

MARITIME TECHNOLOGY COOPERATION CENTRE IN THE PACIFIC (MTCC-PACIFIC)

CAPACITY BUILDING FOR CLIMATE MITIGATION IN THE MARITIME SHIPPING INDUSTRY
THE GLOBAL MTCC NETWORK (GMN) PROJECT

SOLOMON ISLANDS NATIONAL WORKSHOP ON ENERGY EFFICIENT OPERATIONS OF SHIPS

Honiara, Solomon Islands

13-15 February, 2018



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EXECUTIVE SUMMARY

The National Workshop on Energy Efficient Operations of Ships was held in Honiara, Solomon Islands from 13 – 15 February 2018. The meeting was coordinated and facilitated by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific) and attended by representatives from the Solomon Islands Maritime Safety Administration (SIMSA), Solomon Islands Ports Authority (SIPA), Solomon Islands Women in Maritime Association (SIWIMA) and Solomon Islands Maritime Transport Association (SIMTA), and in particular their ship owner/operator members including Anolpha Enterprises, Franjti Shipping Company Limited, Isabel Development Company, Island Marine and Mechanical Engineering Contractor, Nofokava Transportation Logistics and Small Malaita Shipping Company Limited. The list of NW participants is attached in Annex 1.

The purpose of the workshop was to gain the Solomon Islands government, the maritime administration, ports authority, women representatives and ship owners and operators to agree on measures to improve energy efficiency of shipping in the Solomon Islands and provide them with technical tools to progress toward energy efficient operations of ships. The national workshop agenda is attached in Annex 2.

The workshop was held in two parts; the first day consisted of discussions on the initial Drivers-Needs-Barriers-Actions (D-N-B-A) Matrix to identify what is important to local ship owners. Then a comprehensive coverage on of shore to ship interactions was presented. The second part consisted of technical matters relating to Ship Energy Efficiency Operations (SEEO); climate change, greenhouse gas emissions and Shore to Ship Energy Management measures. There was capacity building on the Energy Efficiency Design Index (EEDI), Energy Efficiency Operational Indicator (EEOI), Ship Energy Efficiency Management Plan (SEEMP) and the overarching Pacific Islands Domestic Ship Safety (PIDSS) programme and potential technologies to reduce and improve energy use performance e.g. Propeller Boss Cap Fins (PBCF), Light Emitting Diodes (LED), Waste Heat Recovery System (WHRS) and such.

This culminated in the closing group discussion to finalise feedback from the participants, SIMSA, SIMTA and SIWIMA representatives. A very informative update was provided by the CEO of SIPA highlighting the positive outcomes from energy management measures and the savings that had already been achieved as well as the enthusiastic commitment to making SIPA the most Green Port in the Pacific.

The national workshop participants then agreed to implement relevant actions to progress towards Green Maritime Industry (ships, shipyards and ports) in the Solomon Islands in order to support a long-term objective for low-carbon maritime transport and contribute to the reduction of GHG emissions in Solomon Islands and the Pacific. The NW Outcomes Document is attached in Annex 3.

All NW presentations are attached in Annex 4 in consecutive order as outlined in the Agenda.

INTRODUCTION

The National Workshop on Energy Efficient Operations of Ships was held in Honiara, Solomon Islands from 13 – 15 February 2018. The meeting was coordinated and facilitated by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific) and attended by representatives from the Solomon Islands Maritime Safety Administration (SIMSA), Solomon Islands Ports Authority (SIPA), Solomon Islands Women in Maritime Association (SIWIMA) and Solomon Islands Maritime Transport Association (SIMTA), and in particular their ship owner/operator members including Anolpha Enterprises, Franjti Shipping Company Limited, Isabel Development Company, Island Marine and Mechanical Engineering Contractor, Nofokava Transportation Logistics and Small Malaita Shipping Company Limited. The list of NW participants is attached in Annex 1.

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The national workshop provided capacity building in the areas of ship energy efficiency operations (SEEO), operational measures (SEEO), management plans (SEEMP) and systems (SEEMS). However, the key Pilot Project on SEE is based on the critical need for data collection (DC). The significant 'Outcome' process and resulting document was developed to enrol and enhance the local Solomon Islands maritime sector and reinvigorate the Maritime Transport Association (SIMTA). Its membership of ship owners agreed to provide the essential baseline data on fuel consumption for up to six months in order to gain an understanding of where they are now and then determine what could be done to improve SEE, reduce fuel, costs and greenhouse gas emissions (GHGE).

This ultimately fulfils the vision of the International Maritime Organization (IMO) implemented and European Union (EU) funded Global MTCC Network (GMN) for climate change mitigation established to assist the maritime transport sector of Small Island developing states (SIDS) and least developed countries (LDC).

A media release was sent out at the end of the workshop noting the commitment of the participants to address issues affecting domestic shipping in the Solomon Islands, taking into consideration the need to contribute to national efforts in reducing GHGE, and with the view to operate ships more efficiently and implement energy efficient measures. Several tweets/retweets and posts/re-posts were also sent out on social media. Attached in Annex 7 are examples of communication and visibility activities that took place during the workshop.

Group Discussions (*Dr. M. A. Zullah, Maritime Industry Energy Efficiency Officer, SPC*)

The facilitator opened the floor for discussion and the following notes were recorded:

- The stakeholders (ship owners) present in this NW were receptive to the concept of energy efficient operations of ships (SEEO) confirming that shipping is vital to the Solomon's hence it is important that all shipping operators are involved in SEEO, not only for local inter-island shipping but also tourism, fishing industries and international shipping (that come into the Solomon Island's two international ports- Honiara and Noro).
- MTCC-Pacific's initiative is beneficial in that it draws all operators together. There is an existing Solomon Islands Maritime Transport Association (SIMTA) and representatives present were very keen to revive and inform the association members about MTCC-Pacific. MTCC-Pacific expressed its desire to formally present to SIMTA and provide tools to develop/improve energy management of vessels.

- MTCC-Pacific is here to assist the SI maritime sector in achieving the primary objective of reducing GHGE. However, it acknowledges the critical need for relevant and accurate data collection (DC) that will establish the base-line to fulfil this primary objective.

Ship Energy Efficiency Operations (SEEO) Challenges & Ship Owner Issues with reference to the Drivers-Needs-Barriers-Actions (D-N-B-A) Matrix *(Mark Davis, Transport Greenhouse Gas Adviser, SPC)*

The Drivers-Needs-Barriers-Actions (D-N-B-A) Matrix was developed from three previous NWs held at various fora over the last 14 months, including a submission by the Acting Director of SIMSA; and was used as the basis for the following discussion.

Group Discussion:

- The SI contribution to GHGE from the domestic vessels are assumed to be very low compared to international vessels that come to their ports and emit air pollution from heavy bunker fuel.
- Participants felt that their needs to be studies on the GHGE from land transport as well. SIMTA will put forward recommendations to MID to conduct studies on determining the GHGE from land transportation and later compare it with the data collected by MTCC-Pacific from domestic vessels.
- Typically, the ship will take on board enough cargo to make its voyage economical before it leaves the port (on an average it takes a week for the biggest cargo ship to meets its revenue target). The loading of cargo is based on meeting the revenue target rather than on the loading capacity or being efficient (saving fuel).
- The PIDSS audit in SI is at the stage of measuring progress in maritime safety.
- Influencing domestic vessels to implement MARPOL and use the best tools for progress in domestic ships has not been a priority.

Energy Efficiency Operations Indicator (EEOI) on Data collection:

- The project will initially commence with the collection of fuel oil consumption (FOC) data. Templates for this have been developed by MTCC-Pacific. The data serves to provide MTCC-Pacific with a way of quantifying GHGEs and will be used to build a baseline to enable the design of suitable technology and operational activities that will assist in reducing GHGEs.

Matrix of Drivers, Needs, Barriers and Actions (D-N-B-A).

