues comes from the tension created between the principle of "Common But Differentiated Responsibilities-Respective Capabilities" (CBDR-RC), a well known principle of equity in International Law, and the requirement of "No More Favourable Treatment" (NMFT) that the IMO seems to have adopted in a similar fashion as to that described for the "science based" requirement.

The principle of CBDR-RC aims to distribute the cost of addressing a global environmental problem among different States according to their historical responsibilities and respective capabilities.

The idea of differential treatment is present in other areas of public international law as well, including in the WTO and in the Law of the Sea, and is well accepted.

On the other hand, NMFT does not seem, once again, to be entrenched in the IMO textual legal reference and appears to have also 'slipped in' by convenience.

Beyond the legal value of the concepts of CBDR-RC and NMFT, it is not difficult to appreciate how tensions could arise from attempts to conciliate them.

The rule is either to apply a regulation equally to all or to treat some differently to others, but you can hardly do both.

CONTRADICTION

This contradiction seems to have led the IMO to create an Impact Assessment Procedure where any State will be able to demonstrate a disproportionate impact that the application of a certain measure aimed at reducing GHG emission might have on its economy.

Whoever had any ambition to achieve some reduction of greenhouse gas emission from ships might be concerned that such a lengthy procedure could cause substantial delay, if not block, the entry into force of effective measures to curb emissions.

After all, the role of the IMO, as per its founding treaty, is certainly to protect the ocean. Despite the tireless efforts of Pacific delegations that have attended IMO / MEPC negotiations, not much seems to have been gained in terms of reduction of GHG emission from ships or allocation of the responsibility to address this issue.

The IMO and the majority of its members appear to be content to navigate uncertain seas by choosing to ignore difficult legal and financial questions, hoping perhaps for innovation and market adaptation or transition from outside to save the day.

In the meantime, the Pacific can rely on its moral high ground, as it might be the only thing that we have left while the sea continues to rise.

FOCUS

GLOBAL DECARBONISATION EXPERIMENT

A NEW FRONTIER: FISHING AND CARBON EMISSIONS IN THE PACIFIC

EMISSIONS FROM FISHING ARE A 'GREY' AREA IN SHIPPING DECARBONISATION. IS IT AN IMPORTANT AREA FOR THE PACIFIC TO BE ASKING CLARITY ON FROM THE UN FAMILY?

Opinion

by Maria Sahib

■ Maria Sahib is a research associate at the MCST, a joint initiative between the Government of the Republic of the Marshall Islands (RMI) and the University of the South Pacific to implement a whole of country strategy to transition the RMI to a low carbon transport future as a pilot and catalyst for other Small Island States. Ms Sahib works across a range of Pacific transport policy and is a fisheries GHG emissions specialist.

In recent weeks my colleagues have been discussing with you the international decarbonising shipping debate and what might mean for the future of shipping in the Pacific.

The negotiations at International Maritime Organisation (IMO) are slow and hard fought and largely about the large scale emitters – the containerships, bulkers and tankers which collectively provide the majority of global ship emissions.

DISCOVERY

At this scale it's all about the fuels and the international maritime research industry has already set sail on its greatest voyage of discovery, the $1+trillion search for hydrogen.

The proportion of total fleet emissions attributable to Pacific (and other small island countries) is minute and the question we have been asking is – what happens to our small ships in this global decarbonisation experiment? About a quarter of ship emissions comes from small ships - under 10000 tonnes.

These ships carry less than 5 per cent of world cargo. But they are servicing the majority of people in the South. Will they also benefit or will they be left further behind?

Global fishing effort is very small in comparison to all shipping emissions. The GHG emissions from fishing vessels is only 2.3 per cent out of the total CO2 emissions from shipping. Under the Intergovernmental Panel on Climate Change (IPCC) carbon accountancy rules, such emissions are attributed to agriculture, not transport.

Fisheries and climate change is an area in which research has been focused on the impact of climate change on fisheries resources, for instance, the decrease in economic returns, redistribution of marine resources and vulnerability of the already vulnerable countries.

My area of research, however, protrudes to the wider issue of fisheries sustainability and considers fishing emissions and the impact this has on the economies of Pacific Island countries.

Given the importance of fisheries, it is essential we understand the carbon pricing changes that are about to effect it from decarbonisation agendas.

In order to understand this area, a number of international instruments and various international organisations have to be seen through the lens of fisheries and the fishing industry as a whole.

The international organisations which are found in this nexus are the IMO, the Food and Agriculture Organisation (FAO), and the World Trade Organisation (WTO).

This article raises critical questions on the need to address carbon emissions from fishing vessels in the Pacific region and the need to create a research area on carbon emissions from fisheries and the impact it has on atoll nations in terms of Gross Domestic Product (GDP).

VULNERABLE TO CLIMATE CHANGE IMPACT

In the Pacific, we are vulnerable to climate change impact because of the very nature of our physical setting, the most vulnerable being our atoll nations.

The Marshall Islands, Kiribati and Tuvalu with Tokelau are a few of the tuna rich countries.

The number of fishing vessels traversing the Pacific is in thousands and the carbon emissions from these boats are largely unknown.

In order to address carbon emissions from shipping, in designing the IMO Initial Strategy, a broad context was considered, including other existing instruments related to the law of the sea.

The context includes United Nations Convention on Law of the Seas (UNLCOS), the United Nations Framework Convention on Climate Change (UNFCCC) and its related legal instruments, including the Paris Agreement.

It was also in the context of the role IMO has committed for the development, adoption and assistance in implementation of environmental regulations applicable to international shipping.

These stem from the 2017 decision of the IMO Assembly to adopt a Strategic Direction entitled "Respond to Climate Change" and are supported by both UNFCCC and the United Nations 2030 Agenda for Sustainable Development. However, issues of Fisheries emissions and carbon accountancy are not to date being prioritised in the response.

The question still looms about which of the UN family should lead on addressing carbon emissions from fishing vessels.

The FAO is also tasked with providing assistance in disaster preparedness planning and in dealing with the impacts of climate change at the national, regional and international levels as well as assisting fishing communities affected by natural disasters and prolonged emergencies *(http://www.fao.org/fisheries/en/)*. But it is not the UN Logistics lead, that task falls to the World Food Programme.

Which brings us to the WTO which plays a vital role in facilitating international trade in order for people to generally have access to goods and services.

AGREEMENT

The WTO emanated from international trade negotiations. Agreements made following negotiation at WTO are generally signed by most trading nations and provide the ground rules for international commerce.

They are binding contracts which countries must honour to keep their trade policies within agreed limits.

Their purpose is to help producers of good and services to exporters and importers conduct their business while allowing governments to meet social and environment objectives.

The WTO trade rules allow for trade to flow as freely as possible and provide trading confidence. Of course, these rules underpin most global trade in fisheries.

Each of these three UN agencies working under the ambit of the international legal framework akin to their purpose, but each has a similar primary function to protect the environment and therefore have common responsibility for the issue.

This in itself speaks volume in the manner in which these organisations can in fact bring in effective change to address climate change crisis affecting the humanity today.

Within this wide area of international shipping and greenhouse gas (GHG) reduction strategy, fisheries or the fishing industry was in large part left out of the considerations.

Therefore, the question of under which ambit does the fishing carbon emissions falls arises.

ISSUES

The issues surrounding shipping emissions is currently more prominent in IMO than any other organisation, and it would appear the most logical leader for addressing the matter of fishing as far as GHG from ships and vessels are concerned.

Is it a consideration for the FAO? What are the technological changes that would absorb fishing vessels also to reduce carbon emissions?

What are the economic implications to reduce carbon emissions from fishing vessels? What are the social implications to reduce carbon from fishing vessels?

POTENTIAL

There is potential for new discourse in addressing carbon emissions from fishing industry. The fundamental question is under which framework does it fall and who would take the lead role.

Carbon emissions from fishing industry or fishing emissions, is one of the areas yet be fully researched.

Why is this important for the Pacific? Only because climate change, acidification and over fishing pose and existential threat to our way of life and this issue will have disproportionate economic impact on our countries in the future if left unaddressed.

And because fisheries is the single major income source for most Pacific countries who are the Parties to the Nauru Agreement, any substantive debate that potentially affects the global economics of fisheries should be of high importance to Pacific negotiators.

FOCUS

THE PRIVATE SECTOR'S CONTRIBUTION TO THE REDUCING OF DOMESTIC SHIPPING EMISSIONS.

SHIP OWNERS MUST CONSIDER CLIMATE CHANGE WHEN BUYING PRE-USED VESSELS

Pacific Islands Development Forum shipping *talanoa* sessions also included local ship owners.

Opinion

by Mark Borg

■ Mark Borg is the Team Leader Programme Management at the Pacific Islands Development Forum.

With the 2015 Paris Agreement all nations in the world agreed to limit temperature rise to 2°C and preferably, with insistence from Pacific nations, to 1.5°C above pre-industrial levels.

Limiting temperature rise is important to the planet and to all economic sectors.

The impact of the climate crisis is devastating to all with repercussions in all economic sectors.

The Paris Agreement required countries to submit reports in which they outlined what they plan to do to reduce emissions as their Nationally Determined Contributions (NDCs).

Although the Paris Agreement left the emission reduction of international maritime and aviation sectors to be agreed within their respective international organisations – the International Maritime Organisation (IMO) and the International Civil Aviation Organisation (ICAO), domestic shipping and aviation fall within the scope of each country's NDC.

For this reason countries need to find ways to reduce carbon emissions from these sectors as well.

Climate change practitioners and shipowners share a common goal in wanting to reduce the use of fuel.

Whereas climate change practitioners want to do so to reduce carbon emissions that cause climate change, shipowners also have an additional interest in wanting to reduce the cost of doing business, with fuel often being their highest cost in their business.

In Fiji, and much of the rest of the Pacific, we need to take into consideration that most of the boats being operated commercially were bought from pre-used stocks.

Of course there is nothing wrong with buying second-hand boats if they are still in good condition.

However these are usually not the most efficient boats on the market.

Buying new vessels with new motors is often the easiest way to achieve fuel savings.

Fiji Airways has certainly proven this in the local aviation industry. But buying new also means having access to the capital to invest and risk.

From Pacific Islands Development Forum's (PIDF) work with the private sector through the Pacific Green Business Centre (www.greenbusiness.solutions) we have come to realise that the private sector is willing to do its part in addressing the climate crisis.

But they cannot do this on their own and a number of them would like to see a regulatory environment and policies in place that would support such a transition.

Most of Fijian ship owners are already operating on very narrow profit margins.

The ship owners have a very valid point that the market does not support the investment of brand-new boats unless government is able to provide serious incentives to the sector.

They cannot invest in the transition to cleaner technologies that we would like to see without this support.

Investment finance for this sector is hard to attract and comes at a high interest premium.

Getting maritime insurance for the private sector is also difficult and comes at high cost.

These are not matters that the private sector can address unaided, government must play its role in creating an enabling environment for change.

The support of Swire Shipping to an initiative implemented by the University of the South Pacific's (USP) Micronesian Centre for Sustainable Transport signals a new interest by the private sector to find locally relevant solutions.

The Cerulean Project, as the initiative is named, aims to build a customised low carbon emissions cargo ship suitable for inter-island travel.

The project is currently going through the boat –design phase before the actual building starts.

Swire Shipping is committed to build a number of these boats if it proves to be a success.

Currently there are many renewable energy based technologies being developed, some still experimental and others already in production, but with a high price tag.

For the Pacific to capitalise on these new technologies we need to incentivise the shipping sector to invest in these as well as attempt to develop these technologies ourselves in the region, possibly in partnership with overseas firms.

There's business to be made for engineering firms as well.

An important component of the industry, as we transition to greener technologies, would be the retrofitting of ships already in operation.

There will be a mix of clean technologies installed on ships as we move away from the diesel engine.

One such technology involves the use of Flettner rotors that can be easily installed on many of our current ships to harness the power of the wind and in the process reduce the use of fuel by as much as 30 per cent.

This technology was invented in the 1920s. It doesn't need to be high tech. With design assistance from partners in Europe, it could quite easily be manufactured in Fiji.

This is just one example. Transition to new designs, new engines and new technology brings opportunity throughout the entire logistics chain.

Such change is coming internationally, whether we are ready for it or not. So the trick now is getting the private sector and the government on the same page and ahead of the curve.

In February, the Pacific Islands Development Forum hosted a *talanoa* session on the Pacific Decade for Sustainable Transport.

Ship owners were encouraged to contribute their perspectives and suggestions for the common goal of reducing both costs and emissions by reducing the use of fossil fuel in the shipping sector.

Boat Emissions, Bigger Than You Think

BY ALISON NEWELL

Over the past few weeks *Fiji Sun* has been running a series of opinion pieces by some of my colleagues looking at what's happening in global shipping decarbonisation, the role the private sector can play in reducing Greenhouse Gas (GHG) emissions from domestic shipping, legal questions, what the global agenda means for fishing and links to increasing urbanisation.

But, I'd like to take a look at the smallest scale of our shipping emissions, the outboard motor.

Fiji has over 3500 registered boats, most of which are powered by outboard motors. 90 per cent of the registered domestic fleet are boats under 15m long, and are used for fishing, local transport, and in the tourism sector, and for outer islands and coastal communities play an essential role in social and economic connectivity.

The 2017 census found that households owned over 4000 small boats (<15m), considerably more than appear on the ship registry.

. We don't have any detailed analysis of how much fuel Fiji uses in outboard motors, or in fact how many outboard motors there are. Annual GHG emissions from Fiji's domestic fleet were calculated for the Low Emissions Development Strategy as 174,000 tCO2e.

Teaching our kids to sail in small boats is key to transitioning away from fossil fuel outboard motors in the long term.

Emissions were classified by the "sub-sector" not by motor type, but it is likely that outboard motors are the single largest source of emissions.

Research undertaken in the village of Solodamu, Kadavu between 2009-11 found that the one outboard motor in the village was the single largest user of fossil fuel used by the village, consuming some 54 per cent and that this was increasing over time.

We have better small boat numbers for Fiji's Pacific neighbours – with small boats making up 99 per cent of the domestic fleet in Tuvalu and Kiribati, for example.

Research by the Pacific Regional Infrastructure Facility (PRIF) in 2018 of the Marshall Islands estimated that over 40 per cent of all national maritime transport emissions were from outboard motors.

Because there are so many outboard motors used in the Pacific, they make up a considerable source of the GHG emissions from maritime transport.

