

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

MARSHALL ISLANDS NATIONAL WORKSHOP ON ENERGY EFFICIENT OPERATION OF SHIPS

Majuro, Marshall Islands

20-22 August, 2018



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EXECUTIVE SUMMARY

The First National Workshop (NW) on Ship Energy Efficient Operations (SEEO) was held in USP Marshall Islands Majuro Campus, Marshall Islands from 20-22 August 2018. The workshop was coordinated and facilitated by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific) and attended by representatives from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Marshalls Islands Shipping Corporation (MISC), Marshall Islands Marine Resource Authority (MIMRA), Ministry of Transport, Communications and Information Technology (MoTC & IT), National Training Council (NTC), Okeanos Marshall Islands (OMI), Pacific International Inc (PII), Republic of the Marshall Islands Environmental Protection Authority (RMI EPA), Tobolar Copra Processing Authority, University of the South Pacific (USP), and Pacific Community (SPC).

The purpose of the NW was to gain from the Marshall Islands government, its maritime administration and ship operator's agreement to improve ship energy efficiency in Marshall Islands. Also, to provide them with technical tools to progress toward SEEOs to comply with the recent Marine Environment Protection Committee (MEPC) Resolution 72 (9-13 April 2018) 'IMO Strategy' to reduce greenhouse gas emissions by up to 50% by 2050 compared to 2008.

The NW was organised in two parts but unfortunately due to few participants, the workshop agenda was amended to reflect the current situation. A high level presentations on the activities carried out in Marshall Islands were presented by representative of the Pacific Community (SPC), the University of the South Pacific (USP) and German Development Agency (GIZ). Furthermore, tailored presentations on shore to ship interactions were presented.

The second day morning session consisted of technical matters relating to the Energy Efficiency Design Index (EEDI), Energy Efficiency Operational Indicator (EEOI), Ship Energy Efficiency Management Plan (SEEMP) and potential operational measures and technologies to reduce greenhouse gas and improve energy use.

The afternoon session was conducted at the Marshall Islands Shipping Cooperation's office with their vessels crew. Tailored presentations on SEEMP, ship technical and operational measures were presented to the target group.

A Women in Maritime meeting was held on the third day morning session by the Maritime Training Adviser while the Maritime Industry Energy Efficiency Adviser visited Pacific International Inc. office and delivered tailored presentations on SEEMP, ship technical and operational measures to the target group consisting of ship managers, captains, chief engineers and crews. The workshop agenda is attached in Annex 2. The list of participants for each sessions is attached in Annex 1.

All NW presentations are attached in Annex 3 in consecutive order as outlined in the Agenda.

INTRODUCTION

The National Workshop (NW) on Ship Energy Efficient Operations (SEEO) was held in Majuro, Marshall Islands from 20-22 August 2018. The meeting was coordinated and facilitated by the Maritime Technology Cooperation Centre in the Pacific (MTCC-Pacific) and attended by representatives from Marshall Islands maritime transport sector and ship operators. The list of participants for each sessions is attached in Annex 1.

The purpose of the NW was to gain the Marshall Islands government, their maritime administration and ship operators to agree on measures to improve energy efficiency of shipping (SEE) and provide them with technical tools to progress toward SEE.

The NW provided capacity building in the areas of ship energy efficiency operations (SEEO), operational measures (SEEOM), management plans (SEEMP) and systems (SEEMS). However, due to lack of diverse participants, the workshop was conducted for specific groups during the 2.5 days. The participants from Marshall Islands Shipping Cooperation agreed to collect the essential baseline data on fuel oil consumption (FOC) 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 Marshall Islands and taking into consideration the need to contribute to national efforts in reducing GHGE, for SEEO and implement 'Ship and Shore' energy efficiency measures. Several tweets/retweets and posts/re-posts were also sent out on social media. Attached in Annex 6 are examples of communication and visibility activities that took place during the workshop.