Drivers	Needs	Barriers	Relevant action
<i>Solomon Islands National Workshop on Energy Efficient Operations of Ships, Honiara, Solomon Islands, 13-15 February 2018</i>			
Capacity Building (C-B) e.g. HR Development and Awareness of Training opportunities	HR development More and better training institutions	<ul style="list-style-type: none"> • Lack of higher (only up to Class 4) crew qualification • No idea about PIDSS program (for non-participating vessels) • Insufficient resources 	Building an adaptive capacity that will ensure application of EE measures on board domestic vessels
Costs of energy	<ul style="list-style-type: none"> • Baseline DC to show reduction in fuel oil consumption (FOC) • Pacific Regional bulk purchase of fuel 	<ul style="list-style-type: none"> • Transition costs for additional or change of equipment • No SOPs and standards set for SI fleet • Insufficient financial resources (low per capita income) 	<ul style="list-style-type: none"> • Implement safety & energy management with the support of SPC (MSA, PIDSS and MTCC-Pacific) • Improve practices & implement Ship Energy Efficiency Management Plan (SEEMP) under the PIDSS program
Improve profitability of ships, reliability and efficiency of domestic shipping	<ul style="list-style-type: none"> • Appropriate/relevant legal, regulatory and technical measures adapted to the size of the vessels and the capacity and resources of SI shipowners • Training on safety, efficiency including ship energy efficiency (SEE), etc. • Reduced competition that can compromise safety, efficiency and reliability of shipping services • Reduce lost time for berthing 	<ul style="list-style-type: none"> • Under-regulation & not locally adapted • Measures are often adapted to vessels of more than (>)50m while most of domestic vessels are under this size & old • Unfair competitive advantage for shipping/transport grant under [MID Central Project Implementation Unit (CPIU)] owners 	<ul style="list-style-type: none"> • Implementation of measures adapted to the Pacific domestic fleet • Control domestic fleet tonnage and pre-inspection/limitation for vessels purchase overseas • C-B of ship operators and crews on SEE measures and practises • Infrastructure development in outer islands to facilitate domestic shipping
Legislation, Regulations and standards for domestic ships including safety, training, pollution prevention and efficiency	<ul style="list-style-type: none"> • Create awareness of SIMSA and its regulations • Awareness of Maritime Compliance through mainstream media • Regulate traditional wooden boat building in regards to safe construction and operations 	<ul style="list-style-type: none"> • High cost of dry-dock facilities (4) • Lack of port control in outer islands to foster fair-trade between domestic vessels • Lack of support to provide information and technical tools on energy efficiency 	<ul style="list-style-type: none"> • Availability of new equipment & more affordable • Technical support and C-B provided by MTCC-Pacific, SPC & SIMSA to implement adapted measures • Infrastructure development in outer islands to facilitate domestic shipping and in SI ports to provide onshore power supply • Support from government through subsidies and tax incentives for safety, energy efficiency equipment, ship building and maintenance
Acknowledging Pacific challenges by international community	<ul style="list-style-type: none"> • Access to latest info- AtoN, SAR, hydrography, compliance & control of freight rates (4th highest annual increase in the world- 17%pa) 	<ul style="list-style-type: none"> • Non-payment of subscriptions to IALA, IHO, Tokyo MoU & IMO because it is not seen as a priority by the Government. 	<ul style="list-style-type: none"> • Raise awareness in Government on ramifications of not engaging with the international community.
Non-signatory to ICs	<ul style="list-style-type: none"> • Unable to prosecute international ships that are non-compliant 	<ul style="list-style-type: none"> • Lack of ability or commitment by SIG 	<ul style="list-style-type: none"> • C-B- training & development

Availability of cost affordable spare parts & technologies	<ul style="list-style-type: none"> • SI Government support in terms of duties and suitability of parts 	<ul style="list-style-type: none"> • Lack of integrated approach and support for maritime transport improvement 	<ul style="list-style-type: none"> • Submission to SIG that provides economic driver
Insufficient specialised staff	<ul style="list-style-type: none"> • Lack of training and cost of services 	<ul style="list-style-type: none"> • SIG & IDO (IMO, ADB etc.) funding 	<ul style="list-style-type: none"> • PIDSS (2010) & MTCC-Pacific (2017) working in conjunction has been introduced by SPC in the Pacific.
Inconsistent purchase of vessels under grant	<ul style="list-style-type: none"> • Non-disclosure of public information (open & transparent) in relation to funding, purchase and control of suitable ships 	Inconsistent approach to purchasing and differential funding mechanisms	<ul style="list-style-type: none"> • Community pressure on SIG to

DAY 1: TECHNICAL WORKSHOP

The following are the NW modules presented by the three MTCC-Pacific trainers as per the Agenda (Annex 1).

1 Ship Energy Efficiency Operations (SEEO) Challenges & Ship Owner Issues- D-N-B-A Matrix *(Mark Davis, Transport Greenhouse Gas Adviser, SPC)*

This session was covered above.

2 SEE Regulations & Related Guidelines *(Mark Davis, Transport Greenhouse Gas Adviser, SPC)*

This session provided an introduction to ship roles, responsibilities, SEE measures and maintenance.

Discussion

The following points came out of the discussion from this session:

- SI ship operators' main focus is to provide reliable services to the community (social role) and GHGE is their least concern. However, they are were receptive to learn about the regulations and are keen to see regulations being implemented equally.
- Unfair business trade (subsidized shipping) and unethical practices affect most of the businesses making it harder to operate economically.
- Lack of training and discipline amongst the crew means that capacity building is very important and ship operators would like to acquire training for their crew to create awareness on safety and SEEOs.

3 SEEO & Green-house Gas Emission (GHGE) Management to Operation *(Mark Davis, Transport Greenhouse Gas Adviser, SPC)*

This session deliberated on the origins of air pollution (Airpol), climate change (CC) and GHG emissions, international global response; international shipping response and the main IMO instruments and historical developments.

Discussion

The following points came out of the discussion within this session:

- Engine tuning is typically done locally after discussion with the engine manufacturers especially with Japanese engine manufacturers. Operating speed is determined for the voyage by the ship owner and given to the shipmasters. Unfortunately not strictly followed which leads to engine break downs.
- There are two (2) international ports in SI but hundreds of jetties which do not have any compliance body to look after them.
- There are no incentives for fuel savings in SI. Social and economic analysis might show the advantages of incentives in terms of bonuses and getting home early.
- Maritime definitions differ from local understanding – slow steaming means service speed and vessel leasing means vessel charter.
- Ship operators were very interested in new technologies and operational measures:
 - Propeller Boss Cap Fin (PBCF);
 - Just in Time (JIT) – voyage planning; and
 - Bunker calculation with regards to distance and time.
- The average GT is 100,000 tonnes for 273 vessels.

- Demand for cargo transportation is usually spread evenly except during the peak festive season when the frequency of the voyages increases.
- In terms of the frequency of cleaning fuel tanks, they understand that it is done when the vessel goes on the slipway. Unfortunately, lack of ship maintenance knowledge leads to basic maintenance being left for the ship owners to attend to when breakdown occurs.

4 Ship-Board Energy Management *(Ore Toua, Maritime Training Adviser, SPC)*

This session focused on the following aspects of ship-board energy management:

- ship-board organisation, roles and responsibilities;
- overview of main ship-board EEMs;
- trim optimisation, its impact and best practice;
- ballast water management;
- hull and propeller roughness and fouling;
- engines and machinery utilization management;
- fuel management: storage, treatment and purification;
- technology upgrade; and
- steam system and boilers.

5 Ship-Port Interface & Energy Efficiency *(Mark Davis, Transport Greenhouse Gas Adviser, SPC)*

This session introduced ports and port area emissions, ship time in port (TIP) and just-in-time (JIT) operations; technologies for port air quality (AQ)/GHGE reductions; ship in-port operational energy efficiency measures (OEEM); and onshore power supply (OPS)/cold ironing.

6 Energy Management Plan (EnMP) & System (EnMS) *(Ore Toua, Maritime Training Adviser, SPC)*

This session provided a brief overview of various ship-board management systems; company level energy management; energy audits and reviews, types and processes; and ship performance, monitoring and voyage performance analysis.

Discussion

- The most common measures taken by ship owners in SI to increase efficiency of their vessels are hull conditioning and propeller blade polishing but the cost of slip-way in SI is very expensive.
- One of the ship owners took one of his vessels to Niigata Ship Yard (Japan) which was cheaper than putting the vessel on the SI slip-way. The quality of work done at the Niigata Ship yard was to international standards as reported by the ship owner from his prior experience from Solomon Island slip-way operators.
- Top management slogan for operations are:
 - Stop one time; and
 - Go on time.
- SIMSA has drafted a regulation on ship management safety (SMS) based on ISM Code. It's still in the draft stage and has gone through parliamentary reading and will eventually be implemented
- Contact information for some of the ship operators is a major problem and will be addressed soon. A request for the information will be posted in the National Newspapers with the names of shipping companies to get a prompt response.
- Standard Operating Practices (SOP) have been implemented on some vessels in SI and the same checklist is being used by other operators to comply with safety issues. SIMSA is in the process of regulating the implementation of SoPs.