Older 2-stroke outboards are particularly bad in terms of emissions. Australian Government research in 2007 estimated GHG emissions from one older model 2-stroke outboard motor running for 1 hour to be equivalent to that of 500 EPA compliant cars running for the same period.

In fact, in 2018 Australia brought in outboard motor emissions legislation that banned high emissions outboard motors, with only direct fuel injection or modern 4-stroke outboards being compliant.

WHAT ARE THE ALTERNATIVES?

There have been numerous initiatives and projects in Fiji and across the Pacific that have targeted small boats, usually in times if high global fuel prices (like in the oil crisis of the 1970-80's) or with safety in mind.

Using sails and building on traditional, proven designs is one obvious solution.

The United Nation (UN) Food and Agriculture Organisation (FAO) ran a programme across the Pacific which saw the design and build of various small boat designs from one-person dugout canoes to larger sailing catamaran and trimaran designs.

Save The Children's Fund ran a successful small boat building programme in Tuvalu which resulted in small sailing boats being built and used for fishing and local transport.

You may also have seen the recent 'repurposing' of the modified "wa'a" Gary Dierking design outrigger canoes built for the Eco-Challenge race, being gifted to local communities for fishing and sailing revitalisation by the Uto ni Yalo Trust.

Electric outboard motors have been available for years in other parts of the world, primarily targeting the recreational boating sector.

There are numerous companies making and exporting electric outboard motors.

The efficiency of both motors and batteries is increasing quickly and electric outboard motors are now becoming commercially available in Fiji. Others are looking at options for use of electric recharging stations for outboard motor batteries.

However, the purchase cost of electric outboards is very high compared to 2-stroke petrol outboards, even thought their operating costs over the lifetime of the motor are low.

If this is the path forward, we need to consider what is the enabling environment the Government needs to establish to encourage the market to make these products available to mariners.

Looking further ahead, USP postgraduate engineering students have been working on hydrogen fuel cells for small boat propulsion for some years now, and in 2019 won an IUCN-sponsored research prize to help develop their research further.

The initial results are encouraging.

Obviously some of these solutions are still some time away from commercial viability,

but there are some simple and available options that can be used now to reduce emissions from the hundreds of small boats currently used in Fiji.

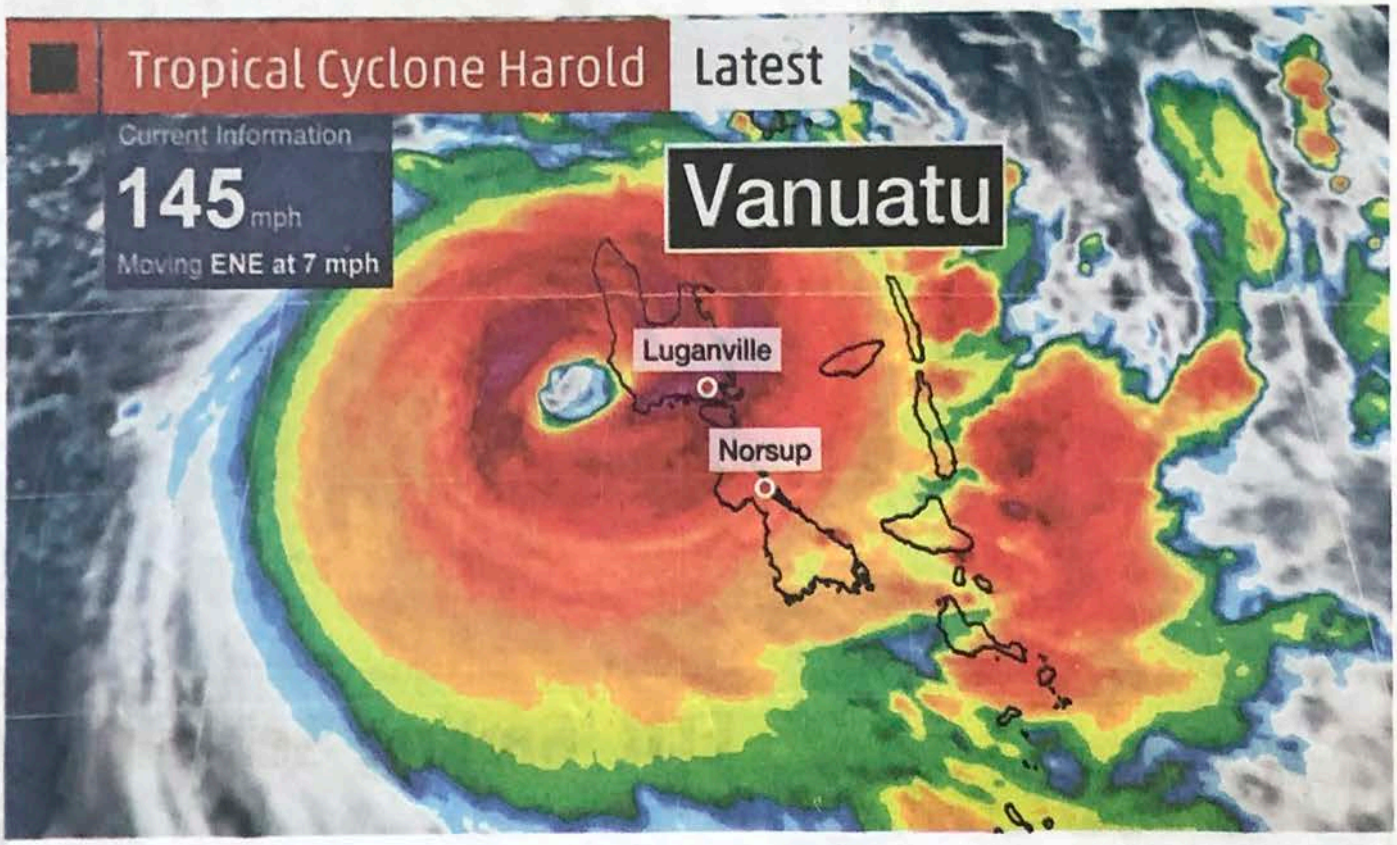
Electric boat recharging has also developed in recent years, with pontoons and marinas now incorporating solar PV powered recharging systems which recharge batteries whilst you are docked.

■ Alison Newell is a Director of Sailing for Sustainability (Fiji) Pte Ltd and the owner of the *drua i Vola Sigavou*. She is a Fiji-based expert in shipping emissions who has been undertaking research on domestic GHG emissions since 2008 along with the University of the South Pacific and their experts at the Micronesian Centre for Sustainable Transport.

FOCUS

SURVIVAL OF OUR SHIPPING SERVICES

PANDEMICS, CYCLONES BEYOND OUR CONTROL. GOING FORWARD IS



Opinion

by Peter Nuttall

MV Taimareho.

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

By the time this goes to print, severe *Tropical Cyclone Harold* is hopefully situated well to the south of Fiji. But *TC Harold* has already taken a toll in human life and structural damage in the Solomon Islands and, as I write, is poised to strengthen to Category 5 as it slams into Vanuatu.

The heartbreaking news of the maritime disaster that had happened in the Solomons last week, with at least two vessels washed ashore and some 28 passengers washed off an inter-island ferry (*MV Taimareho*), overcrowded with 738 villagers fleeing COVID-19.

This is a stark reminder of how vulnerable our aged and over-stretched domestic shipping services are in the Pacific. It also highlights how quickly stretched our national capacity is when countries are suddenly faced with not one, but two simultaneous national disasters.

Like most countries of the Pacific, the government of the Solomon Islands has declared the COVID-19 pandemic a national emergency.

Given the country's limited and over-stretched medical capacity to respond in the event the virus breaches the national borders, the government has advised all non-essential residents of the capital Honiara to return to their home islands and villages.

This is the only available and logical response for a heavily pressured government in this situation.

The result was an overcrowded ship full of panicked citizens putting to sea despite a cyclone and warning to mariners being posted. As the ship hit the resulting heavy seas, some 28 passengers were swept overboard. But the disaster didn't end there. The emergency helicopter was unable to respond as its co-pilot was already in quarantine for Coronavirus.

Our domestic shipping has always been the critical lifeline of our island countries. This is never truer than in times of disaster. Global pandemics and tropical cyclones are beyond the control of any Pacific country.

But when the two combine to serve up a double whammy as they have just done for the Solomon Islands, it exposes just how vulnerable we are, and the potential for human tragedy as a consequence of this vulnerability.

With the Coronavirus pandemic, there are no short term solutions for the situation Pacific countries are in. There are no guarantees that *TC Harold* is the last natural disaster that will befall the Pacific as we struggle to deal with this virus over the coming months.

In both the international and the domestic scenarios, we will be increasingly dependent on shipping links to maintain basic connectivity and food, fuel, and medical security to our countries –especially our maritime communities.

The freeze on passenger movements, as Fiji has correctly implemented, means even greater strain on income revenues for commercial operators and will continue to affect their capacity to respond to the national emergency. The looming global economic recession is not going to make the situation any more optimistic.

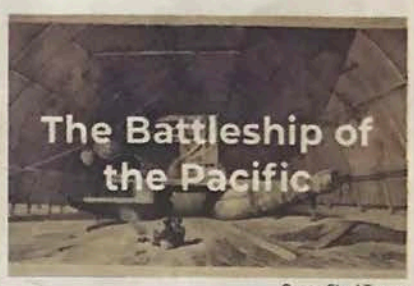
Ensuring the survival of our shipping services and delivery of essential cargoes will become ever more challenging as the pandemic deepens.

It is, in turn, going to be essential for the survival for many communities and will put ever increasing pressure on the governments, shipping operators and the general public. Close collaboration and clear communication across all stakeholders in the shipping sector is going to be even more essential going forward.

DRUA

FIJI'S INCREDIBLE LEGACY OF NAVAL ARCHITECTURAL EXCELLENCE

Drua Fleet off Ovalau 1855.



Canoe Shed Tonga.

I Vola Siga Vou. *Photo:* Island Encounters Photography.

Opinion

by Peter Nuttall

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

These truly are unprecedented times. Fiji, and its Pacific neighbours, are faced with two national disasters - the aftermath of Severe Tropical Cyclone *Harold* and the Covid-19 pandemic. But a third, and possibly greatest threat, now looms large - a global economic depression likely of a magnitude unseen since the Great Depression.

The effects of this will rock our vulnerable Pacific economies for the foreseeable future.

One of the few silver linings from the Great Depression was the renaissance in traditional canoe building that happened in maritime Fiji and especially the Lau group.

The great drua fleets that were commonplace through central Oceania had largely been dismantled by the start of the 1900s, displaced by the new trading schooners and steam screw powered, and later diesel, ships of the European traders.

But as the global recession gripped the world following the 1929 Wall Street crash, there was simply no money in the islands of Fiji to buy new ships or the fuel needed to propel them.

Resilient islanders were forced back on their traditional resource base and so the last wave of construction of drua and camakau occurred. Borne out of simple necessity, this sad historical event meant that the knowledge of these incredible craft was kept alive a little longer.

In 2011 I was most fortunate to take a research team of Mataisau into the Southern Lau to record the fragments of cultural knowledge of drua heritage that still remained. For three weeks we went from one old drua building site to the next, to Kabara, Fulaga and Ogea.

At each stop we would talanoa late into the night, hearing the stories of the great battleships and trading drua that were built from the vesi loa that grows only on these limestone islands.

Over hundreds of years, large clans of Mataisau from Fiji, the Matitoga from Tonga and the Lemaki from Samoa were sent to the Lau and created the great ship building centre of the Pacific. From here drua were once exported far and wide.

The ships they built were remarkable; the fastest, highest preforming, double hulled vessels the world had seen. Early European explorers marveled at their speed and agility and the sheers size of the fleets.

Whalers hunted these waters in fear of being overhauled and caught by these ships that simply dwarfed them in size and were capable of easily outrunning them at speeds up to 15 knots. The largest recorded, Rusa i Vanua was 118 feet. When the Ra Marama was delivered from Fulaga to Ratu Cakabau in Bau in 1842, more than 50 drua came to see this new battleship – some travelling from Tonga and Uvea for the event.

In 2016 we launched i Vola Sigavou in Navua, a replica of the Ratu Finau in the Fiji Museum.

We wanted to have a working drua on the water to train a next generation of kaiwai and keep this incredible legacy from the time when Fijians built the fastest ships afloat alive.

We also hoped our young drua crew could build a sustainable tourism business and be employed doing what their ancestors did best. Sadly, the pandemic has squashed that dream.

But with support from the US Embassy we are trying to think creatively about how we can continue this work online.

On the Drua Experience Facebook page we are reaching out to all and any with knowledge of drua history and culture (or their cousins the kalia in Tonga and the 'alia of Samoa). We want to use the time the virus has created positively, to build a living library of drua history and create online teaching tools to carry on the work we can no longer do on the water. So, *kerekere* Viti – any old pictures, stories, songs, information of any kind – please share with us so we can share with the next generation.

Cruising Tourism in the Pacific – What Should the New 'Normal' Look Like?

Analysis

by Alison Newell

■ Alison Newell is a Director of Sailing for Sustainability (Fiji) Pte Ltd and the owner of the drua i Vola Sigavou. She is a Fiji-based expert in shipping emissions who has been undertaking research on domestic GHG emissions since 2008 along with the Univ.

The cruise lining industry has taken a major blow from the covid-19 pandemic, with cruise liners having been involved in the spread of the virus across the world, the *Ruby Princess* being a case many in the Pacific will be familiar with. Liner companies have ceased sailings, but still have liners spread across the globe, with crew onboard that urgently need repatriation, countries banning them from their waters. The industry has been decimated with Carnival Corporation alone seeking US$ 6b to keep afloat for 12-13 months with estimated losses of US$ 500m a month (CNN 1 April 2020 Carnival Cruise Debt Coronavirus) and US$ 6b of debt.

The industry is dominated by three American-based corporations (Carnival Corporation, Royal Caribbean Cruises and Norwegian Cruise Line) which have not so far been granted any financial support from the trillions of US$ allocated to support businesses, because these companies and ships are often flagged to "open registries" such as Bahamas, Bermuda, which allows them to avoid paying tax in the US and earn almost US$ 19b annually (The Guardian 14 April 2020 Should passengers return to cruise ships after the pandemic? No).

Interestingly, there have been reports of significant benefits from this global halt, with significant air quality improvements being recorded in places like Venice where the cruise liners have been found to be highly damaging to the local environment and human health.

This halt in the cruise liner sailings will at some point end, and countries will once again open their international borders allowing the industry to reactivate. The question we should be taking the time to examine right now, is what should that future cruise liner industry look like?

