The Need of Education and Training on Maritime Energy Efficiency (EE) in Myanmar

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Objectives

- To highlight the **barriers** of developing countries to implement EE
- To **link** up the developing and developed countries in operating of EE plans
- To point out the **essential role of education and training** in improving EE technology
Topics

Part I: Introduction
Part II: Myanmar Maritime Industry Situation
Part III: Current Activities of Training Institutes in Myanmar
Part IV: Best Practices for Myanmar
Part V: Discussion & Conclusion
Part I: Introduction

Marine Energy Efficiency

- Developed countries
- Developing countries
- Underdeveloped countries

- To eliminate air pollution by shipping industry
- To establish clean ocean and green environment in Myanmar
IMO Energy Efficiency Measures in Marine Industry

Regulations by IMO

- Design measures
  - EEDI
- Operational measures
  - SEEMP
  - EEOI
- Market Based measures
Part II: Current Myanmar Maritime Industry Situation

i. Strengths

1. Geographical feature
   - Strategic area of South East Asia
   - Long coastal line and deep sea ports
   - Shortest way to contact east and west of the world
   - Many navigable rivers

2. Natural Resources
   - Oil
   - Natural gas
   - Resources for renewable energy such as wind, wave, tide, hydraulic and solar

3. Human Resources
   - Humble people
   - Quick leaners
ii. Weaknesses

1. Inland Region
   - Outdated inland vessels
   - Lack of awareness
   - Shortage of modernized seafarers
   - Poverty of regional people

2. Offshore Region
   - Insufficient operational support
   - Lack of marine environmental protection
   - Lack of legislation and contingency plans

3. Myanmar Shipbuilding and Port sector
   - Still applying conventional method in building
   - Not really get enough information about EE
   - Need more facilities and infrastructure in port operation
   - Draft limitation for sea going vessels
III. Important Role of Education and Training (E&T) for Human Resource rather than Natural Resources

- State income achieved by exporting raw natural resources
- Lack of technology to apply the raw materials to become quality exports (for example: LNG bunkering stations in Deep sea ports)
Part III: Current Activities for Energy Efficiency Management of Training Institutes in Myanmar

- MMU (Myanmar Maritime University)
- MMMC (Myanmar Mercantile Marine College)
- Private Training Centers authorized by DMA
Recent Researches within 2014 to 2016

Study of Trim Dependence for Ship performance in the Actual Sea Conditions by Computational Fluid Dynamics (CFD)

Study on Hull Form Optimization for Minimum Wave Resistance Based on Rankine Source Method

Trim Optimization of container ship by test tank and numerical simulation

Analysis of the Passenger Ship with EEDI Specifications: Using Light Material for Superstructure (Renovation Technology)
Certificate of Competency Courses (CoC) are based on IMO model courses 7.01, 7.02, 7.03, 7.04
Part IV: Proposing Best Practices for EE Training in Myanmar

**Legislation**
- National laws for Air pollution
- MARPOL, Annex VI
  (Suitable guideline: Annex 7, MEPC 62/24)

**Building Networking Capacity**
- Not only Academic Activities but also National and International Activities.

**Best Practices**

**Adhesion to IMO Model Courses**
- Training Courses on Energy Efficiency
- Operation of Ships

**Cooperation with Regional Society**
- ASEAN; BIMSTEC; Colombo Plan and etc.
Part V: Discussion and Conclusion

I. Discussion

Hierarchies for Implementations of Marine Energy Efficiency Measures

- Government Supports and People Self-awareness
- Implementation of Marine Environmental Conservation Plans
- Green Ships, Competent Seafarers and Clean Ocean
Government Organizations and Recognized Organizations can:

- **Coordinate** in national level
- **Cooperate** at international level
- **Promote awareness** amongst recognized classification societies
- **Support and Incentives** ship owners and builders
- **Set fuel-efficiency standards** and labeling for vehicles
II: Conclusion

*Root Causes of Barriers are lack of:*

- **Embedded legislation**
  - For Environmental protection especially for marine environment air pollution

- **Information & Technology**
  - Amongst Stakeholders; Ship owners/builders, Port Administrators, Classification societies

- **Affordable funding**
  - To apply the energy efficiency measures
  - To build facility and infrastructures

- **Awareness**
  - Policy Information & Implementation barrier
  - Local Ship operators
  - Local people base on their poverty
E&T should emphasize on the following areas by applying the proposed best practices:

- Formal Education Sector
- Informal Education Sector
- Human Resource Capacity Building
- Networking, Collaboration and Communication
References:


Dr. Aykut Olcer, T. N. (2013). Training course on Energy Efficiency Operation of Ships. WMU-IMO.


Thanks for your Attention
Question!!!