- Lack of crew discipline is an issue in implementing any measures on-board vessels in SI.
- Three factors that affect the operations are cost, commitment and benefits.
 - The element of cost (revenue) is the main factor, secondly is the commitment of implementing the measures and finally the discipline of staff to record and reap the benefits of energy efficient measures.
- A suggested better way to implement policy and regulation is to show in practice the benefit of any measures and through this it can be promoted.
- There is lack of awareness on GHGE and no FOC DC system (DCS) is in place. Most of the ship operators do not have a log book on deck or in the engine room. SIMSA sells the log book and it is seen as an unnecessary cost.
- Participants were encouraged to raise awareness of SEE through the media; and raise awareness of shipping regulation, legislation and implementation.
 - Need to change the conservative way of operation and educate the maritime sector on existing regulations which they are not complying with
- Raise awareness of the regulatory body e.g. SIMSA.

7 Pacific Island Ship Safety (PIDSS) Program (*Ore Toua, Maritime Training Adviser, SPC*)

This was an introductory PIDSS session for participants defining the PIDSS programme, its goals, objectives and outcomes; defining PIDSS SMS; components and status of PIDSS and issues and lessons learnt.

Goals, Objectives & Outcomes

<ul style="list-style-type: none"> • Goal <ul style="list-style-type: none"> - strengthen maritime safety in domestic shipping. • Objectives: <ul style="list-style-type: none"> – Document the status of domestic ships; – Provide safety advice, technical support, and assessment/audit services; and – Conduct maritime safety audits. 	<ul style="list-style-type: none"> • Outcomes <ul style="list-style-type: none"> ✓ Higher safety standards, ✓ Reduction in the number of unseaworthy ships, ✓ Reduction in the number of maritime accidents and incidents, ✓ A robust national and regional vessel safety monitoring and evaluation system.
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Discussion

- PIDSS is available to assist ship engineers to review and improve their SMS and implementation of safety measures on board vessels.
- The Pacific maritime sector lags behind the world in maritime travel whereas they should be leading it. Pacific people have navigated the sea for thousands of years, the region should have been leading maritime development and it is time to catch up with recent technology developments.
- Participants felt that there should be a Pacific Maritime Organization similar to IMO that should look after the affairs of the region including the traditional perspective.
- The region needs to adopt traditional and scientific methods to improve its maritime travel and PIDSS together with MTCC-Pacific will the pave the way for safe and efficient sea travel.

DAY 2: TECHNICAL WORKSHOP

All Day 2 sessions presented by Dr. M. A. Zullah, Maritime Industry Energy Efficiency Officer, SPC.

8 Energy Efficiency Design Index (EEDI) Guideline

This session provided an overview of the EEDI formula; EEDI calculation parameters; EEDI factors and correction factors; and example of a sample EEDI calculation

Discussion

- EEDI calculation is used for new vessels only but depending on the availability of specific ship data, EEDI can be calculated for existing vessels.
- Most of the vessels operating here do not have drawings available and some of them that are available are mostly in Japanese.

9 Ship Energy Efficiency Management Plan (SEEMP) Guideline

In this session, the main elements of SEEMP, implementation aspects and EEOI calculation process was covered.

Discussion

- For MTCC-Pacific SEE is central to its mission. Ship operators and engineers must first understand the concept of SEEMP and EEOI before moving forward to implementation to improve their SEE. MTCC-Pacific can assist shipping companies in developing SEEMPs, measuring vessels using this and developing ways to improve SEE.
- Participants requested simple templates so they do not create an additional burden for the ship crews.
- Participants are interested to implement SEEMP to conserve fuel oil consumption (FOC) and lower passenger's ticket fee.
- Most of the participants have vouched to be collect FOC data. Data template will be simplified which will be easy to fill.

10 Ship Energy Efficiency Operations (SEEO) Measures

This session focused on operational energy efficiency measures with respect to operational management; maintenance and condition monitoring; auxiliary load management; trim/ballast optimization; hull and engine conditions; and system planning and reduced demand.

11 Ship Energy Efficiency (SEE) Technical Measures

This presentation focused on EEDI reduction method; ship hydrodynamics; propeller and propulsion system; engines and power systems; auxiliary machinery; economic assessment; and a case study on futuristic concept ships.

12 Further SEE Measures

This session focused on the development of DCS for FOC; DC; data analysis; and lastly followed by decision making on what further measures are required, if any.

13 Potential Fuel-oil Consumption (FOC) & Green-house Gas Emission (GHGE) Reductions

This session explored the introduction and forecasting scenarios; simulation models; FOC and fuel cost forecasting.

Discussion

- The MTCC-Pacific NW has equipped ship owners with finer knowledge on ship maintenance and operation. Some measures learned from this NW will be implemented on board their vessels.
- Trim optimization not practiced by the ship operators. The trim of a ship describes its floating position length wise, namely if the bow or the aft of the ship is more deeply submerged into the water. The trim can have a significant impact on a vessel's energy demand for propulsion during sailing. The most efficient trim for a particular ship depends on its design, operational draft and speed.
- The regulatory body can enforce Hull and propeller conditioning periodically. According to SOLAS regulation, every sea-going vessel has to undergo two dry docks within a period of 5 years.
- All vessels have auto pilot options but it does not capable crew to operate it. Some vessel has deck equipment, which does not work because it was not properly maintained.
- The maritime school in SI is only able to provide class 4 training ad lacks capacity to build capacities.
- There is need to develop the technical capacity of locally available experts on energy efficiency especially. Solomon Island lacks the access to the technical experts due to high employment cost and government support.
- Hugh interest on the PBCF. Many ship owners want to acquire this technology. MTCC-Pacific will provide the basic information and will introduce the PBCF manufacturers to the ships owners.

14 Light Emitting Diodes (LED)

This presentation focused on LED lightings, its efficacy and the cost evaluation of LED. LEDs for lighting solutions are gaining increasing importance in the shipping industry, based on their energy-saving potential and long service life. Any reduction in electricity consumption for lighting leads to a positive impact on the ship's operating costs, as well as reducing the environmental impact.

Discussion

- Marine lighting consumes a large part of the electricity of the ship. This lighting for the most part is supplied with a voltage of 220 V. As light sources mainly use fluorescent lamps with an efficiency of 60 Lm/W (lumens per watt), which replaced traditional incandescent bulbs in almost all newly built ships. In the old vessels, certain measures should be taken when installing new advanced lighting system.
- Ship owners were very interested to install solar panels on top deck connected to the LED lights to minimize generator operation. However, cost and after installation service is important for ship owners. Success stories from private companies installing solar panels to reduce electricity consumption has gained a big interest in this technology.
- SIPA is good example for all the ship owners.

15 Shaft Generators

This session focused on what a shaft generator is; vessels currently using shaft generators; energy saving; cost effectiveness and risk.

16 Waste Heat Recovery Systems (WHRS)

This presentation focused on heat balance for engine without and with WHRS; PTG (Power Turbine & Generator) WHRS; STG (Steam Turbine & Generator) WHRS; and PT-ST combined waste heat recovery systems.

DAY 3: WRAP-UP

The final day was focused on presenting, reviewing and adopting the *Outcomes* statement developed from two days of deliberations. This was also an opportunity for ship owners to express their views on the MTCC-Pacific program.

17 Overview (Dr. M. A. Zullah, Maritime Industry Energy Efficiency Officer, SPC)

MTCC-Pacific provided a summary on the deliberations of the NW:

- Good overall attendance.
- Group discussion on issues relating to SEEO.
- Discussion on CC, GHGE and S/SEM measures.
- Interactive knowledge transfer on EEDI, EEOI, SEEMP and PIDSS.
- Interactive sessions on IMO GMN technology transfer and technical cooperation
- Energy saving devices such as PBCF, LED, WHRS, SG and PV.

18 Open table discussion from the Solomon Islands Maritime Transport Association (SIMTA)

SIMTA was established under the charitable act and has five trustees who are usually either public figures or public enterprise CEO's.