Fiji's economy benefitted by FJ$ 44.2m from international cruise liners in 2018 (Assessment of the Economic Impact of Cruise Tourism in Fiji, 2019); on average FJ$ 305,000 per liner per port call (Suva received 40 per cent, Lautoka 31 per cent). On the other hand, the international cruising yacht fraternity brought in FJ$ 60.6m in 2018, and that was widely spread across Fiji and directly in the remote communities which the smaller international yachts frequent during the April-October period cruising in Fiji's waters. This picture is probably similar in other parts of the Pacific such as Vanuatu, Tonga and French Polynesia.

The cruise liner shipping industry is a very different beast to most other forms of shipping, being in competition with hotels and airlines more than with other forms of ships. They are particularly sensitive to 'bad press', and the covid experiences in Japan, NZ and Australia will be hard for them to recover from, especially if found guilty in Australia (The Guardian 10 April 2020 Ruby Princess battle begins to hold someone accountable). There have also been recent pollution incidents with cruise liners being fined millions for illegal discharges, most recently in 2016 when Carnival was charged US$ 40m for illegal dumping of oily water.

Zero emission hydrogen powered cruise liner concept – Havyard, Norway

There are positive changes happening in the industry, lead in particular by Northern Europe where environmental standards for locations such as the Norwegian Fjords (a highly popular cruise liner destination) require zero emissions. There are cruise liners under construction to be powered by hydrogen fuel cells, there are hybrid vessels using electricity, biofuels and LNG.

In contrast, data collected recently shows that of all the international ships calling in to Pacific ports, the cruise liners are by far the oldest and largest of vessels. As the Guardian reports, a single large cruise liner emits daily pollution equal to a million cars.

International Ships serving Pacific Ports in 2019-20 - Average Ages and Gross Tonnage by Type

Fiji also has its domestic cruise liner industry, which could become a 'first mover' in trials of alternative propulsion that could transition to zero emissions. International visiting yachties have skills in low carbon ships, albeit on a much smaller scale. They also spend much longer time in Fiji with yachts under 24 metres spending on average 137 days compared to between 0 and 7+hours on a cruise liner (Economic Impact of International Yachting in Fiji, 2019 and Assessment of the Economic Impact of Cruise Tourism in Fiji, 2019) spending on average FJ$ 7,808/person (compared to FJ$ 90/person on cruise liners), often visiting communities in outer islands for sometimes extended periods of time, and are often looking for 'something to do' and happy to share skills and expertise. They are already required to gain 'cruising permits' introducing each boat, with details on the crew onboard, which could be amended to include reference to the technical or professional skills that crews have.

Cruise Liner Passenger Spend and Time Spent Ashore in Fiji in 2018 (Source Assessment of the Economic Impact of Cruise Tourism in Fiji, 2019)

There are already existing international yachting-based charities that deliver health and disaster response e.g. Sea Mercy. There is a large 'untapped' fleet of low carbon ships in our domestic waters that we are perhaps not making full advantage of.

So, we let's use this time to debate what the future cruising tourism industry of the Pacific islands looks like.

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COVID-19

Time to Rethink Cruise Liner Industry Here

University of the South Pacific Scientific and Technical Advisor at the Micronesian Centre for Sustainable Transport Peter Nuttall

WATI TALEBULA
SUVA

The future of the cruise liner industry in Fiji will take some time to recover.

According to the Economic Impact of Cruise Liner in Fiji October 2019, the total direct economic impact of cruise tourism in Fiji is estimated at approximately $44.2million.

University of the South Pacific Scientific and Technical Advisor at the Micronesian Centre for Sustainable Transport Peter Nuttall said cruise liners had taken a big blow to their reputation internationally as virus incubators.

"There were already large question marks over the sustainability of this industry in terms of the return to the Fiji economy and the impacts on public health and climate change emissions these ships produce," Mr Nuttall said.

"The cruise industry isn't going to restart anytime soon. Even when it does, the global recession means there will be reduced income for this luxury sector, and the restart will be slow.

"Fiji should use this space wisely to ask what type of cruise liner industry it wants to encourage in the future and what type of enabling and regulatory environments can it create to shape that future now."

Mr Nuttall said cruise ships burned large quantities of poor quality fuel and generate large amounts of airborne emissions.

"Recent studies show that only a select few benefit from the cruise liners' spending and that per person it's actually very low, much lower than a traveller that books a local hotel and eats in local restaurants and buys in local shops," he said.

"In Dravuni, the cruise liner passenger spends on average only $3 on handicrafts.

"And there is the cost to the environment. Think of all the communities downwind of the places cruise liners stop.

"Think of Tropical Cyclone *Harold* and *Winston* and think of the contribution cruise liners make to global climate change.

"The answer seems rather straightforward. In the future, we want much cleaner, less polluting cruise ships and smaller numbers of high paying tourists that spend more time and money in local communities.

"Tourism will return to Fiji in time. But it should be Fiji that decides what the new normal will be."

On March 16, cruise ships were banned from berthing anywhere in Fiji.

Edited by Rosi Doviverata

Feedback: wati.talebula@fijisun.com.fj

CHANGE

WE NEED TO GET THINKING ABOUT HOW WE GET OUR MARINERS THINKING

Analysis

by Peter Nuttall

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

One thing we have learnt about the world right now – including the pandemic, the climate crisis, the global recession and the price of world oil – is there is no going back to Business as Usual. The world has shifted on its axis and we are all going to have to find a new normal. Only none of us really know what that means – the only certainty is change.

CHANGE

In the world of shipping, this change has been signaled now for a while. The ships, the logistic chains, the fuels we use, how we move cargo and people from one bit of land to another, are all going to be quite different tomorrow to what they were yesterday.

We can expect ever increasing shifts to digitisation and ever increasing responsibility on both port and flag states to meet ever increasing demands for data and regulatory enforcement.

There will be new fuels, new ships, new technologies. Skill sets for mariners and ship operators and regulators will become increasingly specialised.

For shipping companies, policy makers, planners, international maritime negotiators, legislators, freight forwarders, port managers this is going to mean new challenges in training and education and research.

We need to start thinking now about how we build the capacity of our maritime workforce for the future. It is going to have to be a workforce that is able and equipped to think on its feet and adapt to change at all levels.

For millennia the Pacific always had the best sailors, navigators, naval architects and commanders.

Even in recent history, Pacific seafarers were sought out by European shipping companies because they were the most capable, dependable and reliable mariners.

A network of training establishments across the Pacific churned out large numbers of international and domestic seafarers for the purpose.

Their remittances were the backbone of economies of countries like Tuvalu and Kiribati for decades.

In Fiji, both the government shipping, the local shipping companies, the ports and the tourist sector are all parts of an essential and growing industry that has long been a cornerstone to the entire national economy.

FAST CHANGING

But the world of shipping is, and will, continue to be, fast changing from now on. If the current series of national and global emergencies currently engulfing us have reinforced anything, it is that island people rely more heavily on their shipping than anything else in times of need.

Sadly, as the climate and economic crises bite ever deeper, this will be more and more true going forward for our Pacific states.

Institutions like the Fiji Maritime Academy and its counterparts across the Pacific, have done sterling work to date. But the new 'normal' is going to up the ante considerably.

SOLUTIONS

As with most things, the solutions for Fiji and the Pacific will not just be a case of being "mini-me's" and adopting the solutions of large nations and economies.

We simply don't have their economies of scale. Our situation is unique, we will need to design and develop our own solutions.

We need to be thinking now about how collectively we marshal and empower our national and regional education, training and research resources to best position our young people coming through today – in all fields from deckhands to captains to Secretaries of Transport to company managers to regulators – to steer the best course for the future.

INVEST STRATEGICALLY

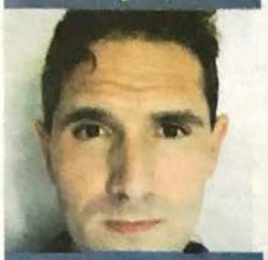
The only way to do that is to invest strategically in building their long term capacity from the outset of their careers, regardless of which area of the industry they will work in.

Our small size in terms of population and economies means we face significant barriers – where do we find the right and enough people to train and how do we afford to pay them in an ever more specialised industry? How do we keep on top of ever growing international and national regulatory requirements? How do we grow this sector and decarbonise it in line with Fiji's ambitious national emissions reduction targets at the same time?

Its time now for us to do the hard thinking about building a new maritime industry. If we think smart, then it needs all the components to work together to plan and implement a forward facing education and research agenda for one of most important industries we have.

Impact of Transport Systems

Analysis



by Andrew Irvin

■ Andrew Irvin is the USP Project officer for the Cerulean Project at the Micronesian Center for Sustainable Transport.

Fiji Roads Authority Geographic Information System (GIS) map of jetties in operation, 2020.

How do we quantify the inland impacts of maritime transport facilities on the cities that grow around them? Urbanization is driven by transport access, and as the road network has developed, distribution by shipping has, by tonnage, become heavily centralized around the major ports of Lautoka and Suva (and to a lesser extent, Savusavu and Nabouwalu).

The map illustrates the shift over time in how goods move around Fiji, and the interrelated dynamic between transport access and centralisation. The map of jetties hosted by the Fiji Roads Authority website, listing the aforementioned locations under Fiji Ports (with the addition of Levuka), as well as those under FRA, Ministry of Fisheries, and privately operated jetties. With fewer than 40 jetties included on the map, in a nation of 333 islands (over 100 of which are inhabited), decentralisation and equity of transport services is clearly not comprehensively resolved. Rotuma is even more remote, and is not included in this map, which, by omission, reinforces the extreme distances (and associated costs) required to provide Rotuma with transport connectivity by sea and air. The degree to which this is directly attributable to Rotuma's 20 per cent reduction in population between the 2007 and 2017 censuses is certainly worth further examination.

Even 130 years ago, the number of coastal communities recorded comes in at over twice the number of jetties and port facilities actively maintained now.

The coastal communities recorded in 1889 are also notable, as prior to the development of an extensive inland road network, these communities were largely reliant on maritime trade for supplies, travel, and connectivity.

In 1889, the profile of Fiji's role in the global economy, both in terms of its contributions to international trade and its reliance upon goods from elsewhere in the world, was far smaller, and trade far more insular. In the face of the global COVID-19 pandemic, which was touched upon in last week's article, re-examination of the long-standing domestic trade network is necessary to prepare an environment where sustainability and equitable distribution of benefits are prioritised across Fiji.

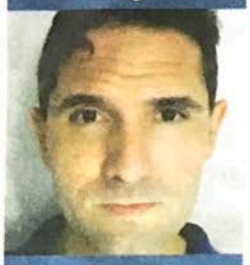
In the event Tropical Cyclone (TC) *Winston* or *TC Harold* had directly struck the greater Suva area, the governance mechanisms and resources distributed around the rest of the country would be much more strenuously tested to come to the aid of a capital in the aftermath of natural disaster. Given the demographic and geographic limitations of Pacific Island countries to foster economies of scale comparable to other regions of the world, it is impossible for populations of 10,000 to 1 million spread over millions of square kilometers to find competitive advantage in a global marketplace. Fiji of 2050 may (and should) look very different from the Fiji of 2020. As of 1956, only 18.27 per cent of Fiji's population lived in urban communities, with only 12.8 per cent located in Rewa province. Rapid urbanisation in the period since corresponds with the rise of containerised shipping and the revolution in globalised trade. We are on the precipice of a new economic revolution, and Fiji is well-positioned to respond through examining and building upon its past successes.

CHANGING DYNAMICS

TAKING STOCK, A NATIONAL NECESSITY

HOW PRIORITISING THE INVENTORY AND ANALYSIS OF DOMESTIC TRADE IMPROVE FOOD SECURITY AND STRENGTHEN NATIONAL ECONOMIC GROWTH RETURNS IN AN ERA OF GLOBAL MARKET UNCERTAINTY?

Analysis



by Andrew Irvin

■ Andrew Irvin is the USP Project officer for the Cerulean Project at the Micronesian Center for Sustainable Transport.

With international travel heavily restricted since March, those of us in Fiji have had over a month to reflect on the changing dynamics of the global market.

Oil prices, for the first time in history since fossil fuel has been traded as a commodity, dipped negative in North American markets in April. Shipping capacity reductions are expected globally, with inactive tonnage at scales unseen in history, currently approaching double the volume seen during the 2009 Global Financial Crisis. Constraints upon the supply chain servicing the Pacific should be expected, and contingency plans will be necessary across and between all sectors.

Given the recent travel restrictions imposed domestically, both around the urban areas of Lautoka and Suva, as well as the broader cessation of inter-island services, consideration of supply chains quickly became a cause for concern.

How would restricting flow of individuals in and out of cities impact the availability of goods in the various marketplaces normally bustling with activity leading into peak sales on Saturdays?

The mechanisms deployed by Government within the Agriculture Response Package for COVID-19 represent a reaction to address trade barriers imposed for public health and safety reasons, but when coupled with required response to Tropical Cyclone *Harold*, which arrived amidst travel restrictions at the start of April, prioritization of resources led to a suspension of the Agriculture Response Package until May 4.

While the tourism market has largely been forced to a standstill, Fijians must cultivate economic activity across other sectors while external visitors are largely absent.

For Pacific Island Countries seeking to implement sustainable development strategies and increase resilience to both natural and man-made disasters, agroforestry policy is central to industrial policy.

Strategic Development Plan

Fortunately, ministry of Agriculture has a five-year Strategic Development Plan in which market access is mentioned as a strategic theme.

Transport is not mentioned or explored, despite its crucial role in delivering goods to market. The trade imbalance at an international level is raised, though as a nation, Fiji's commitment to ensure intra-island logistics prior to export may be strengthened to see benefits of growth decentralised and maximised nationwide.

Ministry of Agriculture's 2020 Policy Agenda speaks to the transport infrastructure needs, and market access is mentioned.

A Food and Agriculture Organisation (FAO) report cited within the Policy Agenda – Assessing the Viability of Collection Centres for Fruit and Vegetables in Fiji: A Value Chain Approach– makes frequent and explicit mention of the barriers to domestic movement of goods caused by the high cost of transport.

Fortunately, Ministry of Agriculture has a 5-year Strategic Development Plan in which market access is mentioned as a strategic theme.

In the 11 years since, despite subsidies to the Government Shipping Service and other initiatives, outer islands remain at a competitive disadvantage within the national market.

Inability to secure sufficient market share at sufficient margins due to transport limitations makes the prospect of profitability in outer islands far less likely, and the degree to which this exacerbates urban drift should be studied more thoroughly.

