REPORT OF THE 3rd REGIONAL TECHNICAL WORKSHOP ON

SAFETY AT SEA

AND OPTIMIZING ENERGY USE FOR SMALL FISHING BOATS

19-22 DECEMBER 2011
Samut Prakan, Thailand

Training Department
Southeast Asian Fisheries Development Center

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I. INTRODUCTION

1. The 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats was organized by the SEAFDEC Training Department (TD) in Samut Prakan, Thailand from 19 to 22 December 2011. The Workshop was attended by representatives from Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippine, Singapore, Thailand, and Vietnam as well as from the SEAFDEC Secretariat, TD, MFRDMD, and other international organizations/ institutes including Fisheries Research Agency (FRA), and International Maritime Organization, International Labor Organization. The List of Participants appears as **Annex 1**.

Opening of the Workshop

2. The Deputy Secretary-General of SEAFDEC, Mr.Kenji Matsumoto welcomed the participants and thanked them for coming to the Workshop. He explained that this Workshop was organized to follow up with the international and regional related issues on safety at sea for small fishing boats, and to introduce the needs to optimizing energy use for small fishing boats. The Workshop focuses on three aspects. First is the establishment of an appropriate mechanism for recording accidents at sea of fishing boats. The second is to explore ways to improve the working conditions of small fishing boat operators, and lastly, to introduce and promote energy use optimization in small fishing boats in the Southeast Asian Region. His Opening Statement appears as **Annex 2**.

Overview and Objectives of the Workshop

3. The Head of Information and Training Division, Mr. Bundit Chokesanguan elaborated on the background and objectives of the Workshop especially on the progress of activities in the Southeast Asian Countries on the issues recommended at the 2ndRTC on Safety at Sea for Small Fishing Boats organized by SEAFDEC/TD during 20-23 April 2010. He then explained the overview and workshop's expectation to the participants. His presentation appears as **Annex 3**.

4. The Agenda of the Workshop and its arrangements was adopted, which appears as **Annex** 4.

II. THE FOLLOW-UP TO THE IMPLEMENTATION AND PROMOTION OF THE SAFETY AT SEA FOR SMALL FISHING BOATS IN SOUTHEAST ASIA

5. The progress of national activities to follow-up the recommendations made at the 2nd Workshop was presented to the Workshop by the Countries Representatives as follow.

2.1 Cambodia

6. The Deputy Director of the Department of Fisheries Affairs of Fisheries Administration in Cambodia, Mr.Chhuon Kimchhea presented boat registration, accident reporting and safety at sea in Cambodia **(Annex 5**). He explained that based on the Regional Fisheries Livelihood Program RFLP (2009-1013), there are main output of two activities being conducted include vessel registration and accident reporting systems which mainly focus only in coastal areas. The pilot accident reporting and

analysis systems for small fishing vessels were started in 2010 which seem to works efficiency. Cambodia will continue using the systems. For the safety at sea issues Cambodia has disseminated existing regulation and promotion materials on safety at sea as well as building capacity of local authorities, and Communities of Fisheries (CFi) members on safety at sea for small fishing boats and keep training the boat builders, owners, skippers on the boat building. However, there are still facing some difficulties in the implementation processes such as to change local people attitude to envisage the benefit of their boat registration and accident reporting system.

2.2 Indonesia

7. Representative from Indonesia, Mr. Suryanto reported on Current Situation of Safety at Sea: Progress of the Indonesia on Implementation and Promotion of the Regional Recommendation of Safety at Sea for Small Fishing Boats (**Annex 6**). Although Indonesia has yet been ratified the International Convention on Standards of Training, Certification and Watch keeping for Fishing Vessels Personnel 1995 (STCW-F 1995), but fisheries education and training institutions in Indonesia are already using the principles of STCW-F 1995 to promote this issues. The objectives of STCW-F 1995 is to increase education and training standards of the vessel's crew. Classification of fishing vessels size based on the STCW-F 1995 for engine department needs to be adjusted into 3 groups. The fishing fleets in Indonesia are dominated by small-scale fisheries and the education level of the fishers is still at low level. It was recommended that the national government should pay more attention to increase knowledge and skills on maritime safety of life at sea, property and conservation of marine environment. Education and training curriculum in Indonesia that developed with the principles of theSTCW-F 1995 covering knowledge and skills of navigation skills, maritime safety, and fishing skills as well as code of conduct for responsible fisheries should be fully implemented to the fishing personnel in Indonesia.

2.3 Japan

8. Representative from National Research Institute of Fisheries Engineering, Fisheries Research Agency, Dr. Akihiko Matsuda, presented current situation of safety at sea in Japan **(Annex 7)**. His presentation covered standard of fishing boats, skill and knowledge of crew, relevant regulations and accident report. The regulation concerning with safety at sea covers fisheries management measures, standard of fishing vessel and, and etc. Insurance system for fishing vessels system has been effectively implemented in Japan, the system applies under the decision of the fishers, which are not regulated by any laws or regulations.

2.4 Lao PDR

9. The representative from the Department of Livestock and Fisheries (DLF) of Lao PDR, Mr. Phouthong Singhakham reported the current status of safety for freshwater fishing boat **(Annex 8).** Previously, there some accidents occurred in reservoirs due to strong wind but it was not the serious case. It also informed the Workshop that data collection system and accidents recording for small fishing boats are not established. However, experience and lessons learned from the safety issues for small fishing boats in marine and coastal waters could also be applied in Lao. Fishing boats registration is also hardly to implement in Laos but there is currently a pilot project dealing with the safety of small fishing boats in Mekong River.