Issues – SIMTA

- Annual general meeting is held every year to appoint officials but was not held last year. Three unofficial representatives attended the NW
- Annual fee of \$2000SBD to join the SIMTA. Anyone can join SIMTA as long as they pay the annual fee.
- Lack of awareness on the benefit of the SIMTA where they can provide technical assistance but the focus of most of the operators is financial gains only.
- They want to resurrect the SIMTA so that they can contribute towards the legislation developed by the government and establishment of SIMA. SIMTA will be able to make a consolidated approach to private and public sector to improve the services. One voice for all the ship owners
- Through the MTCC-Pacific NWs, they have realised the bigger benefit of SIMTA where they can contribute and benefit from the capacity building, get technical information and get the concerns raised to local government and international society.
- Participants of the NW will make an extra effort to start SIMTA and promote the association's benefits to the maritime business. An approach similar to Chinese business community, which is excelling in business through their association. SIMTA wants to have a similar approach where they can provide assistance in filling gaps in the maritime transports to prevent unfair maritime trade.
- Do not have resources to provide the members with maintenance programme for engineers
- Lack of appropriate training for crew
- Improvement of outer islands maritime Infrastructure especially on cargo manifest
- Technical support and capacity building programme

SIMTA Way Forward

- Advocate on behalf of the member to liaise with maritime player locally and regionally
- Realised the weakness of the SIMTA which has high potential for that SIMTA to represent its members. Maritime sectors is quite large compared to the land transportation. It is difficult to lobby ship owners to join the SIMTA.
- Focus on sustainability and profitability
- Enforce freights charges for fair competition with consultation with authorities
- Tax Incentives for getting more energy efficient vessels and vessel spare parts

SIMTA Outcomes

- Members will revive SIMTA and advocate on other ship operators to join and voice their concern
- Fully support MTCC-Pacific on DC.
- Participant have shown strong support and appreciation of the MTCC-Pacific NW on SEE. The information relayed was new and very useful.
- **A checklist needs to be developed to assist when buying used ships.**

19 Update from Solomon Islands Women in Maritime Association (SIWIMA) (*Rachael Anita and Cathy Taula Indu, SIMSA*)

- Established in July 2016 but has not been very active. The executive committee is always changing and members are unaware of the changes
- SIWIMA will be signing a new constitution soon (3rd week of Feb, 2018).
- The proposed constitution is complex and needs to be simplified, especially for SI.
- Difficult for women in SI to speak out because of repercussions.
- Advocacy and awareness would make them stronger through male support.
- Men dominate maritime in SI and WIM will need support from men to champion SIWIMA, and promote its objective (especially given that the SI population ratio is 3 women to 1 man)

20 Update from Solomon Islands Ports Authority (SIPA) (*Eranda Kotelawala, SIPA CEO*)

- Informed participants of the energy audit at SIPA by MTCC-Pacific's consultant, who highlighted some issues that have been implemented such as LED lighting upgrade.
- A GHGE assessment was conducted and through this assessment, SIPA has managed to achieve a significant reduction in power consumption.
- Savings of SBD40, 000 a month was achieved only by switching of wharf lights when not required.
- Implemented one of the measures from audit to replace the lights with LED in the head office.
- All wharf lights are going to be changed to LED lights (Honiara and Noro ports).
- SBD5.5 million per year savings on electric bill in Honiara port and SBD1.1 million in Noro port.
- Hybrid solar powered lights will be installed on the perimeter that adheres to the ISPS Code.
- Looking to save 25% on electricity saving through lighting upgrade to LED's.
- Further developments are in the pipeline such as heavy lifting vehicles that will be replaced with hybrid types (electric and diesel).
- Six new yard tractors will be added to the fleet which will make the container movements more efficient.
- OPS system is not economical in SI because the electric infrastructure is dependent on diesel generators, which will add additional load to the system.
- SIPA will eventually become the only port in the Pacific with the biggest LED lighting system.
- Noro Port is looking at building a 1MW solar farm to power the reefers, which will be used for exporting tuna to international markets.
- The two main drivers for SI port to become "Green" is the cost of the electricity and corporate social responsibility.

- Savings of at least 20% already been made from investment made from LED lights only.
- Honiara port is also the first port in the region to meet the IPSI requirements (IMO SOLAS).
- Fibre optics will be installed for CCTV monitoring (Professional Lighting Fiji, who did the CCTV installation in Fiji ports) and access will be provided to the customs, SIMSA and police.

21 Review of Outcomes Document *(Mark Davis, Transport Greenhouse Gas Adviser, SPC)*

MTCC-Pacific presented a draft Outcomes Document for review and adoption; and edits were actively made on the document. The Outcomes Document was then adopted with the consideration that slight wordsmithing may take place. The finalized document is attached as Annex 3.

22 Closing Remarks *(Jimmy Nuake, Acting Permanent Secretary, Ministry of Infrastructure Development, Solomon Islands)*

On behalf of the SI government, the Acting Permanent Secretary, Jimmy Nuake thanked MTCC-Pacific and SPC for the organisation of this NW. He thanked all the participants for attending this NWs and supporting MTCC-Pacific with its initiative. He reiterated the importance of the DC and contribution towards GHGE reduction and uptake of energy efficient operations. He acknowledged the excellent work SIPA's has implemented towards the "Green Port" initiative and serves as a great example for MTCC-Pacific project in Solomon Islands.

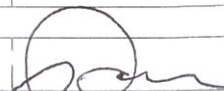

LIST OF ANNEXES

ANNEX 1: Signed List of Participants

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Wed 14/02/18.

[illegible]

21														
22														
23														
24														
25														
26														
27														
28														
29														
THE PACIFIC COMMUNITY STAFF														
31	Mark Davis	Transport Green House Gas Adviser	The Pacific Community	M	Private Mail Bag	Suva	Suva	Fiji	(679) 3370733	markd@spc.int		Resource		
32	Ore Toua	Maritime Training Adviser	The Pacific Community	F	Private Mail Bag	Suva	Suva	Fiji	(679) 3370733	oret@spc.int		Resource		
33	Zullah M. A	Maritime Industry Energy Efficiency Officer	The Pacific Community	M	Private Mail Bag	Suva	Suva	Fiji	(679) 3370733	zullahm@spc.int		Resource		
												Resource		
												Resource		
												Resource		
												Resource		

Tuesday 13/02/18

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[illegible]

ANNEX 2: Agenda

Maritime Technology Cooperation Centre - Pacific
Pacific Community, Suva Regional Office
Private Mail Bag, Suva, Fiji
Tel: (679) 337 0733 | Fax: (679) 337 01 46
Email: mtcc-pacific@spc.int | Web: www.spc.int

MTCC-PACIFIC – Solomon Islands National Workshop on Ship Energy Efficient Operations (SEEO)
Honiara, Solomon Islands, 13-16th February, 2018

PROGRAMME

Time	Agenda Item*	Agenda issues	Presenters
Day 1 – 13th February, 2018 – Technical Workshop (Ship Energy Efficient Operations)			
0800		Registration	
0830		Welcome Addresses: Solomon Islands Maritime Transport Representatives (MID & SIMSA) MTCC-Pacific Transport Greenhouse Gas Adviser	
0900 – 1030	1	Ship Energy Efficiency Operation (SEEO) Challenges- Ship Owners Issues- Discussion of N-B-R-A Matrix: 'Outcome'	MTCC-Pacific
	2	SEE Regulations and Related Guidelines - Introduction to ship roles and responsibilities	MTCC-Pacific
1030-1100		Tea Break	
1100 – 1230	3	SEEO & GHGE Management - Origins of air pollution (airpol) and climate change (CC) - CC & GHG emissions (GHGE) - International global response - International shipping response - Main IMO regulations and historical developments	MTCC-Pacific
	4	Ship-Board Energy Management - IMO regulatory framework (FW)- ship energy efficiency (SEE) - MARPOL Annex VI Chapter 4 - Brief introduction to SEEMP GL - Brief introduction to SEE Operations Index (EEOI) GL	MTCC-Pacific
1230 – 1330		Lunch	

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1330- 1500	5	Ship-Port Interface and Energy Efficiency <ul style="list-style-type: none">- Introduction to ports and port-area emissions- Ship time in port and just-in-time (JIT) operations- Technologies for port air quality (AQ)/GHGE reductions- Ship in-port operational energy efficiency measures (OEEM)- Onshore power supply (OPS)	MTCC-Pacific
	6	Energy Management Plan (EnMP) and System (EnMS) <ul style="list-style-type: none">- Brief overview of various ship-board management systems- Company level energy management- Energy audits and reviews, types and processes- Ship performance, monitoring and voyage performance analysis	MTCC-Pacific
	7	Pacific Island Domestic Ship Safety (PIDSS) <ul style="list-style-type: none">- Goals, Objectives & Outcomes- PIDSS SMS- Components- Status- Issues and Lessons Learnt	MTCC-Pacific
1500- 1530	8	Open Discussions	
1530- 1600	Tea Break		
End Day 1			