This, in large part, means properly documenting, analysing, and publicizing domestic trade flows. Going beyond fruits and vegetables, including livestock, timber/forestry products, fisheries products, and any other resources moving between the islands.

Measurement units (such as weight in kilograms, or volume in cubic meters) should be standardised, and equivalency tables circulated with ship operators and port/jetty facilities.

This will help in loading and movement of goods, and any vessels brought into service should be designed with low-cost/low-carbon operations in mind, serving a variety of customers rarely sending containers.

Many would gain value and improved market access through more frequent shipments of break-bulk cargo in units often less than a cubic meter.

Meeting domestic needs will require response and anticipation of a supply chain that may quickly constrict. Our "Business-as-Usual" scenario has been interrupted by larger market forces, and foresight of the coming situation may allow Fiji to avoid domestic operations becoming even more disproportionately costly with an accelerated and steady shift away from fossil fuel dependence. Strengthening domestic trade should help ensure the resources are available across all of Fiji for all to thrive.

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Can We Build Another Reef Endeavour?

Analysis

by Peter Nuttall

Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

Reef Endeavour.

In 1996 the *Reef Endeavour* was launched in Suva, a 75 metre cruise liner with a capacity of 150 passengers.

Built at the Fiji Marine Shipyard and Slipways, at 3000 gross tonnes, the *Reef Endeavour* was the largest ship built in Fiji.

With a fully functioning shipyard, Fiji proved it had the capacity to take on a project of this scale.

But we would be hard pressed to repeat that with the facilities we have today.

The pandemic has rocked the world economic order and all the signs are that a global recession is now on our doorstep. Pacific island economies will be amongst those hardest hit. It may be some time before there will be a recovery. Looking around the world, it is apparent that most countries are now readying major economic stimulus packages to maintain their economies and keep industry and commerce moving and producing.

Its classic Keynesian economics increased government expenditures, lower taxes and pump priming to stimulate demand and pull economies out of the depression.

Here in the Pacific there are clear signs that the major development banks, like the World Bank and Asian Development Bank, and our traditional development partners like the European Union, Australia and New Zealand are readying to help out responsible Pacific partners reinvest in the 'new normal'.

But where is it that such stimulus packages should be directed. There is a new language emerging. Investors are looking for 'shovel ready' projects, for programmes that lead to 'climate resilience' and 'blue/green recoveries'. While we are entering a global crisis, it is also likely a time of opportunity – if we are prepared to do the hard and smart thinking now about how we capitalize these for the right future investment.Even before the pandemic, Fiji and the Marshall Islands were leading a call on behalf of other Pacific countries, for an immediate investment of $500,000 million in blended finance (grants and loan modalities) to transition to new generation, green, efficient and cost effective shipping.

The Pacific Blue Shipping Partnership is all about a whole of sector transition. It's more than just new ships, we need to put in place the infrastructure, the training, the support industries and the research to ensure such a transition is long term and sustainable.

It's time to be strategic. For many of our smaller neighbours, the ship manufacturing and industry support systems needed are simply not viable for them to provide. That's why we have to approach this from a multi-country angle. Our neighbours are going to need Fiji's support if they are not to be left behind. And that in turn creates a market opportunity for Fiji's maritime industry. Is now the time for Fiji to rebuild its national maritime industry capacity to be the financing and industrial hub for a regional transition?

If it is, it needs to be done smart and it needs to be done strategically.

If Fiji is to build a new '*Reef Endeavour*' it would need to be a very different ship to the one launched in 1996.

The maritime industry globally is gearing up for the biggest revolution since sails were traded for steam and oil.

Around the world enormous innovation is already underway at all ship scales. New hull designs that are sleeker and more hydrodynamically and aerodynamically efficient.

Electric motors for propulsion and axillary generation with smart computer controlled charging and switching between systems.

Wind hybrids are an obvious choice with new fixed wing, soft sail and rotor designs capable of achieving large efficiency savings. New thinking and innovation around propellers and hull coatings. And it's not only about the ships. They are just the trucks and buses of the oceans. We need to be thinking about how we organize our whole logistics chain – our ports, the way we connect sea and land transport, our warehousing and support systems.We are talking with our colleagues in countries like Norway and Sweden and UK where they are now building the next generation of cruise liners and ro-ro's. To NZ where the government there has already invested in a portfolio of new electric harbour work boats and passenger ferries.

To the German and French maritime universities training the next generation of naval architects and engineers. We have a lot of friends out there willing to help.

If we were to build a new '*Reef Endeavor*' in Fiji, what would it look like, where would we build it what skill sets would we need, what industries need incentivizing to get us there?

Surely, its time now to invest in the smart thinking needed to make sure Fiji and the Pacific are 'shovel ready' to invest strategically.

APL England photographed in the Port of Brisbane after it lost roughly 40 containers off the coast of Sydney on May 29, 2020.

Australia lays charges over container spill

Charges have been laid against the master of the APL England, a container-ship which lost about 50 containers overboard off Sydney on May 24, the Australian Maritime Safety Authority (AMSA) said on Monday.

As informed, the offences relate to pollution and damage of the Australian marine environment as a result of poor cargo loading.

AMSA general manager operations Allan Schwartz said laying charges against the ship's master was not undertaken lightly.

"This and other incidents remind us of the important role the ship's master has in ensuring the ships that ply our waters are operated safely and do not damage our marine environment," Mr Schwartz said.

"Today's actions should not detract from the responsibility of the ship owner APL Singapore, insurer Steamship Mutual, and operator ANL who remain accountable for remediation of any impacts of this incident," he added.

"We welcome ANL taking responsibility by engaging contractors to undertake shoreline clean-up and retrieve some of the floating containers... but the impacts of this incident could take months, if not years to remediate and we expect these efforts to be sustained for however long it takes."

Schwartz said the ship remained under detention in the Port of Brisbane and would not be released until its serious deficiencies have been rectified.

Source: Shippingwatch.com

Reports of seafarers denied evacuation alarming

The International Chamber of Shipping (ICS) is warning of reports of seafarers being denied medical evacuation or access to ports despite serious medical conditions, describing the practice unacceptable.

"We're receiving alarming reports of seafarers who are suffering from serious medical injury such as a stroke, be denied medical evacuation for over four days. This is simply not acceptable," Guy Platten, Secretary-General of the ICS said on Friday.

ICS has issued new guidance for ship-owners and operators to deal with unwell seafarers.

"The new guidance should serve as a reassurance to governments and port authorities that it is fully possible to conduct crew changes in a safe and effective manner."

The chamber said on Thursday, May 28, that it was planning to remind governments of their obligations to provide medical care for seafarers during a virtual meeting of healthcare professionals, organized by the World Health Organization (WHO), International Maritime Organisation (IMO) and International Labor Organisation (ILO), where the latest guidance for seafarers was set to be discussed.

The 48-page document builds on the previous guidance issued in March, providing comprehensive recommendations on: Safe port entry, ship-board measures to address risks associated with COVID-19, managing an outbreak of COVID-19 on board ships and managing other medical issues during COVID-19, including medical assistance to seafarers in ports.

"The new guidance should serve as a reassurance to governments and port authorities that it is fully possible to conduct crew changes in a safe and effective manner. Urgent action is now required to ensure that no other seafarers are subjected to prolonged period without medical assistance if they need it," the chamber pointed out.

Since the outbreak of the virus, COVID-19 related restrictions and the drastic reduction of air traffic have prevented over 200,000 seafarers from routine changeovers, according to the data from ICS.

Spending an extended period on-board, these seafarers are at risk from adverse health effects, including fatigue and mental health issues.

Source: Shippingwatch.com

Container ship *Coral Chief*.

Shipment Delays Affect Biscuit Export

WATI TALEBULA
SUVA

Shipping problems due to the COVID-19 pandemic has reduced FMF Foods Limited's exports.

Biscuit Companies (FMF) Manager Exports Rakesh Raju confirmed this during World Biscuit Day celebration at their Walu Bay headquarters last week.

"From March there was a surge in demand in regards to export. Following the GOVID-19 there was a steady demand leading to a challenge on the logistic side," Mr Raju said.

"The challenge is we do not have the volume for the vessel schedule for other Pacific Islands," he said.

"In terms of previous years, we can say that the delay is up to 80 to 90 per cent and that is one of the contributing factors that we have to delay our shipment and for not being able to fulfil the demand with what the customers are sending."

FMF Foods Limited exports biscuits to United States of America, Canada, Australia, New Zealand and many Pacific countries.

Fiji Ports Terminal Limited (FPTL) chief executive officer Hasthika Bandara Dela last week confirmed that there had been an 11 per cent reduction in import and export volumes compared to the same period last year.

"Many strong economies have succumbed to the Coronavirus pandemic. This has resulted in disruptions to production and supply chain globally," Mr Dela said.

"Many ports are experiencing low cargo volumes and Fiji being part of the global network and supply chain is not exempted from the same," he said.

Mr Dela said Fiji would pick up again once the pandemic passed.

Over the past three months there has been little movement of vessels at Fiji's main ports including Suva, Lautoka and Vuda.

Last week vehicles carrier, *Carrera* called in four weeks after the Panama registered *Martorell* offloaded vehicles at the Suva Kings Wharf at the end of April.

Expected arrivals the next few days at respective ports are: Suva – *Capitaine Dampier* a container ship arrives tomorrow and *Kiribora* an oil/chemical tanker arrives Tuesday, June 9; Lautoka – *Coral Chief* a container ship arrives tomorrow and Vuda – *Heracles* an oil/chemical tanker due today.

Edited by Karalaini Waqanidrola

Port Denarau Samaritans help Lau communities

WAISEA NASOKIA
NADI

Port Denarau Marina based Sea Mercy Fiji was in the Lau Group recently assisting Fijians with food donations following the wrath of Tropical Cyclone *Harold* and the COVID-19 pandemic.

Sea Mercy Fiji president Nigel Skeggs said they completed their Northern Lau Food Relief Initiative for the families in the hard-hit communities of Cikobia, Avea and Susui last fortnight.

"The yachting and sailing community at Denarau pulled together and raised $10,000 needed to purchase and deliver one month of food supplies for each family member of the mentioned communities," Mr Skeggs said.

"To help with the people who were struggling not having money to buy staple food; a lot of their root crops has been rotting in the ground. Their source of income is fishing. Basically our job is to help where we can and where we see a need and we get out helping, "he said

"On behalf of Tui Susui and Susui village we would like to convey our appreciation and our big vinaka vakalevu for the kind assistance that we had received," Susui village head man Sekope Duri said.

SMF has also loaned a desalination unit to Government that can make 50 tonnes of water per day while at sea.

"We have loaned to the Fijian government until next year so that it can assist communities living off the main islands with their water supply," Mr Skeggs said.

According to the Mr Skeggs the desalination unit has been loaned to the Natural Disaster Management Office (NDMO). **Edited by Karalaini Waqanidrola**

Shipping in a Bubble, Resetting Our Thinking

Analysis

by Alison Newell

■ Alison Newell is a Director of Sailing for Sustainability (Fiji) Pte Ltd and the owner of the *drua* i *Vola Sigavou*. She is a Fiji-based expert in shipping emissions who has been undertaking research on domestic GHG emissions since 2008.

Fe'iloakitau Kaho Tevi.

I posted Pete Nuttall's analysis from last week's *Fiji Sun* ("Can we build another Reef Endeavour?" 27/5/20) to the Seafarers Fiji *Facebook* group. His think piece on now being the time to revitalise Fiji's ship building industry certainly started a conversation.

Comments came pouring in, both from locals but also from Fiji's seafaring diaspora, with recollections from the days of building the *Reef Endeavour*, demonstrating that Fiji still has a wealth of experience and knowledge, albeit much overseas-based. Comments also highlighted the need for a combined package: training, yards, supporting services and industry to name just a few.

This week I read Fe'iloakitau Kaho Tevi's article ***(https://gripinequality.org/2020/05/17-miniseries-on-covid-19-and-inequality-responses-from-the-pacific-ocean/)*** on the Pacific's response to the double whammy of COVID-19 and Tropical Cyclone (TC) *Harold*, and his clear articulation that now is the time to reset the Pacific's thinking on development.

He highlights the region's strengths being in culture and community, reciprocity, and ability to respond in times of need (he gives the example of Luganville providing huge quantities of yams, and other crops and essentials for Pentecost post TC *Harold*).

Mr Tevi also highlights the positive elements of culture and community that can provide an alternative model to the vulnerable economic models of today (the consequences of over reliance on international tourism as an example in Fiji and Vanuatu) and the need for a research-based strategic pivot towards a covid-free Pacific Economic Zone.

Just like earlier generations of Pacific deep-thinkers such as Epeli Hau'ofa were asking 30 years ago, Mr Tevi asks if we are finally ready to stop thinking we are totally dependent on outside help before designing our new normal. It's an inciteful and thought-provoking piece of writing and Mr Tevi's wise words are worth reading.

Last week Christina Figueres, (United nations (UN) lead negotiator for the Paris Agreement) warned that globally we have 18 months left – with the trillions being spent on COVID-19 recovery representing the "last chance to turn away from economic models with dangerously high emission levels". ***https://www.rnz.co.nz/national/programmes/morningreport/audio/2018748493/world-has-18-months-to-address-climate-change-former-un-chief)***.

It is clear that we have only a very small window of opportunity for resetting the current development model, and that the shipping sector is a fundamental and essential part of development and economic and social wellbeing and connectivity, allowing reciprocity and exchange between communities in response to need (whether that be a result of pandemic or severe weather or for everyday trade).

Some of our Pacific neighbours are reliant on donations from the developed world for their ships, some, such as Fiji, have been able to purchase new vessels or subsidise the private sector from Government budgets.

The vast majority of our region's ships are still old and inefficient.

The concept of having a Pacific islands economic or trade "bubble" (that maybe does or doesn't include New Zealand and Australia for the moment) and investing in rebuilding our capacity to build our own new green boats inside the region, enabling inter-regional trade, is a paradigm shift from the pre-COVID-19 "normal".

But Fiji's "once in a lifetime" opportunity to press the reset button on where our development focus lies ends this week with the June 5 deadline for submissions to the 2020-21 budget (*to be sent to budgetconsultation@economy.gov.fj*).

As governments in the region look to stimulate national economies, millions of dollars are going to be invested in various parts of the economy.

The questions are which parts and what should be the focus?

Applying the wisdom of Fe'iloakitau Kaho Tevi would say put some of the money into a long term programme for building low carbon boats for the Pacific Islands, and the seafarers to sail and maintain them, so that when the next pandemic or severe tropical cyclone hits we have the resilience within the region to support each other, and to reduce our dependency on "development" aid and disaster response from outside.