DAY 1: TECHNICAL WORKSHOP

1 Workshop opening

The workshop participants were welcomed by Phil Philippo, Permanent Secretary for the Ministry of Transport, Communications and Information Technology. He recalled Marshall Islands lead in the combat against climate change at the international and regional levels, but also the need to lead by example at the national level. Involving all sectors including maritime transport. He thanked SPC and MTCC-Pacific for organising the workshop.

On behalf of USP, the USP Campus Director, Irene Taafaki welcome the participants in USP premises. She emphasised the need to have a collaborative approach and that all partners were invited to provide technical assistance to assist Marshall Islands in its ambitious targets. She also thanked SPC for agreeing to deliver this workshop in collaboration with USP under the auspices of the Micronesian Centre for Sustainable Transport (MCST).

Thierry Nervale, Deputy Director Oceans and Maritime of SPC and MTCC-Pacific project Director, presented on MTCC-Pacific progress and some of the results already achieved in some countries facing major challenges with domestic shipping. He noted that few ship operators were attending the opening of this workshop while they should seize all opportunities to participate in trainings and learn about ship energy efficiency. He also emphasized the good collaboration of partners and particularly SPC, GIZ and USP that have committed to coordinate their on-the-ground actions.

This workshop opening was an opportunity for the Women in Maritime network currently building and represented by Jessica Zebedee, Ozone and Environment Officer for Marshall Islands Environment Protection Authority, to call for more opportunity for women in Marshall Islands maritime sector and progress gender equality in maritime. She mentioned the organisation of a meeting for women in maritime at the end of this workshop to initiate discussion on gender equality in maritime and contribution to the Sustainable Development Goal 5.

USP Deputy Vice Chancellor Derrick Armstrong update the participants on the MCST operationalisation and the current recruitment of a manager for the next 4 years. This manager should be appointed in the next 6 months. He confirmed USP commitment to work with other partners and particularly MTCC-Pacific and MCST to ensure MCST research is used in future policy and project implementation in the region.

Last the GIZ project manager presented on progress of the project on Transitioning to Sustainable Sea Transport in Marshall Islands and the perspectives for inter-atoll and intra-lagoon sea transport in Marshall Islands.

2 Pacific Island Domestic 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.

Discussion

- PIDSS is available to assist ship engineers to review and improve their SMS and implement safety measures on board vessels.
- With the implementation of SoPs, from the PIDSS together with MTCC-Pacific pilot projects, Marshall Island could pave the way for safe and efficient sea travel.

3 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

- Standard Operating Practices (SOP) have been implemented on some vessels in Marshall Islands and the same checklist is being used by other operators to comply with safety issues.
- Lack of crew discipline is an issue in implementing any measures on-board vessels.
- There is lack of awareness on GHGE and no FOC DC system (DCS) is in place.

4 Ship-Board Energy Management *(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. Only a brief description of this topic was covered with an expectation that it would be covered in more detail in Day 2.

Discussion

- GIZ has made several recommendations for improvement of the operations and are currently working on implementing some of it.

5 Energy Efficiency Operations Indicator (EEOI) on Data collection *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

The project will initially commence with the data collection of fuel oil consumption (FOC). 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.

Group Discussion

- The simplicity of the requirements for reporting were not different from the normal ship logs e.g. cargo weight, voyage distance and time, and FOC that allow the EEOI to be calculated. It was re-iterated that it follows on from the PIDSS SOP under the SEEMP, is voluntary, is confidential and provides a non-dimensional figure based on an individual ships performance, but it requires at least 10 voyages over the same route to provide anything meaningful.
- GIZ is collecting fuel oil consumption data from Marshall Islands for their project. MTCC-Pacific has provided GIZ with the data collection template and SEEMP to GIZ project officer's to adopt and utilise in their project.

DAY 2: TECHNICAL WORKSHOP (MORNING SESSIONS)

Day 2 was divided into two sessions (morning & afternoon) due to limited number of participants and was discussed to have a focused group training in the afternoon with Marshall Islands Shipping Cooperation's vessels crew. The following discussions took place during the morning session.