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Time	Agenda item	Agenda issues	Presenters
Day 2 – 14th February, 2018 – Technical Workshop (Ship Energy Efficient Operation)			
0845	Participants arrive		
0900 – 1030	1	Guidelines for EEDI <ul style="list-style-type: none"> - Overview of EEDI formula - EEDI calculation parameters - EEDI factors and correction factors - Example of a sample EEDI calculation 	MTCC-Pacific
	2	Guidelines for SEEMP <ul style="list-style-type: none"> - Main elements of SEEMP - Implementation aspects - EEOI calculation process - Video - Best Practice For Fuel-Efficient Operation 	MTCC-Pacific
1030-1100	Tea Break		
1100 – 1230	3	Operational energy efficiency measures <ul style="list-style-type: none"> - Operation management - Maintenance and condition monitoring - Auxiliary load management - Trim/ballast optimization - Hull and engine conditions - System planning and reduced demand 	MTCC-Pacific
	4	Technical energy efficiency measures <ul style="list-style-type: none"> - EEDI reduction method - Ship hydrodynamics - Propeller and propulsion system - Engines and power systems - Auxiliary machinery 	MTCC-Pacific
1230 – 1330	Lunch		



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1330 – 1545	5	Further measures to enhance the energy efficiency of ships - Development of a data collection system (DCS) for fuel consumption o data collection; o data analysis; and o followed by decision-making on what further measures, if any, are required	MTCC-Pacific
	6	Potential to reduce emissions and fuel consumption - Introduction and forecasting scenarios - Simulation model - Fuel consumption and fuel cost forecast	MTCC-Pacific
	7	LED - What is LED? - Efficacy of led - Cost evaluation for LED application	MTCC-Pacific
	8	Shaft Generators - What is shaft generator system? - Vessels using shaft generator - Energy saving - Cost effect - Risk	MTCC-Pacific
	9	Waste Heat Recovery System (WHRS) - Heat Balance for Engine without & with WHRS - PTG(Power Turbine & Generator) WHRS - STG(Steam Turbine & Generator) WHRS - PT-ST Combined Waste Heat Recovery System	MTCC-Pacific
1545- 1600	10	Open Discussions	
1600- 1630	Closing Remarks		
End Day 2			

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Time	Agenda item	Agenda issues	Presenters
Day 3 – 15th February, 2018 – Technical Workshop (Ship Energy Efficient Operations)			
0845		Participants arrive	
0900 – 1030	1	Overview of Workshop	MTCC-Pacific
	2	Discussion with SIMTA	SIMTA
1030 – 1100		Tea Break	
1100 – 1230	3	Women in Maritime Association	SIWMA
	4	Port Authority Update	SIPA
	5	Outcome document finalised	All
	6	Closing remarks	Permanent Secretary

ANNEX 3: Outcomes Document

FIRST NATIONAL WORKSHOP ON ENERGY EFFICIENT OPERATION OF SHIPS

Honiara, Solomon Islands, 13-15 February 2018

OUTCOMES

1. The First National Workshop on Energy Efficient Operations of Ships held in Honiara, Solomon Islands from 13 to 15 February 2018. The workshop was coordinated and facilitated by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific) and attended by representatives from the Ministry of Infrastructure & Development, Solomon Islands Maritime Safety Administration (SIMSA), Islands Marine & Mechanical Engineering Contractor, Small Malaita Shipping Company Ltd, I.D.C Shipping, Franjti Shipping, Lauru Shipping Ltd, Nofokava Transportation and Anolpha Enterprises. The list of participants is attached in Annex 1.
2. MTCC-Pacific is hosted by the Pacific Community (SPC) in collaboration with the Secretariat of the Pacific Regional Environment Programme (SPREP) that form part of the Global MTCC Network (GMN), a project implemented by the International Maritime Organization (IMO) and funded by the European Union (EU) with the aim of building capacity of small island developing states (SIDS) and least developed countries (LDC) for climate mitigation in the maritime industry.
3. The welcoming speech was delivered by the Solomon Islands Acting Permanent Secretary for the Ministry of Infrastructure and Development (MID), Jimmy Nuake, and highlighted the commitment of Solomon Islands saying, *“Increasing the energy efficiency of the Maritime Transport Industry (MTI) is a priority for our nation and for our region. The Solomon Islands Government is committed to lead by example and we are calling on leaders in every sector of our MTI to join us in making energy efficient operations a priority.”*.
4. The opening remarks were delivered by the Director of SIMSA, Capt. Timothy Whiteford Harris, who welcomed the participants and recalled the ongoing process of changing from the Government Maritime Safety Administration (SIMSA) to an independent self-governing Maritime Authority (SIMA).
5. In his opening address, MTCC-Pacific (Maritime) Transport Greenhouse Gas Advisor reiterated the commitments from MTCC-Pacific Host Institutions (SPC & SPREP) and its partners to assist the Pacific region in climate mitigation in the maritime transport industry and support the uptake of new technologies and operations.
6. The purpose of the meeting was to gather the relevant maritime transport industry stakeholders, government and administration, and ship operators to agree on measures to improve energy efficiency of shipping in the Solomon Islands and provide them with technical tools to progress towards ship energy efficient operations.

The participants:

7. Agreed to take relevant action to mitigate greenhouse gas emissions (GHGE) and create awareness amongst the ship owners/operators in Solomon Islands on the benefits of ship energy efficient ship operations (SEEO) toward reduction of fuel oil consumption and reduction of GHGE.
8. Recognize the drivers, needs, barriers and relevant actions stated in Annex 2 that include:
 - i. Capacity Building (C-B) e.g. HR Development and awareness of training opportunities;
 - ii. Improve profitability of ships, reliability and efficiency of domestic shipping;
 - iii. Legislation, regulations and standards for domestic ships including safety, training, pollution prevention and efficiency;
 - iv. Acknowledging challenges of the Pacific by the international community;
 - v. Non-signatory to International Conventions;
 - vi. Availability of cost affordable spare parts and technologies;
 - vii. Insufficient specialized staff;
 - viii. Inconsistent purchase of vessels under grant; and
 - ix. Cost of Energy.
9. Agreed to participate and be involved in MTCC-Pacific pilot-projects on energy efficient operations of ships and data collection that will assist in implementing immediate actions adapted to Solomon Islands registered vessels and ports.
10. Agreed to collect and share relevant data on fuel oil consumption through an Agreement between SIMSA and MTCC-Pacific and request MTCC-Pacific to provide templates and assist in collection and reporting, ensuring confidentiality and accessibility of information.
11. Recognized existing traditional shipping methods with available technology capabilities and future opportunities in Solomon Islands to build and maintain safe, energy efficient vessels.
12. Requested MTCC-Pacific to coordinate and facilitate a follow-up workshop with the Pacific Island Development Ship Safety Programme (PIDSS) to present and discuss progress on measures implemented in 2017-2018 related to energy efficiency and data collection in the Solomon Islands maritime transport industry.