Greening Shipping to Protect Ocean Health

Analysis

by Peter Nuttall

Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

Pacific shipping density tracks

This week we celebrate World Oceans Day 2020 and this year's theme is "Innovation for a Sustainable Ocean".

The debate over the role of seafarers and shipping and ocean health has gone from one where the maritime sector was largely invisible to today's conversation where shipping is increasingly seen as a central pillar.

It is a multi-faceted conversation. More than 80 per cent of all goods traded in the world are moved by ships.

More than 65,000 ships from small coastal boats to the largest man-made behemoths over 250,000 tonnes and over 400m long, covering every possible transport route on our oceans.

Such ships have a direct effect on our ocean and ecosystems. If shipping was a country it would be a Greenhouse Gas emitter of the scale of industrialised countries like Japan and Germany.

Shipping must decarbonise if any goal of staying under 1.5 degree C is to be achieved. Not only do such emissions contribute to the climate crisis, they are also direct contributors to ocean acidification. So shipping has a direct responsibility for the probably irreversible harm being made to coral and fish ecosystems.

Ships that burn Heavy Fuel Oil (HFO) are also a major emitter of sulphur dioxide, which has enormous public health implications, especially for coastal and port communities. After nearly two decades of negotiation, new low sulphur limits finally came into force this year.

These will dramatically cut sulphur emissions from all international shipping and that should go a long way to reducing this impact.

The scale of world shipping, which continues to grow decade on decade, means such impacts are likely to increase exponentially into the future.

The major shipping lanes are now so congested that the exhaust trails from shipping is capable of artificially producing unique localised weather systems on such routes - in particular increased lightning and thunderstorms.

Our ships around the world are crewed by more than 1.2 million seafarers (the overwhelming majority being males).

Often hard, lonely lives, these essential workers spend weeks and months at sea and distanced from family and society to allow shipping ply its trade.

The coronavirus pandemic has reinforced how vulnerable this community of skilled workers are. The new border restrictions mean many are literally stranded on their ships and unable to make port for rotations.

In the past 50 years, Pacific mariners were in high demand as ship's crew and their remittances were important components of national economies for countries such as Tuvalu and Kiribati. Today less so.

As the connection between shipping and Ocean Health becomes clearer and globally more visible, we are left asking what the innovative solutions are – globally and here in the Pacific.

It is obvious that the new normal cannot be a continuation of the high polluting past. Currently the Pacific is approaching this from two directions.

Working from the top down, Fiji continues alongside like-minded Pacific States to press hard at the International Maritime Organisation (IMO) for the highest possible ambition in quickly reducing shipping's emissions profile.

Setting these global shipping targets are key to driving innovation at a global level. While the pandemic has meant the suspension of IMO meetings in London, we are using the COVID-19 space to talanoa and prepare our Pacific delegations for the next round of negotiations when they resume.

At the same time, the Micronesian Center for Sustainable Transport (MCST) is a knowledge partner in the Global Maritime Forum's Getting to Zero initiative, a large-scale industry led push to have non fossil fuel vessels operating commercially around the world by 2030.

Minister Kitlang Kabua, the Republic of the Marshall Islands Education Minister was the keynote speaker at last week's Virtual Oceans Dialogues shipping event.

She spoke forcibly on the need to for global change that is just and equitable and, most importantly, leaves none behind.

These forums are important because they ensure that a consistent, united Pacific voice is being heard and listened to by the global industry captains that are now leading large-scale change. We need to be assured that this rising tide will lift even our small Pacific ships with it.

And at home Fiji and RMI continue to develop the planning and design of the Pacific Blue Shipping Partnership, the initiative to invest $500 million of blended finance across a number of Pacific countries to catalyze a large scale transition in our island shipping to new clean high efficiency ships.

If the Pacific is going to talk the talk in international climate change and ocean health negotiations, it must of course walk the walk at home.

The Pacific Blue Shipping Partnership is the platform to achieve this in a very practical sense.

Fiji is ideally situated to be the big winner from this programme.

Not only is it the major economy and major transshipment hub in the central Pacific, it also has the manufacturing, industrial and finance base to be the major technology supplier and servicer for regional change. Greening shipping is not just about having non-fossil fuel ships – it's about investing strategically in all the secondary and tertiary industry needed to keep the ships working – everything from maritime paint solutions to insurance underwriting. The time for innovation for a sustainable Pacific is now. *Toso Viti Toso!*

By LISA SMYTH

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Warriors of the ocean

Alison Newell on the Fijian double-hulled canoe or drua, *iVola Siga Vou*. Standing behind her is Seta Ledua. Picture: SUPPLIED

Cultural heritage of seafaring in Fiji, and the Pacific

WORLD Oceans Day was celebrated on June 8. The World Bank Group celebrated the event by interviewing ocean innovators in the region. Here is a story of two ocean warriors from Fiji.

SETAREKI Ledua comes from a long line of drua (double-hulled sailing boat) builders and is one of only two traditional sailing navigators left in Fiji.

New Zealander Alison Newell is the owner and operator of sustainable tourism initiative, the Drua Experience.

Working together, these two ocean warriors are spreading the word about using traditional Pacific knowledge to create a sustainable future.

Tell us about yourselves and your work?

Setareki: I am from Fulaga (Vulaga) Island in Lau Province in Fiji and I started sailing when I was very young. My great-great-grand-uncle was involved with the construction of the *drua*, the *Ratu Finau*, which was built back in 1913 and is currently being housed at the Fiji museum.

I moved to the capital, Suva, to study engineering at university and I lived with my uncle just outside the city.

He still built his own traditional canoes and my cousin and I used to go sailing in them for fun.

One day, the *Uto Ni Yalo*, a double-masted traditional Polynesian sailing canoe built by the Okeanos Foundation for the Sea, came alongside and told us about their mission to promote traditional knowledge in the Pacific, and so I decided to become a volunteer.

With Okeanos, and now Drua Experience, I've sailed 80,000 sea miles around the Pacific in traditional sailing ships trying to revitalise the traditional Fijian sailing culture in Fiji waters.

Alison: Our family first sailed to Fiji in 2002, and as sailors we discovered that some of the communities we visited were restricted because of the lack of sustainable sea transport.

This led us to look into sea transport for all facets of life in remote island communities, whether it be access to healthcare and education, trade and markets, or simply family connectivity.

We decided to set up the Drua Experience as an experiment to prove that there was value in looking at the cultural heritage of seafaring in Fiji, and the Pacific more broadly, for future livelihoods in a zero-carbon world.

We also began working with the Fiji Museum on how to preserve the one remaining *drua*, the *Ratu Finau*, built by Setareki's great-great-grand uncle.

As the only complete example of a drua, the Ratu Finau provided us with a template to build a modern replica that could operate commercially, the *iVola Siga Vou*, (*New Rising Star*), which we launched in 2016.

What drives you to do this work?

Setareki: I come from a long line of boat builders. My great-great forefathers and even my father, they are all traditional boat builders.

That's one of the passions that I have – carrying on the legacy of my forefathers and finding solutions for the next generation, because they want to live the same life as we're living now, in harmony with the ocean.

Alison: As sailors living aboard a small sailing boat for the past few decades, we, my partner and I, have an intimate relationship with the ocean.

It is interesting when people discuss and contemplate our oceans, but they are not also talking about boats.

Our personal connection to the ocean is what binds us with all the Pacific Islanders we meet.

Supporting Fijian traditional seafarers and canoe builders to protect their incredible knowledge and cultural heritage provides them with sustainable jobs.

That's what drives us.

What do you see as the biggest challenge facing our oceans in 2020?

Setareki: Rising sea levels. Most of the islands in the Pacific are experiencing this challenge.

We are really slow in finding the solution for sustainable sea transport to combat climate change.

We are racing against time and we must find real solutions for the oceans.

Alison: Without a doubt, climate change.

While other issues such as overfishing and plastic pollution are also high priorities right now, global warming has already had major negative impacts on our oceans. It will continue to worsen, even if we all decarbonise tomorrow.

In the Pacific, we are already experiencing the impact of a warming ocean, with more severe tropical cyclones and coral bleaching.

What does this year's World Oceans Day theme Innovation for a Sustainable Ocean mean to you?

Setareki: Before, the oceans used to be the highway for our ancestors. The work we do with the Drua Experience teaches Fijian youth about our traditional sailing culture.

We must keep the knowledge going and keep the knowledge alive, and pass it onto the next generation and the next. It's an innovative and sustainable way to start looking into the future, by bringing back our traditional knowledge.

Alison: Fiji, and the Pacific region, have an incredible cultural legacy of sustainable, zero-carbon vessels of which they should be justifiably proud.

There is no sustainable ocean without innovation, and the innovation that occurred across the Pacific in terms of canoe designs and seafaring skills is unparalleled.

"Look back to move forward" is a common saying across the Pacific, so let's not lose sight of the innovations that worked before rather than searching for new innovations from other parts of the world.

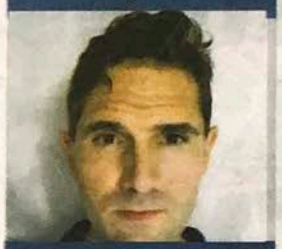
The International Finance Corporation, a member of the World Bank Group, provided advisory services to Sailing for Sustainability (Fiji), which offers the Drua Experience Tour.

Follow World Bank Pacific on Facebook to make sure you don't miss any of our World Oceans Day Innovators series.

■ **Lisa Smyth is a communications consultant with the World Bank. The views expressed in this article do not necessarily represent the views of the World Bank Group, its employees and this newspaper.**

Decarbonising Maritime Transport

Analysis



by Andrew Irvin

■ Andrew Irvin is the University of the South Pacific (USP) Project Officer for the Cerulean Project at the Micronesian Center for Sustainable Transport.

Charting a course towards decarbonising maritime transport for the Pacific Island Countries (PICs) requires a thorough understanding of the issues faced within the region.

This coupled with building and strengthening engagement with partners beyond the region.

A key element of the work undertaken by the Micronesian Center for Sustainable Transport (MCST) involves eliciting collaboration between the range of academic institutions, businesses, and governments formulating a vision for rapid emission reductions amidst mounting societal, environmental, and economic pressures.

Through the recent call for tenders to assist in the design of a new class of inter-island cargo vessel, the breadth of this interest became readily apparent to MCST, as inquiries steadily streamed in to USP throughout May.

This call was amplified by existing partners, Hochschule Emden/Leer – one of Germany's foremost technical universities – and maritime industry organization, the International Windship Association (IWSA). MCST has also benefitted from engagement with TU Delft in the Netherlands, which has one of the largest naval architecture programmes in the world.

Through this collaborative effort, the needs of Pacific inter-island shipping quickly became a point of interest for naval architecture and marine engineering firms from countries around the world, including Australia, Belgium, France, Germany, Israel, the Netherlands, and the United Kingdom, as well as additional domestic attention following Fiji Sun's publication of this freighter development work on May 20.

As the focus of these firms turns towards the needs of the Pacific, it seems opportune to briefly detail what each of these companies is undertaking elsewhere in the global shipping market. As identified in previous installments of this series of articles from MCST – the obstacles we face in the region are not technological, but a matter of both mechanisms for re-building (and retaining) sectoral expertise and financing the next generation of low-carbon maritime transport vessels and infrastructure.

To this end, it is worth examining opportunities to forge stronger relationships with our neighbors in the region, as three firms from Australia inquired over the project, all providing different areas of expertise within the marine design industry. Advanced Wing Systems, a Perth-based firm, introduced MCST to a semi-rigid wing sail, which by appearance alone, did not serve as a major departure from the traditional soft-sail rigs used for millennia across the region. Utilized on a vessel qualifying for the 36th America's Cup, the option of bringing this high-tech, high-performance application to more rugged and robust vessels promises an opportunity to potentially reduce crewing requirements without sacrificing the lifespan of sail systems.

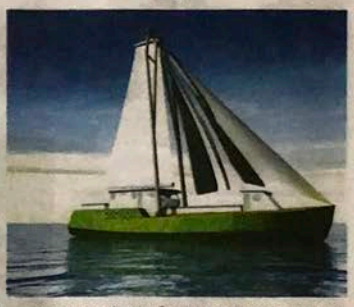
In addition, a partnership between Incat Crowther, a Sydney-based firm, and Wing Force Partners, expressed interest in providing a marriage of their deep design portfolio, which boasts dozens upon dozens of vessels in service over the last three years. Wing Force Partners features a dozen vessels reintroducing semi-rigid wing sail technology from the scale of small fishing vessels through coastal catamaran ferries up through larger bulk cargo carriers.

A similar range of versatile, fossil fuel-free designs have been put forth by Scruffie Marine/Go-Sail Cargo, which is one of the only firms working through the design phase through full construction from start to finish.

Similar in scale to the larger end of the Scruffie vessel range, Lo Entropy has been operating a vessel of around 50 tonnes in cargo capacity, focusing on developing a regular route between Belgium and the United Kingdom. Ideologically in-line with the low-cost, low-tech, low-emission solutions required across the Pacific Island Countries, replication of their business model is an available option for routes at comparable scale and volume for inter-island transit.

Elsewhere in Europe, the newly formed Dutch partnership, Blue-Wasp Marine, emerged from TU Delft and expresses a shared interest in wind propulsion-based solutions for the future of shipping.

Also from the Netherlands, Wind-Schip has shared a selection of design dossiers ranging in scale from the smallest inter-island shipping needs, with vessels ranging from 34 meters up to over 113 meters, providing wind-propelled solutions rivalling the scale of the largest vessels operating domestically in Fiji.



Concept art for the Greenheart Vessel prototype.

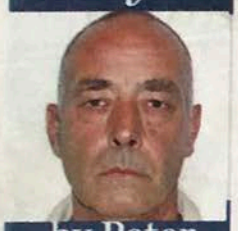
These options are joined by the expertise from Dykstra and C-Job Naval Architects, which have put forth a design portfolio of dozens of innovative, high-tech, and wind-driven vessels ranging in scale and functionality from the concept stage to seasons vessels operating worldwide.

With all of these firms, including Israel's Nayam Wings, which has devised a unique, axis-based wing system derived from aviation airfoils, over the last month, MCST has been introduced to an incredibly broad and deep pool of expertise.

Each firm is poised and prepared to lend this expertise to meet the needs of Pacific Island Countries as the Pacific Blue Shipping Partnership works to align financing to realize the 2030 and 2050 decarbonization targets for the maritime transport sector.