6 Energy Efficiency Design Index (EEDI) Guideline *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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

- Pacific Islands Inc. participants are interested to calculate the EEDI of their vessels but they do not have the ship drawings and most of the machinery specifications are unknown.
- Most of the vessels are old and do not have any information available to calculate EEDI.

7 Ship Energy Efficiency Management Plan (SEEMP) Guideline *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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

Discussion

- All the MISC vessels has SEEMP drafted which is integrated with the SOP.
- During the SOP audit, MTCC-Pacific will assess the implementation of the SEEMP measures and consistencies of the data collection.

8 Ship Energy Efficiency Operations (SEEO) Measures *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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

Discussion

- One of the other measures they are interested in is keeping the vessels hull clean through continuous observations and have a proper maintenance plan. The hull rough could also be picked from the fuel oil consumption analysis.
- Optimizing the trim for each voyages seems like a good approach and GIZ is help MISC with this.

9 Ship Energy Efficiency (SEE) Technical Measures *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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.

Discussion

- Participants are under the impression that flettner rotor is a renewable technology which was corrected.
- Other technologies gained some interested but due to high cost and lack of technicians on island, ship operators tend to not venture.

10 A Transition towards Low Carbon Sea Transport in the Republic of the Marshall Islands *(Raffael Held, Marine Operational Eng., Technical Advisor)*

GIZ gave an overview of the project on reduction of RMI's GHG-Emissions from domestic sea transport. Discussions varied from data collection, evaluation and phases of the project.

Discussion

- Participants are interested to join the GIZ project especially if there are any financial gains interms of the retrofitting energy efficient technologies on board their vessels.

DAY 2: TECHNICAL WORKSHOP (AFTERNOON SESSIONS)

Day 2 was divided into two sessions (morning & afternoon) due to limited number of participants and was discussed to have a focused group training in the afternoon with Marshall Islands Shipping Cooperation's (MISC) vessels crew. The following discussions took place during the afternoon session at MISC office.

11 Energy Efficiency Design Index (EEDI) Guideline *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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

12 Ship Energy Efficiency Management Plan (SEEMP) Guideline *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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

13 Ship Energy Efficiency Operations (SEEO) Measures *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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

14 Ship Energy Efficiency (SEE) Technical Measures *(Mohammed Asid Zullah, Maritime Industry Energy Efficiency Adviser, SPC)*

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.

General Discussion

- The vessel crew are aware of the data collection on board vessels and they have been collecting fuel oil consumption data as directed by their operations manager.
- Operational energy efficiency is an interesting concept but the crew requested for more training on board.
- Vessel crews generally have little or no knowledge of climate change and they are unaware of IMO regulations. Most of the crew are schooled properly thus have limited capability for data recording.
- Safe Operational Plan and SEEMP has been developed for all MICS vessels but not practiced on board the vessel.

15 Closing Remarks *(Dr. M. A. Zullah, Maritime Industry Energy Efficiency Officer, SPC)*

On behalf of the MTCC-Pacific, Zullah thanked all the participants for attending and supporting PIDSS & MTCC-Pacific with their programs. He reiterated the importance of the data collection and contribution towards GHGE reduction and uptake of SEEO. Marshall Islands have been championing climate mitigation in international discussions and would like to see people's behaviour change toward conservation of energy use. Zullah also acknowledged the issues raised by the participants and informed them that the Marine Department will be doing its best to address them.

The Republic of the Marshall Islands (RMI) had previously adopted a long-term roadmap for reducing GHG emissions from the transport sector; that includes maritime transport in its Micronesian Centre for Sustainable Transport (MCST) Framework passed through the RMI Cabinet in 2016. The University of the South Pacific (USP) Majuro Campus Director requested on 20 February 2018, requested that MTCC-Pacific to introduce the MCST Framework to obtain commitment from the workshop participants.

USP presented and shared the MCST framework to participants at the RMI MTCC-Pacific national workshop as the overarching framework to guide initiatives in the country and which constitutes the long-term roadmap for the RMI. No other outcome was adopted in the Marshall Islands.