Annex 1 – List of participants

#	Name	Job Title	Organisation	Email Address/ Phone Number
TECHNICAL WORKSHOP				
1	Jimmy Nuake	Acting Permanent Secretary	Ministry of Infrastructure Development	Jnuake@mid.gov.sb
2	Timothy Harris	Acting Director of Marine	Solomon Islands Maritime Safety Administration	Tharris@mid.gov.sb
3	Leslie Lazarus	Private Sector Ship Surveyor	Island Marine & Mechanical Engineering Contractor	Lazaruslesiel4@gmail.com
4	Simon Wame	Chief Executive Officer	Small Malaita Shipping Company	s.wame@hotmail.com
5	Derek Saru	Chief Marine Officer	Solomon Islands Maritime Safety Administration	dereksaru@gmail.com
6	Norian Buloro	OPM Assistant	I.D.C Shipping	757 4465
7	Joy Rurime	Manager	Franjit Shipping	Fanjitshipping@gmail.com
8	Daniel Letia	Accountant	Lauru Shipping Ltd	7962915
9	Kathy Nori	MD	Nofokava Transportation	Kathy.nofakava@gmail.com
10	Rachael Anita	Senior Marine Officer	Solomon Islands Maritime Safety Administration	RAnita@mid.gov.sb
11	Cathy Taula Indu	Assistant Registrar of Ships	Solomon Islands Maritime Safety Administration	CTalua@mid.gov.sb
12	David Faradatolo	GM	Anolpha Enterprises	Kokomu1006@gmail.com
13	Mark Oge	CSO	Anolpha Enterprises	
14	Bradley Alaua	Operations Manager	Small Malatia	baddley@gmail.com
15	Francis Nori	Managing Director	Nofokava Transportation	fnofkava@gmail.com
ORGANISER				
1	Mark Davis	Transport Green House Gas Adviser	MTCC-Pacific	markd@spc.int
2	Ore Toua	Maritime Training Adviser	MTCC-Pacific/The Pacific Community	oret@spc.int
3	Zullah M. A	Maritime Industry Energy Efficiency Officer	MTCC-Pacific	zullahm@spc.int

Annex 2 – Matrix of drivers, needs, barriers and relevant actions

Drivers	Needs	Barriers	Relevant action
Capacity Building (C-B) e.g. HR Development and Awareness of Training opportunities	HR development More and better training institutions	<ul style="list-style-type: none"> • Lack of higher (only up to Class 4) crew qualification • No idea about PIDSS program (for non-participating vessels) • Insufficient resources 	Building an adaptive capacity that will ensure application of EE measures on board domestic vessels
Costs of energy	<ul style="list-style-type: none"> • Baseline data collection (DC) to show reduction in FOC • Pacific Regional bulk purchase of fuel 	<ul style="list-style-type: none"> • Transition costs for additional or change of equipment • No SOPs and standards set for SI fleet • Insufficient financial resources (low per capita income) 	<ul style="list-style-type: none"> • Implement safety & energy management with the support of SPC (MSA, PIDSS and MTCC-Pacific) • Improve practices & implement Ship Energy Efficiency Management Plan (SEEMP) under the PIDSS program
Improve profitability of ships, reliability and efficiency of domestic shipping	<ul style="list-style-type: none"> • Appropriate/relevant legal, regulatory and technical measures adapted to the size of the vessels and the capacity and resources of SI shipowners • Training on safety, efficiency including ship energy efficiency (SEE), etc. • Reduced competition that can compromise safety, efficiency and reliability of shipping services • Reduce lost time for berthing 	<ul style="list-style-type: none"> • Under-regulation & not locally adapted • Measures are often adapted to vessels of more than (>)50m while most of domestic vessels are under this size & old • Unfair competitive advantage for shipping/transport grant under [MID Central Project Implementation Unit (CPIU)?] owners 	<ul style="list-style-type: none"> • Implementation of measures adapted to the Pacific domestic fleet • Control domestic fleet tonnage and pre-inspection/limitation for vessels purchase overseas • C-B of ship operators and crews on SEE measures and practises • Infrastructure development in outer islands to facilitate domestic shipping
Legislation, Regulations and standards for domestic ships including safety, training, pollution prevention and efficiency	<ul style="list-style-type: none"> • Create awareness of SIMSA and its regulations • Awareness of Maritime Compliance through mainstream media • Regulate traditional wooden boat building in regards to safe construction and operations 	<ul style="list-style-type: none"> • High cost of dry-dock facilities (4) • Lack of port control in outer islands to foster fair-trade between domestic vessels • Lack of support to provide information and technical tools on energy efficiency 	<ul style="list-style-type: none"> • Availability of new equipment & more affordable • Technical support and C-B provided by MTCC-Pacific, SPC & SIMSA to implement adapted measures • Infrastructure development in outer islands to facilitate domestic shipping and in SI ports to provide onshore power supply • Support from government through subsidies and tax incentives for safety, energy efficiency equipment, ship building and maintenance
Accept Pacific 'approach' by International Organisations	<ul style="list-style-type: none"> • Access to latest info- AtoN, SAR, hydrography, compliance & control of freight rates (4th highest annual increase in the world- 17%pa) 	<ul style="list-style-type: none"> • Non-payment of subscriptions to IALA, IHO, Tokyo MoU & IMO because it's not seen as a priority by the Government. 	<ul style="list-style-type: none"> • Raise awareness in Government on ramifications of not engaging with the international community.
Non-signatory to ICs	<ul style="list-style-type: none"> • Unable to prosecute international ships that are non-compliant 	<ul style="list-style-type: none"> • Lack of ability or commitment by SIG 	<ul style="list-style-type: none"> • C-B- training & development
Availability of cost affordable spare parts & technologies	<ul style="list-style-type: none"> • Solomon Islands Government support in terms of duties and suitability of parts 	<ul style="list-style-type: none"> • Lack of integrated approach and support for maritime transport improvement 	<ul style="list-style-type: none"> • Submission to SIG that provides economic driver
Insufficient specialised staff	<ul style="list-style-type: none"> • Lack of training and cost of services 	<ul style="list-style-type: none"> • SIG & IDO (IMO, ADB etc.) funding 	<ul style="list-style-type: none"> • PIDSS (2010) & MTCC-Pacific (2017) working in conjunction has been introduced by SPC in the Pacific.
Inconsistent purchase of vessels under grant	<ul style="list-style-type: none"> • Non-disclosure of public information (open & transparent) in relation to funding, purchase and control of suitable ships 	<ul style="list-style-type: none"> • Inconsistent approach to purchasing and differential funding mechanisms 	<ul style="list-style-type: none"> • Community pressure on SIG to

ANNEX 4: Workshop Presentations

(Please refer to our website:
<http://mtccpacific.spc.int/>)

Under the Resources Tab → Documents
→ Templates → Training materials)

ANNEX 5: Workshop Evaluation Analysis

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MTCC-PACIFIC – Solomon Islands Workshop on Ship Energy Efficient Operations (SEEO)

Honiara, Solomon Islands, 13-15 February, 2018

Arrangements prior to the activity

- 1 Was the invitation received in good time? Yes ☐ No ☐
- 2 Did you receive the information listed below about the event before your participation
 - on its objective and scope Yes ☐ No ☐
 - subject areas and programme Yes ☐ No ☐
- 3 Were the instructions on the following clear and easy to understand?
 - profile required of participant Yes ☐ No ☐
 - completion and submission of the nomination form Yes ☐ No ☐
- 4 Did you receive logistical information on
 - venue Yes ☐ No ☐

During the activity

- 5 To cover the topics fully, was the event (*please check the appropriate box*)
(1) too long ☐ (2) just right ☐ (3) too short ☐
- 6 How do you rate the event with regard to the following? (*tick one box in each case*)

	excellent	good	satisfactory	poor
Venue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 7 How would you rate the following aspects? (*tick one box in each case*)

	excellent	good	satisfactory	poor	
Group discussion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A <input type="checkbox"/>
Group Feedback	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A <input type="checkbox"/>
Discussion opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A <input type="checkbox"/>
- 8 How would you rate the following sessions according to the day's agenda? (*tick one box in each case*)

	excellent	good	satisfactory	poor	
Morning session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A <input type="checkbox"/>
Lunch session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A <input type="checkbox"/>
Afternoon session	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A <input type="checkbox"/>

At the end of the activity

- 9 Please rate each facilitator with regard to the following (*check one box in each case*)
- | | | | | | |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------------------|
| • delivery of presentation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | N/A <input type="checkbox"/> |
| • ability to guide discussions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| • effectiveness in: | | | | | |
| • answering questions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| • suggesting solutions to problems | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

- 10 What topics were of most interest and relevance to your Administration?