Pacific should ask for Carbon Tax

Analysis



by Peter Nuttall

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport.

When the pandemic hit and borders closed around the world, the International Maritime Organisation (IMO) negotiations over how this critically important emitting sector, is already moving at an unacceptable glacial speed, ground to a halt.

But in the e-space of the 'new normal' discussion and debate has accelerated.

"Shipping Decarbonisation – a Trillion Dollar investment Opportunity" was last week's headline for a major webinar of large shippers and financiers. Such discussions are going on around the world right now. In London, Athens, New York, Oslo and Hamburg, the captains of this multi-trillion dollar industry are gearing up to capture the benefits of this transition. They know that first movers will reap the early rewards. Within a decade, zero emissions ships powered by new fuels will be operating commercially on major routes.

But will this major industry shift be equitable and just? Will the benefits also be delivered to our small-scale island routes? And what are the trade-offs our leaders will be asked to make as these negotiations harden up in IMO?

Profit-Making Sector

Shipping is a heavily capitalised and major profit-making sector. The real benefits from this essential but high polluting activity go primarily to the coffers of industry majors in large trading nations and developed economies. Shouldn't some of these profits be directed now to the large and urgent needs of the climate vulnerable nations, such as our Pacific large ocean states?

Next week the International Chamber of Shipping is holding a webinar. They want global support for their proposal to tax international shipping at $2 per tonne of fuel to contribute to a $5billion global research and development fund over the next 10 years. The "carrot" they are dangling in front of States like the Pacific is to give perhaps 10 per cent of this to the shipping needs of Small Island Developing States (SIDS) and Least Developed Countries.

Sounds attractive. $500 million over 10 years is what we have been modelling for the Pacific Blue Shipping Partnership. We calculate this is sufficient to act as a catalyst to transition six to eight Pacific States to full shipping decarbonisation. So, on the surface, the International Chamber of Shipping (ICS) proposal sounds like a good fit. Surely, we should support this. It sounds like a responsible offer from world shipping. What's not to like, where are the downsides?

Vulnerable Countries

In 2009 the world agreed to collectively pay $100 billion a year to fund the most pressing mitigation and adaptation needs of the climate most vulnerable countries – the "small" and "least" of the global community. It hasn't happened. So far, the Green Climate Fund has been given less than $12 billion. Total, not per annum.

Shipping is a global industry that creates about 2.2 to 3 per cent of all greenhouse gas emissions – producing emissions on a similar scale to a large industrialised country such as Japan or Germany. It has been an increasing global polluter since shipping started burning coal. Over decades and centuries, it has proved a highly profitable industry, in large part from moving huge quantities of carbon in coal, oil and ores around the planet. But it has never paid for the cost of the pollution it has already contributed to global warming, let alone the increasing emissions it will continue to make.

So, from this perspective and applying the Principle of Polluter Pays, we can easily argue that shipping should be contributing to the climate finance so desperately needed by countries such as ours right now. Who else will defend against the fast increasing impacts our countries face from the climate crisis. The Polluter Pays Principle is already well recognised at IMO, from when it began so successfully addressing the issue of big oil tanker spills, so there should be no obstacle to IMO applying it to carbon. At 2.2 to 3 per cent of global carbon pollution, surely shipping should be already paying more than $2 billion per year to GCF? But so far it pays nothing.

The best solution is for the Pacific to go back to the IMO and call strongly and calmly for a real and universal carbon tax as an immediate priority.

The tax should contribute the majority of the revenue generated to the needs of the climate most vulnerable.

This would still leave more than enough for the R&D needs of shipping that ICS is calling for.

Our international colleagues in leading research centres are telling us the carbon tax would need to be north of $100 per tonne by 2030 to be effective. So why not start at a minimum $10 a tonne now, increasing $10 per year to 2030. The first $8 goes to the climate vulnerable, the other $2 to shipping R&D as the industry requests. How is that unfair for any actor?

When looked at through this lens, the ICS offer is less of a "carrot" and more of a "crumb". Surely strong proactive pressure to move directly to a full carbon tax is the only way to get a win-win for Pacific States. IMO and UNFCCC diplomats and negotiators, please take note.

Shipping is a Necessity Regardless of Crisis

Analysis

by Peter Nuttall

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Centre for Sustainable Transport.

Last week I was taken by two media reports. In the global press I read that the national shipping sector was celebrating a donation by industry leaders of $US60m to opening a Centre of Excellence to place Denmark as a global leader in new zero-emission shipping. Sustainable employment for over 100 highly qualified researchers bringing together science, business, industry and government to strategically reposition a major global industry.

The other event was our own national budget consultation, being led from the front by the Attorney General, Minister of Trade and Secretaries of Health and Economy. It was a sobering presentation. Fiji, as with all our Pacific neighbours, now faces a Herculean challenge. How to restart and rebuild our fragile economies now ravaged in a post-COVID-19 climate crisis world. While the first emphasis is on simply surviving the shock of having the cornerstones of what was a very positive long-term growth curve comprehensively destroyed, the discussion is also focussed on how to best to reinvest for the future.

I've laid out the argument consistently in previous columns why the maritime sector should be a key candidate for any long-term investment plan. Economic recovery through, and following, the pandemic is going to be ever more closely linked to getting our domestic economy moving in a safe manner and expanding a '*Bula* trading bubble' with our regional neighbours.

Regardless of the crisis facing us – health, natural disaster, climate - or whatever else the big wide world is throwing at us, our island countries must have shipping. The quality of that shipping, and the degree to which we remain dependant on the outside world to deliver us our solutions, is largely a strategic choice Pacific governments need to make now. The 'old normal' was a decades-old, vicious cycle of fossil-fuel heavy, old or donated ships. But is the vision of a revitalised Pacific maritime industry a real possibility? Or is it just too much to expect of our small island capacities?

In 2016 Australia announced a $2 billion package to replace the aging Pacific-class Patrol Boat fleet. Of this, $700 million was to build 21 small ships – the new Pacific Guardian Class. The other $1.4 billion was for training, fuel and maintenance of the vessels over their lifetime. The first of Fiji's vessels, the RFNS *Savenaca*, arrived last month.

Such aid is, of course, welcomed and needed. This fleet of patrol vessels greatly increases the Pacific's capacity to protect its borders, police its fisheries and assist in disaster and emergency events. But did we miss an opportunity to build a sustainable maritime support industry inside the region?

Of course, one reason for our Australian cousins offering this particular package was in self-interest. Australian has been successfully building a leading naval construction industry for some time and they were between contracts. But initially there was no local interest when the Australian government tendered for the Pacific Guardian class fleet. Australian yards are fully geared to building high-end naval warships and support componentry – submarines, frigates, littoral support vessels. But what if this bilateral aid package had been integrated into a programme to revitalise and rebuild a Pacific-based sustainable industry in the Pacific? An initial contract worth over $1 billion to build and maintain 21 blue-water ships would not be unattractive to the Pacific's investment community, including the major development banks.

Of course, we would have needed to build an entire programme of capacity development and training around this, but how many long-term, professional career paths could we have created – shipwrights, welders, fabricators, marine engineers and electricians, naval architects? What would have been the downstream spin-offs to numerous small scale industries – from paint manufacturers and suppliers to maritime surveyors to the café owners and kava sellers of Walu Bay and Lautoka?

Would it really have been beyond our capacity as a small island economy to have risen to this challenge? Or was it simply that we weren't adequately prepared? After all, these are not overly complex vessels. The armaments aside, all the componentry from the motors to the bridge electronics are available off-the-shelf from multiple international suppliers. Even if we couldn't build the hulls, surely we could have taken on some of the fitting out?

Could we have attracted partnerships, for example with the newly opened and cashed up Maersk Mc-Kinney Møller Center for Zero Carbon Shipping, to train a new generation of Pacific boatbuilders? Regardless of pandemics, cyclones and climate, the Pacific will need to replace hundreds of small ships in the next 30 years. They are as much a basic requirement of island life as food water and shelter.

We missed the boat with the Pacific Guardian programme. Will we miss the next one? The Pacific Blue Shipping Partnership is an investment blueprint to support a paradigm shift for exactly this purpose. We have a wealth of technical and knowledge partners waiting to support us around the world, in governments, industry, agencies and leading universities. Is this an opportunity and a pathway we can afford not to take?

Emissions From Smaller Boats Need to be Addressed

Opinion

by Alison Newell

Alison Newell is a Director of Sailing for Sustainability (Fiji) Pte Ltd and the owner of the drua i Vola Sigavou. She is a Fiji-based expert in shipping emissions who has been undertaking research on domestic GHG emissions since 2008 along with the University of the South Pacific

There has been a lot of discussion in recent weeks about the allocation of Research and development (R&D) funding to support the decarbonisation of large ships as part of the COVID-19 economic stimulus responses around the world.

Countries such as Ireland, Norway, Denmark, Germany and others have announced multi-million dollar financing packages for zero-emissions or low-carbon vessel design and trials (for example United Kingdom's recent announcement of £400m for a Belfast-based project to develop zero emission, high-speed ferries *https://www.businessgreen.com/news/4017015/belfast-zero-emission-ferry-project-gbp400m-uk-government-funding-winners*).

There has also been discussion on how Fiji could position itself as the regional maritime transport "hub" for new maritime technologies and service the larger vessels from neighbours (Fiji Ship and Heavy Industries Ltd recently mentioned discussions that have been held with Marshall Islands Government which has vessels that aren't operating at the moment as they can't be repaired in-country, for example).

However, there has not been a lot of discussion about what actions Fiji can take to address the emissions from the smaller boats that make up the vast majority of the domestic fleet, and are likely to make up the vast majority of emissions from the sector (outboard motors).

As the economic impacts of COVID-19 bite, households and businesses are facing financial hardship. It's obvious that this situation is going to last for some time, and well into 2021. In recent weeks I've heard of a steep decline in the use of village boats as money for premix has been in short supply.

Price shocks

The prices of premix have fluctuated wildly in recent months, reflecting the global oil prices which crashed to negative earlier in the year, but have risen again since. The Fijian Competition and Consumer Commission (FCCC) last week announced an increase of 18 cents/litre up to $1.47/litre for premix (it was over $2/litre in February).

The point here is that Fiji is extremely vulnerable to price shocks because of the fuel being imported and affected by global crude oil prices. And this impacts at the household and village level.

This is nothing new, and we know from past global oil crises that this impacts on the village. I was in Kadavu in 2008 when premix price increases led to reduced frequency in healthcare checks for pregnant women, and kids being taken from school as the cost of transporting the daily rations by boat were too much for villagers to pay.

So what can be done to ensure that local connectivity is not reduced in these hard times, and to make sure that our island and coastal communities are still able to move people and goods by small boat?

Options available

We need to look at the options available which require less or no fossil fuels. Sailing canoes are an obvious solution and the *Uto ni Yalo Trust* has been instrumental in efforts to revitalise the use of small sailing canoes for fishing communities.

The wind is still free, and whilst perhaps "unreliable" in some situations, when the breeze is good, then provides an invaluable resource that we're not taking full advantage of. Recent research in Marshall Islands showed that a sailing canoe used for fishing could save over US$3800 a year of fuel when compared to an outboard-powered boat.

Most of the outboards used in Fiji today are 2-strokes. Whilst comparatively cheap and easy to maintain, they are fuel hungry and the least efficient type of small motor.

Four-stroke outboards are considerably more efficient and fuel savings over time can make up for the higher purchase cost, but we need more trained mechanics who can access spare parts and fix these more complicated motors.

Another solution available today is to switch to electric outboards which are commercially available around the world. But we need significant investment in capacity building so that these motors can be maintained and repaired in Fiji. We need fiscal policies that can reduce the comparative costs of purchase (for example a new 30HP electric outboard motor and rechargeable batteries and charger can be purchased for US$23,000, compared to a to-stroke at US$3,300).

Some of this can be achieved by removing the current 32 per cent fiscal duty on Lithium ion batteries, but it will also require access to low interest loans for people to access to make that upfront investment, and in time putting in place fiscal policy that recognises the pollution caused by two-strokes (ECAL policy is in place for cars but not for boats) e.g. imposition of import and fiscal duties for two-strokes.

In the meantime, it's time to teach our kids to build and sail small boats, then at least they will have the skills and options available to them in the future which will mean they can still move around by sea without the need for outboards.

Preventing the Popping of The Bula Bubble

Analysis

By Andrew Irvin

■ Andrew Irvin is the University of the South Pacific (USP) Project Officer for the Cerulean Project at the Micronesian Center for Sustainable Transport

As of June 8, New Zealand was able to confirm no active COVID-19 cases, and has moved toward the next step in economic recovery. Fiji has provided a similarly commendable response to COVID-19 in light of the global pandemic, and has been able to contain cases in the limited instances they have arisen.

However, from the perspective of domestic resources available to address public health concerns, as well as economic reliance on inbound flights and foreign exchange providing contributions to domestic GDP, Fiji and New Zealand are in profoundly different situations, despite a superficial similarity in COVID-19 containment and response.

Bula Bubble

Understanding the primary considerations for economic sustainability and success in the event of a "de-globalised" economy will be paramount to the successful implementation of a "Bula bubble." Fiji is in a position where it may explore the opportunity to provide many of the natural resources required by its Melanesian, Micronesian and Polynesian neighbours.

As per 2018 figures from the Observatory of Economic Complexity (OEC) reveal, Fiji is responsible for export values totaling; US$15.1m to Cook Islands, US$445k to FSM, US$17.9m to Kiribati, US$1.5m to the Marshall Islands, US$3.58m to Nauru, US$203k to Niue, US$815k to Palau, US$23.6m to PNG, US$26.8m to Samoa, US$15.5m to Solomon Islands, US$17.1m to Tonga, US$20.1m to Tuvalu, and US$29.7m to Vanuatu.

This equates to US$172.34m of intra-regional trade outbound from Fiji of the US$951 in total exports recorded under similar OEC methodology. Much of this trade value is re-exporting goods brought into the region through Fiji (chief among these items are refined petroleum products, of which Fiji logged US$612m in imported value in 2018.)

This diminishes the overall economic benefits to the domestic economy relative to the value of goods.

Restrictions

So how might Fiji ameliorate trade imbalances and vulnerability to the greater market movements in the global economy? We are currently seeing the profound negative impacts of travel restrictions and the pitfalls of heavy reliance on a single sector – tourism – for economic growth and performance.

There are three evident paths Fiji may pursue towards improved economic performance and stability in the face of variables beyond the control of Pacific Island Countries; the first is rapid diversification of goods and services provided across the Fijian economy that can be soundly verified as Fijian-grown, and Fijian-made.