- 11 Are there any topics which should be added? Yes ☐ No ☐
If yes, please list them:

- 12 Do you consider that the objective of the event was met? Yes ☐ No ☐

- 13 Are the outcomes achieved likely to be useful to your Administration? Yes ☐ No ☐

- 14 Will you have the opportunity to transfer the knowledge gained to your colleagues at work? Yes ☐ No ☐

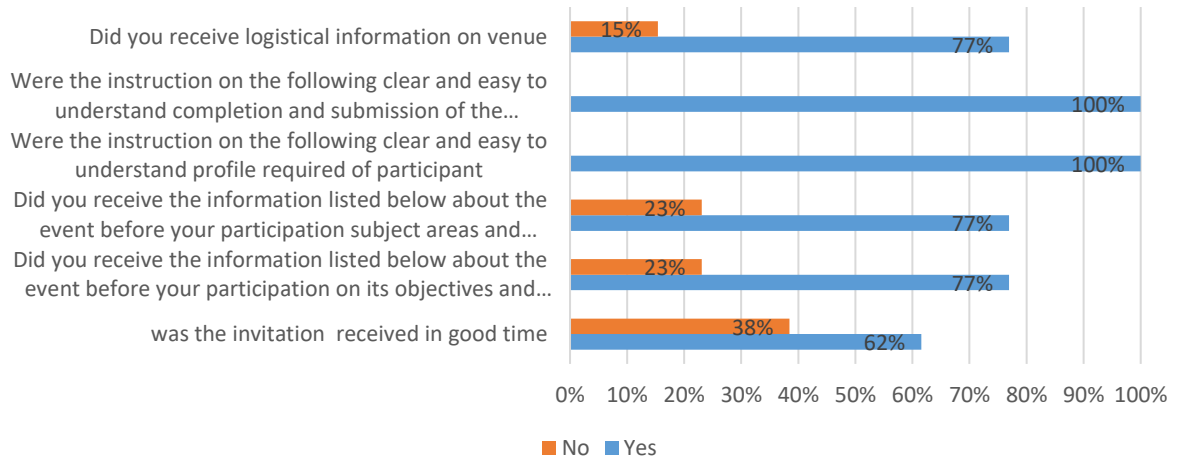
Comments:

We greatly appreciate your time in completing this evaluation questionnaire. It contains important information that will assist the MTCC team in determining the success and impact of the activity.

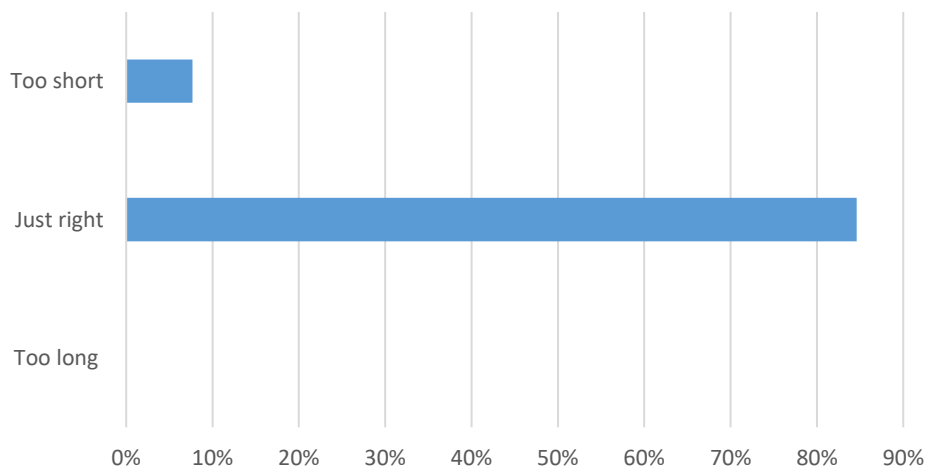
Thank you.

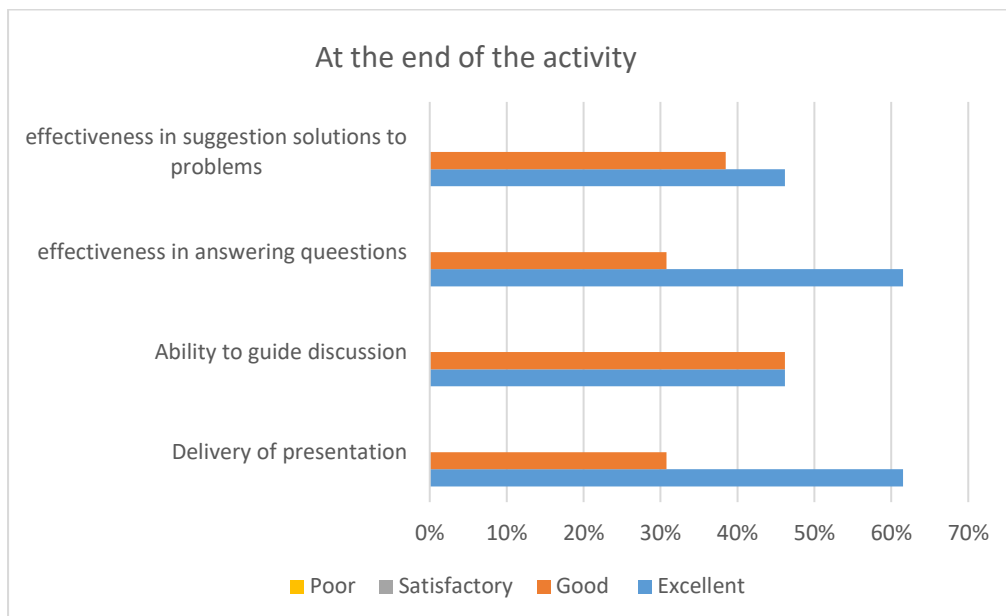
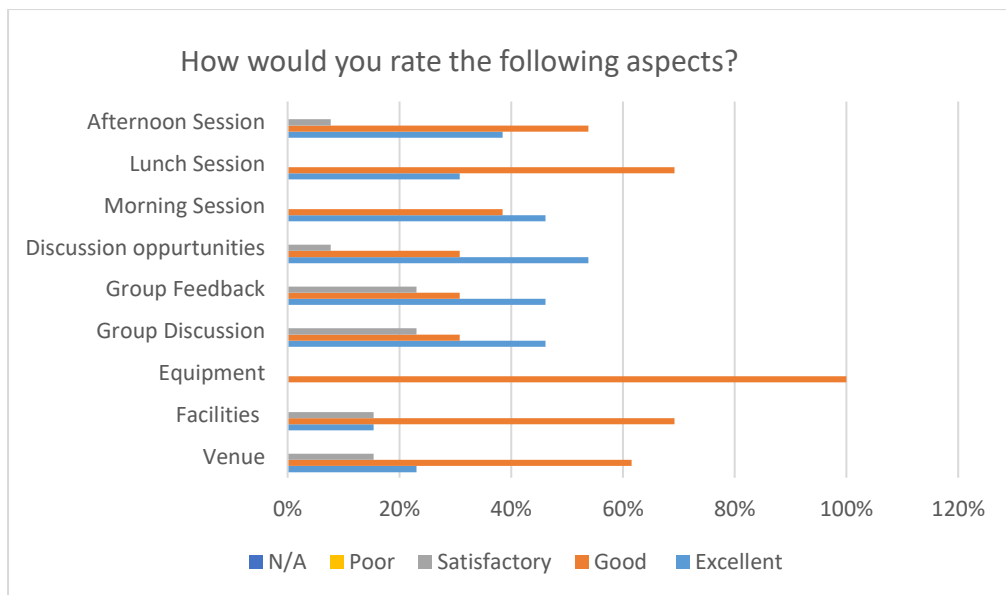
Evaluation Questionnaire Analysis

Arrangement prior to the activity



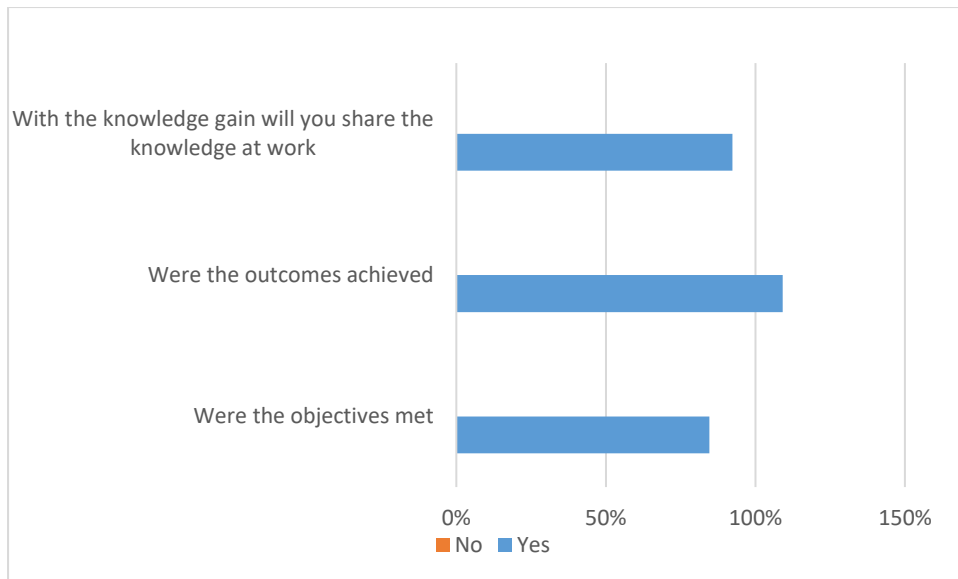
To cover the topic fully, was the event...