Two high-value exports Fiji currently sends to other PICs are tobacco products and processed baked goods – both of which are reliant upon imported agricultural resources.

Textiles are also produced in large quantities, but the required cotton sits alongside tobacco and wheat as an example of how Fijian industrial performance relies upon agricultural output of other nations.

This illustrates how industrial, economic, and trade activities in the region are inextricably entwined with domestic agroforestry policy and productivity.

Travel focus

The intra-regional travel focus of the Bula Bubble must be strengthened by protective layers of additional economic integration to prevent it from popping in the event of another crisis that shakes the global market.

This strengthening may be best exercised in consideration of the other two paths towards improved economic performance; decarbonization and resource recovery.

Decarbonisation is the route through which the current fuel bill the region is slapped with each year can be drawn down and trade imbalances between the Pacific Island Countries and broader global market can be corrected.

Pacific Blue Shipping Partnership

The Pacific Blue Shipping Partnership is poised to deliver a paradigm shift in how maritime industry and trade around the region operate, and the US$500m for this initiative, if delivering 40 per cent emission reductions to the maritime transport sector by 2030, would pay for itself in avoided fuel costs (in Fiji alone) in under 7 years.

Resource recovery is, at the core, the goal of good waste management and tracking material flows around the region.

SPREP and PRIF are currently in the midst of conducting detailed waste audits in countries across the Pacific to identify, characterise, and quantify waste being generated.

Findings

The findings will allow each country to analyse what materials and resources are being lost along the way, either to landfills or released into the environment as pollutants. With this data, the scale should

become apparent at which materials can be collected, centralised, and remanufactured into various products needed for households, commercial operations, and public infrastructure.

Regional Recycling Hub

The Regional Recycling Hub proposed by PRIF has garnered attention from private sector, and at least US$20m in financing may be channeled into building this industry at a domestic and intra-regional level, should Fiji choose to host the facilities and operations in-country.

Between the Pacific Blue Shipping Partnership and the Regional Recycling Hub, there are exemplary opportunities for Fiji to shape and augment the economic security of the region in the coming decade for the benefit of all Pacific Islanders.

Reduction of GHG Emissions Not in Budget

Analysis

by Alison Newell

Fiscal policy changes can also target GHS reduction.

■ Alison Newell is a Director of Sailing for Sustainability (Fiji) Pte Ltd and the owner of the drua i Vola Sigavou. She is a Fiji-based expert in shipping emissions who has been undertaking research on domestic GHG emissions since 2008 along with the Univ.

I am sure that a lot of Fijians have been going through the 2020-21 Budget and its associated fiscal and policy changes, looking to see what the Government has proposed in these challenging times.

Looking at the Budget from the shipping sector, there are a few key changes which should help with bringing down the costs of imported vessels, parts, motors, and associated materials and supplies.

There are also some missed opportunities, when you look at the Budget from the perspective of getting Fiji's shipping sector on a 1.5oC pathway and achieving the ambitious decarbonisation targets of 40 per cent reduction in Greenhouse Gas emissions by 2030 and 100 per cent by 2050.

It is a shame that this budget didn't consider how the fiscal policy changes could also target reduction in Greenhouse Gas (GHS) emissions at the same time as encouraging investment by the private sector, and the general public by dropping costs.The five per cent fiscal duty on imports of various types of ships, specialist vessels, floating structures has been removed, as has the 32 per cent fiscal duty on warships.

The Budget unashamedly is looking to attract investment and diversification, as well as providing support to the hard-hit tourism sector.

But the Budget is also encouraging spending on fossil fuel dependent asset, instead of taking this opportunity to incentivise green investment through levelling the costs of zero carbon options.

Some of the key changes that are positive include reducing the fiscal duty on Lithium ion batteries from 32 per cent to five per cent (these are key components of electric outboard and inboard motors for boats and make up a significant portion of the capex).

Sails have also had the fiscal duty dropped from 32 per cent to five per cent, again assisting in bringing down the cost of sails and therefore making retrofit of existing vessels where appropriate more appealing.

On the other hand, fiscal duties on marine diesels and semi-diesel motors were removed, making diesel engines cheaper as well, and on all types of outboard motors.

I have mentioned before that one of the easiest ways to cut Fiji's maritime transport emissions is by increasing fiscal and import duties on the least efficient 2-stroke outboards and making higher efficiency 4-strokes and electric outboards duty-free.

It is a shame that this Budget didn't consider how the fiscal policy changes could also target reduction in Greenhouse Gas (GHS) emissions at the same time as encouraging investment by the private sector, and the general public by dropping costs.

The five per cent fiscal duty on imports of various types of ships, specialist vessels, floating structures has been removed, as has the 32 per cent fiscal duty on warships.

Perhaps most encouragingly is the removal of the 32 per cent fiscal duty on life jackets and life belts.

Regardless of what types of ships Fijians invest in, dropping the price of essential safety gear was a great move.

Perceptions of Pacific Maritime Realities

Analysis

by Andrew Irvin

■ Andrew Irvin is a Project Officer-Project Cerulean Micronesian Center for Sustainable Transport. Email: andrew.irvin@usp.ac.fj

While researching the best ways to monitor and evaluate shipping operations in the region,

I've come across a range of documentaries portraying various aspects of Pan-Pacific sailing traditions.

This year, two films, *The Ocean Knows No Borders and LOIMATA, The Sweetest Tears*, have been publicised, lauding the trailblasing efforts of Tonga's Captain Aunofo Havea Funaki, and Aotearoan/Samoan Captain Lilo Ema Siope, respectively.

Both films cover topics around gender inclusivity in maritime tradition, the role of voyaging in understanding care and conservation of both marine and island spaces, and the legacy of sailing as a cultural foundation in the Pacific.

These two films join a litany of other beautiful seascapes brought to life in the documentaries such as Wayfinders: A Pacific Odyssey shot aboard the Hokulea with members of the *Ohana Wa'a*, and *We, the Voyagers: Our Vaka*, focused on the Vaka Taumako project in the Solomon Islands.

Compounded by the fictionalised Pan-Pacific depiction of Oceania brought to bear in Disney's 2016 animated feature, *Moana*, the world beyond the Pacific Island Countries receive a stilted, romanticised selection of what Pacific seafaring truly entails.

It does not aid efforts to draw attention to the dramatic need for overhaul and revitalisation of the shipbuilding and seafaring capacity of Pacific Island Countries and the vessels operating in their waters.

While the efforts of the Ohana Wa'a, Vaka Taumako Project, Waan Aelon in Majel, The Drua Experience, and other cultural heritage programmes represent the resurgence in traditional navigation, seafaring, and shipbuilding efforts around the region, the impact they have on cultural perception vastly outscales the current capacity of sailing vessels to provide the necessary cargo capacity and passenger carriage between islands domestically and intra-regionally.

Whereas over a century ago, sailing vessels made up the vast majority of all trade and travel within Oceania, the steady subsuming of these traditions by steam and screw have quietly placed the region under reliance on ships built elsewhere operated on imported fuel.

Pacific Trade

Pacific trade autonomy and sustainability have been slowly, steadily replaced with reliance on global supply chains and manufacturing/refining capacity that cannot be matched within the region in a cost-effective manner under the existing economic paradigm.

By ticket sales and television spots, traditional vessels are represented in global media, and help drive an image of exoticism and novelty held by many in the developed markets whose citizens have previously contributed immensely to the tourism revenue of the region on an annual basis.

While tourism is hampered and the global market is constricting, how may the region address the absence of sailing vessels in addressing the tonnage and travel needed within Oceania?

The lessons learned over past centuries provide foundations for conducting inter-island/intra-regional trade without reliance on oil imports and global market forces.

The lessons learned over past centuries provide foundations for conducting inter-island/intra-regional trade without reliance on oil imports and global market forces.

This means planning now for decades to come in terms of seafaring and shipbuilding training, as well as material resourcing for vessels at all needed scales.

This ranges from planting the trees now to build wooden vessels required in 2050, to securing steel and aluminum supplies with sufficient foundry operations to meet the needs of larger vessels, and renewable energy supplies for construction and fueling these ships.

This is why the Pacific Blue Shipping Partnership has been developed for deployment at the earliest opportunity.

In light of the recently announced 2020-2021 Budget, reductions in tax across the transport sector were almost universal, and almost entirely uniform in proportional distribution of rate reductions.

This means there are no relative up-front savings accrued from investing in low-carbon, low-emission technology.

This means, in effect, low CAPEX vessels remain low CAPEX, regardless of how high the recurring operational costs may be.

As a consequence, this reduces the tax revenue generated to maintain a "business-as-usual" market scenario, which does nothing to improve operational efficiency, safety, or security in the national fleet.

It also does nothing to incentivise the restoration and improvement of tourism appeal in the domestic sea transport offerings.

There is a reason travel documentaries and promotional footage for businesses and productions are shot on-board the *vaka*, *proa*, and *drua* now sailing Pacific waters instead of highlighting the backed up sinks and overflowing toilets of the ferries between Viti Levu and Vanua Levu.

There's no glamour in the sea transport realities for most of the travelers requiring passage between islands – just a proliferation of sanitation issues, occupational health and safety violations, and Maritime Safety Authority of Fiji (MSAF) infractions.

For an island nation with a storied tradition of maritime excellence, it is reasonable to expect the realities rise to meet the perceptions, and domestic sea transport be delivered at a standard that tourists expect, and citizens deserve.

Analysis

by Andrew Irvin

Lack of Domestic Shipping Data, A Worry

■ Andrew Irvin is the University of the South Pacific (USP) Project Officer for the Cerulean Project at the Micronesian Center for Sustainable Transport.

Last week, the International Maritime Organisation (IMO) released its fourth IMO Greenhouse Gas (GHG) study Reduction of GHG Emissions From Ships, alongside other Marine Environmental Protection Committee (MEPC) documents on harmful aquatic organisms in ballast water and preliminary data on fuel oil quality/availability as it pertains to air pollution prevention (both in the interest of MARPOL Convention compliance).

GHG emission trends

In regard to GHG emission trends, the International Council on Clean Transportation (ICCT) summary of the startling findings.

Meanwhile, the IMO methane emissions have grown across the sector by 150 per cent from 2012-2018, a non-trivial contributor to the 10 per cent overall increase during the same period.

Methane, by weight, has 25 times the global warming potential (GWP) of carbon dioxide over a 100 year period.

As only carbon dioxide emissions are currently limited under IMO's Energy Efficiency Design Index (EEDI) regulations, this alarming trend illustrates both the need for amendments and updates to the global regulations, as well as a clear understanding by both national and industry bodies that Liquified Natural Gas (LNG) and Liquified Petroleum Gas (LPG) are not appropriate "transition" fuels.

Coupled with a 12 per cent increase in black carbon emissions – largely attributable to heavy fuel oil – the immediate need for massive research and development efforts to provide a pathway for alternative low/zero-emission fuels to be deployed on a global scale cannot be overstated.

When these emission increases are considered alongside the diminishing returns on fuel efficiency noted across the maritime transport sector since 2015, with only 1-2 per cent improvements gained per annum, it becomes clear the rapid adoption of technologies already available to increase operational efficiency should be urgently promoted through investments in both newly built and retrofitted vessels.

Why waste money and blow through more of our carbon budget than necessary while measures are put in place to broaden and mainstream alternative fuel production and distribution across the global supply chain?

Container vessels Capitaine Quiros left and Granda Carrier berth at the Suva wharf on August 7, 2020. *Photo:* Ronald Kumar

We know measures can be taken now to accrue significant savings for Pacific Island Countries in the short/mid-term while rallying around a unified message for the Shipping High Ambition Coalition (SHAC) in the IMO.

This is the rationale taken by MCST in its work on behalf of the Government of the Marshall Islands with SHAC members around the region – including Fiji – in partnership with a number of diplomatically aligned efforts by European nations. With the COP-23 presidency, Fiji was able to broaden awareness of the national-level responsibilities to reduce emissions.

However, because of the enormity of the undertaking (and the associated logistical requirements), the meeting was hosted in Bonn, Germany.

The resources required to make a compelling case for urgent diplomatic action on our global climate response are substantial – and a physical presence for proceedings at the IMO is annual, has customarily taken place in London – a high-cost locale on the far side of the planet from Oceania.

Now, Glasgow's COP-26 has been postponed until November, 2021, due to COVID-19 issues.

It was decided to defer on taking action for a year while nations try to respond to pandemic instead of being taken online from locations globally for proceedings on the record, which would allow reduction in emissions and more rapid response.

Meanwhile, the International Civil Aviation Organisation's (ICAO) efforts to implement CORSIA – the new global market-based measure for quantifying, validating, and valuing carbon emission offsets from international air travel – was struggling to find adequate agreed implementation and structural support prior to the sudden constriction of the aviation market.

As neither COP26 nor ICAO have moved to digital, decentralised convening of these dialogues, there is an opportunity for Fiji, other Pacific Island Countries, and broader SHAC members to convene these IMO dialogues remotely going forward, for the sake of both cost and emissions savings.

Maritime shipping has not seen the same reduction in service, volume, or frequency that the aviation sector has.

Crew change issues abound over health and labour considerations. World Food Programme's *Pacific Logistics* Cluster weekly bulletin notes Fiji's cargo volume has dropped 11-15 per cent and services are continuing in accordance with regional quarantine requirements.

As Professor Tristan Smith, MCST Partner at UCL Energy Institute recently summarised regarding the fourth IMO GHG Study, approximately 30 per cent of the steadily arising emissions can be attributed to domestic operations, with around 70 per cent falling under the responsibility of IMO regulations.

Using hourly Automatic Identification Systems (AIS), voyage-based emissions can be estimated for international shipping voyages, but domestic shipping data is lacking. Professor Smith said regarding data on our trajectory to halve emissions globally by 20 per cent "...none of that is at all reassuring, respective of trying to do our best to reach a 1.5 degree target. It's a trend that is going completely in the wrong direction."

Initiatives Bring Ray of Sunshine

Analysis

by PETER NUTTALL

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Center for Sustainable Transport..

I want to share a number of disparate updates.

The first is in regard the lessons for shipping coming out of the COVID pandemic. For the maritime sector this has many and serious considerations.

The most immediate is the situation of international crews and their access to and from vessels due to health movement restrictions around the world.

For the Pacific this is still affecting a wide range of mariners, including cruise liner staff marooned aboard ships in United States (US), fishery observer staff uncertain of their futures monitoring Pacific tuna fleets as well as Kiribati and Tuvaluan crews on international fleets around the world.

Domestically the virus has hit the local sector hard. A large portion of Fiji's merchant mariners had been invested in the tourism and hospitality sectors.

Local freight and passenger operations have all seen marked downturns. It is difficult to see any long term relief within the sector without the introduction of a global vaccine program.

Despite this, a clear emerging lesson is the just how essential shipping is to Fiji and every Pacific nation for basic connectivity, both international and domestic.

Being without air connection in time of global crisis is extremely frustrating and highly damaging for national economies.

Air movements in the Pacific have crashed to near zero since March and aren't expected to resume to commercially sustainable levels anytime soon.

This is indeed a crisis.

But, by and large, shipping has continued to provide regular and adequate service across the Pacific, on both international and domestic routes. If they failed it really would be a travesty of unprecedented proportions.

Some liner services have seen reduced services and lower overall rates of imports, there have been some delays and additional charges.

Japanese bulk carrier *MV Wakashio* leaking hundreds of tonnes of heavy fuel oil.

But in essence the food and basic import/export needs of the Pacific have been met so far under pandemic conditions.

This is no small feat, especially for small nations heavily dependent on food, fuel and basic good shipments from outside the region.

The other ray of sunshine in an otherwise gloomy forecast has been the Blue Lane initiatives by the Fijian Government to see some small number of cruising yachts enter Fiji.

While still only a fraction of past years, this lifeline is enough to give this sector a glimmer of hope and keep core staff employed in marinas and related businesses.

With the America's Cup organisers pledging to race in NZ 'come hell or highwater', we can expect an increasing stream of superyachts to pass through Fiji.

The Blue Lane exercise now gives government the opportunity to demonstrate it has adequate safety precautions in place to welcome cruisers in.

Assuming the Blue Lane can consistently prove a reliable border, a strong cruising season for Fiji in 2021 looks increasingly likely.

While maritime tourists are only a small percentage of overall numbers of tourists to Fiji pre Virus, they are a high returning sector, often staying for several months and contributing directly to village and remote island communities' income.

This has to be a good thing economically and the yachting sector is a clear example of the type of sustainable tourism Fiji needs to be investing in for the future.

It is time though for the government to work out a system for allowing the commercial ships from the region into Fiji waters for essential slipping and servicing.

Many of our neighbours rely on Fiji as the regional service and haul-out center for their vessels.

The crews of these ships are normally in country for weeks and months at a time anyway.

If travel is between Pacific states that are already COVID free, such as Fiji, Samoa, Tonga, Marshall etc., a protocol to allow crew to safely bring in ships for service in Fiji must be possible.

How successfully the IMO can organise virtual meetings is unclear. Informal IMO meetings held last month saw Pacific delegations trying to follow five nights of intense debate between 11pm and 3am.

This places enormous strain on our already overloaded civil servants. It's hard enough when we have the smallest and least resourced delegations in the room anyway.

But when you have to spend your nights negotiating on a Zoom link to London and still go to your day job it quickly becomes exhausting.

In this electronic age it must be possible for IMO to organise such meetings so they do not disadvantage the voices of the small and climate most vulnerable.

And finally there has been the heartbreaking pictures from Mauritius as a totally unnecessary oil spill disaster unfolds with the Japanese bulk carrier *MV Wakashio* leaking hundreds of tonnes of heavy fuel oil into the fragile coral ecology.

A cruel reminder of just how vulnerable small tropical states are to the mistakes of large trading nations.

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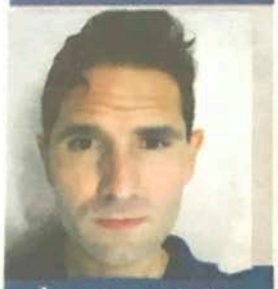
Investing in Alternate Sustainable Shipping Fuels

Analysis



by ANDREW IRVIN

Inter-island vessel *Spirit of Love*.

■ Andrew Irvin is the University of the South Pacific (USP) Project Officer for the Cerulean Project at the Micronesian Center for Sustainable Transport.

What should economy recovery look like in Fiji and the Pacific following the abatement of the COVID-19 pandemic?

Knowing climate-related pressures will continue to mount, even as health concerns may be resolved, energy independence for the region should persist as a priority of increasing relevance.

Pacific economies

The degree to which Pacific economies are both exposed and vulnerable to global market forces has been laid bare in the last twelve years by both the volatility of fossil fuel prices (and the ripple effect across other commodities), and the recent restrictions on global travel.

In previous editorial instalments, the relevance of diversifying Fiji's economy has been touched upon; the necessity of coordinating agro-forestry and industrial policy, applying research and development in aquaculture, adding value to export products, and meeting domestic needs sustainably and locally.

Geothermal Energy

But how is Fiji to provide the necessary energy resources to foster and redirect domestic economic activities?

Fortunately, since 1956, a series of geological surveys have been undertaken in Fiji, and the Savusavu area of Vanua Levu has been repeatedly recorded as having the strongest potential for geothermal energy generation, last estimated to range between >8-18 Megawatts, alongside an additional >8-21MW from other sites around Vanua Levu.

Generation capacity

To put this in perspective, as per current public Electricity Fiji Limited (EFL) data, the total installed generation capacity of Fiji's grid is approximately 237MW, 120MW of which comes from hydropower resources on Viti Levu, with 20MW of electricity generation capacity shared between Vanua Levu and Ovalau.

Alternative fuels

As research and development concerning alternative sustainable shipping fuels progresses around the world, options under consideration include electrification (now being employed largely by a number of ferries operating over relatively short distances), as well as hydrogen fuel cells, and liquid ammonia.

Investment

Unless Pacific Island Countries are poised to invest in the production and storage of these low-carbon fuels, the next generation of maritime transport will leave the region even further behind the curve in terms of both decarbonisation and ability to provide shipping services to the widely dispersed population.

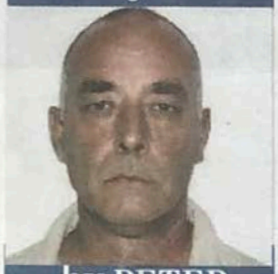
Supply chain

Ammonia, hydrogen, and electrical energy are all currently far more difficult to store and transport than fossil fuels, so independent power production must be accounted for in the economic development planning of Pacific Island Countries with mid to long-term logistics and supply chain demands in mind.

Feedback: wati.talebula@fijisun.com.fj

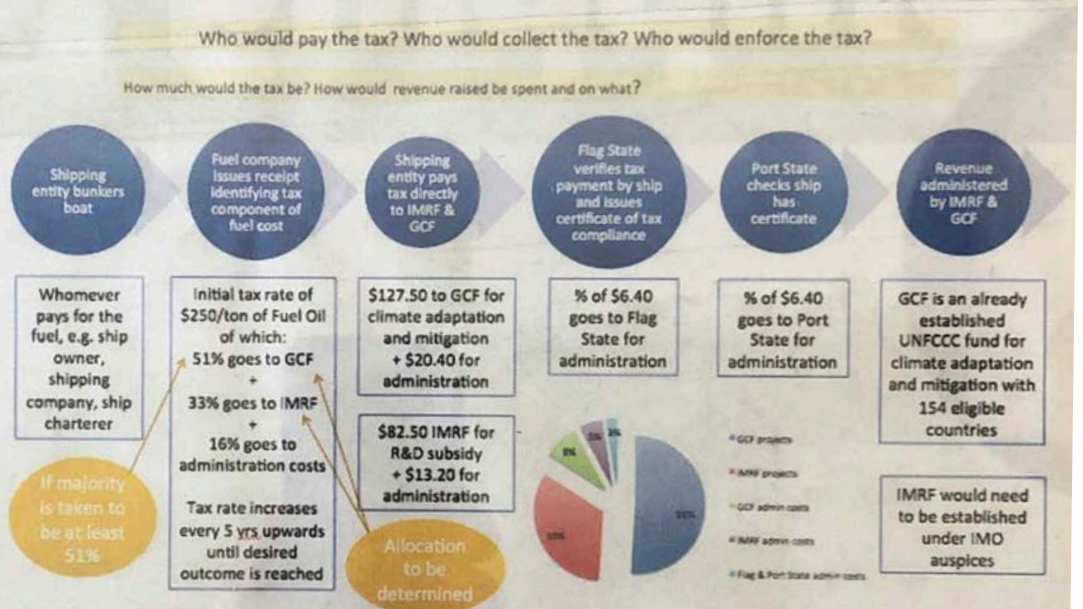
Ships Shifting To Liquefied Natural Gas

Analysis



by PETER NUTTALL

■ Peter Nuttall is the University of the South Pacific Scientific and Technical Advisor at the Micronesian Centre for Sustainable Transport based in Suvat.



Last month a consortium of six world-leading research centers came together to release the 4th IMO Greenhouse Gas Study. Analysing the total emissions of global shipping since 2014, the report showed a number of alarming trends.

Of prime concern is that shipping emissions continue to rise; now just under 3 per cent of all global emissions, and that methane emissions, reflecting the shift of some shipping to liquefied natural gas (LNG), has increased by more than 150 per cent.

It's been five years since the Marshall Islands led a strong and unprecedented Pacific mission to the International Maritime Organisation to demand shipping begin to decarbonize commensurate with a 1.5oC agenda. In 2018, IMO member states celebrated agreement on an Initial Strategy to reduce shipping emissions. The target of at least 50 per cent reduction by 2050 set by IMO is only half of what is needed for a 1.5oC pathway, but we all agreed it was a good start for an industry that has lagged behind most others.

But the nearly 700 pages of the 4th GHG report is sobering reading. There is no sign yet that the industry is anywhere near plateauing its emissions profile, let alone reducing. Progress, glacial though it was pre-COVID, has now come to a creaking halt. The IMO will hold an extraordinary e-meeting of all its committees in two weeks to try and get agreement on continuing the negotiations under some form of virtual meeting structure.

But for small country states, the climate most vulnerable, this is not good news. Our research since 2015 clearly shows that ou states are already heavily disadvantaged i IMO meetings and processes. E-meetings wil be scheduled around London meeting times meaning our delegations will have to wor through the night to just participate.

The IMO, never the most agile of institu tions, has no clear processes for virtual meet ings.

■ TO BE CONTINUED NEXT WEEK

Drua Trainer Plans On Home Voyage

Analysis

by Alison Newell

■ Alison Newell is a Director of Sailing for Sustainability (Fiji) Pte Ltd and the owner of the drua i Vola Sigavou. She is a Fiji-based expert in shipping emissions who has been undertaking research on domestic GHG emissions since 2008 along with the University of the South Pacific.

Captain Setareki Ledua is a young man with a mission: to reinvigorate traditional knowledge of Fijian boat building and seafaring.

Having grown up in Vulaga, he sailed to Suva back in 2003 for his high school education on the *Tai Kabara*.

Over the past few years he has been sailing on canoes across the Pacific, trained as a traditional navigator, and since 2016 has been crew and then captain of *i Vola Sigavou*, the drua we built and launched in Navua.

Since 2018 he has trained over 300 Fijian youths on Viti Levu in the history of *drua*, having developed a drua sail training programme based on both theory and practical sailing lessons on *i Vola Sigavou* with the financial support of IUCN and the US embassy.

Now Setareki Ledua plans to undertake an historic voyage and sail *i Vola Sigavou* over 250 miles from Vuda, where the drua has been for the past year, back to the Lau, an epic undertaking.

Canoe culture

Canoe culture underpins history, iconography, heritage and connectivity across Oceania.

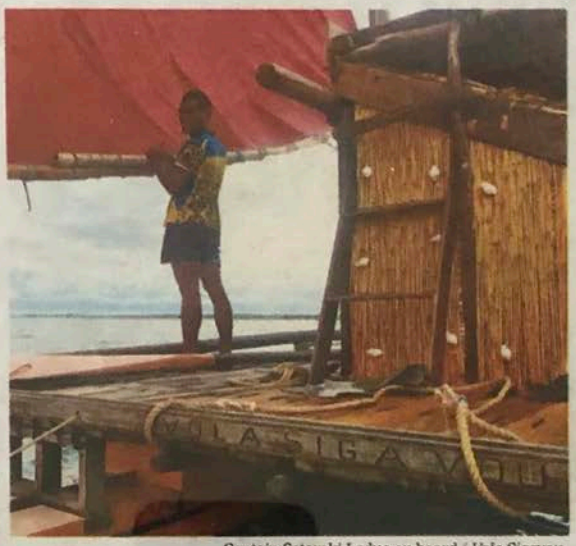
True canoe knowledge has faded over time in Fiji with only a few communities holding the fragile remnants of these traditions.

My family built *i Vola Sigavou* as an experiment, to see if we could create employment for Fijian mataisau in today's modern economy, and for the past four years have managed to do just that as Drua Experience.

However, with the economic collapse of the tourism market, this is no longer feasible right now.

So we have decided that it is the ideal time to support Seta's dream to sail *i Vola Sigavou* back to the drua's traditional home of the Southern Lau.

As far as we know, this is a voyage that has not been undertaken in probably 100 years.



Captain Setareki Ledua on board *i Vola Sigavou*.

Seta's vision is to both record the knowledge held by the women of the Lau of sail making (something that has been poorly researched to date) and to give the youth of the most remote communities in Fiji an opportunity to learn about their boat-building heritage and to have practical experience of sailing on a drua.

The voyage will also raise awareness of Fijian seafaring heritage and Seta plans to make a documentary film of the journey.

Voyage

This he sees as a first step on a longer journey to set up a traditional boat building school in the Lau.

The voyage is one of celebration, a salute Fiji's seafaring heritage and boat building prowess.

It is also one of reconnection, Seta's ancestors built the Ratu Finau (the drua housed in Fiji Museum that was the model for *i Vola Sigavou*) an be expected, the planned voyage is generating a lot of interest, and I'm delighted that key figures in Fiji's sailing world are already offering their patronage.

I'm also hoping others will come in to support Seta, whether that is by donating cargo the *drua* can carry (e.g. sports or school equipment for villages en-route), by offering their skills, or by making a financial contribution to help cover the costs of the voyage.

Seta has set up a GoFundMe page for anyone who is able to provide some financial support.

Now, more than ever, Fiji needs to be celebrating its strengths and resilience – and what could be more fitting than a young Fijian sea captain sailing his *drua* back to his home village and back again, sharing the experience with communities along the way? If anyone is interested in supporting Seta achieve his dream and undertaking this epic voyage, please get in touch via *Facebook or Instagram (@DruaExperience)*.

True canoe knowledge has faded over time in Fiji with only a few communities holding the fragile remnants of these traditions.