Which topics were the most interest and relevance to your administration?

- All of them
- Cost savings
- Technical assistance
- Ship management to operation
- Energy power efficient
- Energy efficiency and improvement in current boat/ship
- Operation and management of energy efficient vessels
- MTCC related technology
- Energy efficiency, fuel consumption, log books and selection criteria of ships to each sector
- Ship board energy management



Additional Comments

- Very good workshop in terms of more knowledge about maritime energy efficiency.
- A great workshop indeed with much valuable insights.
- So long that this type of workshop is a need to drive shipping to a more positive achievements. Need more of such to help in shipping industry.
- Very interesting and helpful for our shipping industry.
- At least now we are all aware of the energy efficiency or what the programme is about.
- Participating in this workshop is highly recommendable. Definitely, I will recommend this workshop to my colleagues.
- Follow up workshops recommended.
- This workshop was well presented and achieved its objectives.
- A very fruitful workshop which will help us a lot in the areas of work.
- Need access to the notes.
- Good awareness to participants especially it was a new topic to us local ship owners. Need ongoing training and awareness to update ship owners.

ANNEX 6: Photos



Remarks at the opening of the workshop



Discussions during the workshop



Group Photo

ANNEX 7: Communication and Visibility Activities

#MTCCPacific Solomon Islands

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#IWD2018 Celebrating inspirational women on International Women's Day

#WomensDay 56.8K Tweets


#rubyconf_au

#WeWontWait


#Stella18

Farooq Takla 2,060 Tweets

Bernadine Managreve Retweeted

**Dr. M. A. Zullah** @DrZullah · Feb 21

Reinvigorating **Solomon Islands** Maritime Transport Association (SIMTA) to provide leadership to SI maritime industry and become energy efficient
#MTCCPacific @spc_cps @SprepChannel @IMOHQ @EUPasifika @ThierryNervale



11

Dr. M. A. Zullah liked

**Thierry Nervale** @ThierryNervale · Feb 16

#lowcarbon maritime transport will contribute to achieve **#SolomonIslands** targets in reducing **#GHG** emissions **#MTCCPacific** @EUPasifika @IMOHQ @spc_cps @SprepChannel

Windows taskbar with icons for File Explorer, Edge, and other applications.

System tray showing date and time: 4:29 PM 8/03/2018.

#MTCCPacific Solomon Islands

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Dr. M. A. Zullah liked

Thierry Nervale@ThierryNervale · Feb 16

#lowcarbon maritime transport will contribute to achieve #SolomonIslands targets in reducing #GHG emissions #MTCCPacific @EUPasifika #IMO HQ @spc_cps @SprepChannel

Pacific Community@spc_cps

Today there are 273 vessels operating in #SolomonIslands waters. All of them use fossil fuels for their operations. This has a significant impact on the level of greenhouse emissions that requires immediate action to reduce the impact to the environment

13

Thierry Nervale@ThierryNervale · Feb 12

Commitments at the highest level of #SolomonIslands government for immediate #ClimateAction in the #maritime industry with #MTCCPacific @EUPasifika @IMO HQ @spc_cps @SprepChannel

Dr. M. A. Zullah@DrZullah

MTCC-Pacific's National Workshop in Solomon Islands opened by Mr. Jimmy Nuake, Acting Permanent Secretary of Ministry of Infrastructure Development @spc_cps @SprepChannel @IMO HQ @EUPasifika @ore_toua ...

14

WindowsTaskbar

4:29 PM8/03/2018

Solomon Islands maritim... x

Solomon Islands maritim... x

Solomon Islands maritim... x

Securehttps://twitter.com/search?q=Solomon%20Islands%20maritime%20industry%20calls%20for%20energy%20efficient%20operations%20to%20reduce%20greenhouse%20gasses&src=typt

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Today there are 273 vessels operating in Solomon Islands waters including 252 vessels of more than 15 meters and 68 vessels of more 50 meters. All of them use fossil fuels for their operations. This has a significant impact on the level of greenhouse emissions of Solomon Islands that requires immediate action to reduce the impact to the environment and contribute to climate mitigation.

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From: [Lore Croker](mailto:Lore.Croker)
To: rockdm-infobulletin@lists.spc.int
Subject: FW: Media Release: Solomon Islands maritime industry calls for energy efficient operations to reduce greenhouse gasses
Date: Friday, 16 February 2018 3:54:00 PM
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Solomon Islands maritime industry calls for energy efficient operations to reduce greenhouse gasses

16th February 2018

Solomon Islands, Honiara – The Solomon Islands Ministry of Infrastructure and Development, Maritime Safety Administration (SIMSA) together with national ship operators, have called for greater investment in energy efficient operations to reduce greenhouse gasses. The call was made at the National Workshop on Energy Efficient Operations of ships, which was delivered by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific) from 13-16 February.

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The three-day workshop provided participants with an understanding of the latest developments at the international level; new technologies, tools and methods available to monitor and reduce fuel oil consumption from the operations of ships in the Solomon Islands, in order to contribute to national efforts to reduce greenhouse emissions and Nationally determined Contributions (NDC).

The Workshop participants agreed to implement relevant actions to continue progress towards safe and energy efficient shipping in Solomon Islands and recognised priority actions such capacity building, implementation of laws and standards and providing access to new technologies.

In his welcome remarks, Solomon Islands Permanent Secretary for the Ministry of Infrastructure and Development, Jimmy Nuake, highlighted the commitment of Solomon Islands saying, “Increasing the energy efficiency of the maritime industry is a priority for our nation and for our region. The Solomon Islands Government is committed to lead by example and we are calling on leaders in every sectors of our maritime industry to join us in making energy efficient operations a priority.”

SPC’s (Maritime) Transport Greenhouse Gas Advisor reiterated the commitments from MTCC-Pacific, its Host Institutions and its partners to assist the Pacific region for climate mitigation in the maritime industry and was “pleased with the commitment shown by leaders in Solomon Islands and confident that the knowledge shared during this week will make a positive impact towards efficiency targets”.

MTCC-Pacific is one of the five centres established in the world and forms part of the Global MTCC Network (GMN), implemented by the International Maritime Organization (IMO) and funded by the European Union. The Pacific Community (SPC) host MTCC-Pacific in collaboration with the Secretariat of the Pacific Regional Environment Programme (SPREP) as part of its approach to support sustainable maritime transport in the Pacific with a focus on safety and energy efficiency of domestic shipping.

MTCC-Pacific technical assistance is provided in conjunction with the SPC’s Pacific Islands Domestic Ship Safety (PIDSS) programme that aims at supporting domestic ship operators implement safety management systems on board their vessels. This constitutes a consistent approach in raising safety and efficiency standards in domestic shipping. PIDSS is implemented in 8 countries, 66 companies and 114 domestic ships in the Pacific.

Similar national workshops and ships visits will be organised in other Pacific Islands Countries in 2018.

Media Contact:

Lore Croker, MTCC-Pacific Administration and Information Assistant lore@spc.int

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Solomons call for clean shipping energy

Lice Movono

Friday, February 16, 2018

Update: 4:28PM SOLOMON maritime authorities have called for greater regional investment in clean energy for shipping at a regional meeting which ended in Honiara today.



Pacific Community
Communauté du Pacifique

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The shipping sector accounts for some of the highest carbon emissions for the region, a point which formed the basis of the call made at the National Workshop on Energy Efficient Operations of ships.

The Secretariat of the Pacific Community, which organises the annual event publicised the call which was made jointly by the Solomon Islands Ministry of Infrastructure and Development, Maritime Safety Administration (SIMSA) and the country's national ship operators.

"Today, there are 273 vessels operating in Solomon Islands waters including 252 vessels of more than 15 metres and 68 vessels of more 50 metres. All of them use fossil fuels for their operations," the SPC statement said.

"This has a significant impact on the level of greenhouse emissions of Solomon Islands that requires immediate action to reduce the impact on the environment and contribute to climate mitigation."

The workshop is facilitated by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific).

Anthony Mateiaomao

SI maritime calls for energy efficient operations

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