2.5 Malaysia

10. Follow up of implementation and promotion on safety at sea for small fishing boats in Malaysia (**Annex 9**), the representative of the Department of Fisheries, Malaysia explained the safety standard of fishing boats in the national fisheries management zones. As the there are small outboard power

boat and inboard power boat operating in their national EEZ, the boats must be registered and identified through the restricted markings such as fixed registered number, code zone, color of the wheel house (only for inboard-powered boats). The standard of crew consists of; the number of crew and fishers' registration card. The regulations concern in safety at sea are Fisheries (Maritime) (Licensing of Local Fishing Vessel) Regulations 1985 Act 1985, where the fishing boat registration system is under responsible of the Department of Fisheries Malaysia. In addition, their safety standard of the fishing boats has to be annually inspected by the national authorities before the renewal of their fishing license.. The promotion of the basic requirements for safety at sea has been implemented via their national training courses. Moreover, the promotion on awareness among stakeholders through the use of appropriate communication system was also conducted.

2.6 Myanmar

11. The Assistant Director of the Department of Fisheries of Myanmar, Mr. Khin Maung Aye presented Small Fishing Boats Safety at Sea in Myanmar (**Annex 10**). The safety management measures in Myanmar includes; fishing boat safety, boat's inspection at port. He reported that the necessary data for safety standards were collected by the Department of Fisheries Officials, navy, coast guard and police force. Constraints for improvement of the safety standard of the fishing boats in Myanmar include: weakness of fishing boats' reporting system; no communication equipment onboard fishing boats; and insufficient knowledge on first aid and basic seamanship. Due to the fact that the inland and coastal area of the country is too long and remote, this made the national recording on accident at sea in the country too difficult. However, the training program related to safety at sea was implemented in line with the STCW-F 1995, Code of safety for fisherman and fishing vessels by FAO. The promotion material such as awareness safety posters was produced and disseminated to fishers.

2.7 Philippines

12. The representative of Bureau of Fisheries and Aquatic Resources (BFAR), Ms. Drusila Esther E. Bayate reported on the current status of safety at sea in the Philippines **(Annex 11)**. Types of fishing boats in the Philippines are commercial and municipal/ artisanal. Maritime Industry Authority (MARINA) conducted to seaworthiness and sea safety of the boats. The main problem encountered consisted of no safety at sea standard for small boats (national government agencies that responsible for fishing boats above 3GT. Regulation of small fishing boats are newly devolved (E.O. 305, 2008) to local government units who have inadequate human and institutional capability to formulate policies for safety standards of small fishing boats), the difference of agency that conduct on safety at sea (registration and regulation of small fishing boats within the jurisdiction of local government units while sea safety standards are implemented by national government agencies (MARINA)), and there are currently no training on sea safety for small fishing boats.

2.8 Singapore

13. The representative from Agri-Food & Veterinary Authority (AVA), Mr. Tay Guan Joo presented on Safety at Sea for Small Fishing Boats in Singapore **(Annex 12).** He explained on number of fishing boats, types of fishing boats, classification of fishing boats, and safety inspection & requirements. All fishing boats are required to undergo a yearly inspection conducted by AVA officers before the boat owners are able to renew their yearly boat licenses and insurances. Inspection of overall structure of boat to ensure it is sea-worthy for operations, crew book which has all the relevant information of the boat and crews and the safety equipments such as transponder system, navigation lights, fire extinguishers, life jackets / buoys, hand-flare, oars and anchor with compliance of the requirement for the marine protect areas (MPAs). In 2009, it is compulsory for all fishing boats

which are plying in their territorial waters to install the HARTS or AIS Transponder System by MPA's regulations for accountability purposes during any exigencies. It should a distress signal activated from boat's transponder; the MPA and Police Coast Guard will activate their resources to the boat for search and rescue operations.

2.9 Thailand

14. The representative from the Department of Fisheries, Thailand, Mr. Chalit Sangangam reported on the current status of safety at sea in Thailand **(Annex 13)**. He reported the fishing boats in Thailand were classified into two classes. One is deep sea and another is small-scale fishing vessels. He also reported on situation for boats registration and fishing licensing in Thailand. All boats including fishing boats should be registered to Maritime Department, while fishing license is issued by Department of Fisheries.

2.10 Vietnam

15. Implementation and promotion of safety at sea for small fishing boats in Vietnam (**Annex 14**) was reported by the representative from Department of Capture Fisheries and Resource Protection, Vietnam. The report included registration and inspection for fishing boats. According to the Law of Vietnam Fisheries, all of fishing vessels must be registered and all of the fishing boats installed with the engine capacity over 20 Hp must be inspected the safety condition following rules for classification and construction of small fishing vessels. The training course related to safety at sea was implemented to fishers. Ministry of Agriculture and Rural Development (MARD) has regulated the document for reporting of vessel accidents. The local government should comply with the regulation on to immediately accidents, typhoon and storm attack. In 2011, the building up of statistic software of vessel accident was implemented as a pilot program within 28 local governments. The government supports the funding for improvement the activities on safety at sea such as safety training, supporting to change new engine, radios, life-saving appliances for inshore fishing boats, and accidents insurance for fishing crews.

III. REGIONAL/ INTERNATIONAL RELATED ACTIVITIES ON IMPLEMENTATION AND PROMOTION ON SAFETY AT SEA FOR SMALL FISHING BOAT

3.1 SEAFDEC/TD

16. Representtative from SEAFDEC/TD, Mr. Kongpathai Saraphaivanich presented on SEAFDEC activities related to the implementation and promotion on safety at sea for small fishing boats **(Annex 15)**. . It included the organization of the Regional Workshop on Safety at Sea, The outcome of the workshops in the 2003 and 2010 include recommendations on safety at sea for small fishing boats in Southeast Asia, package of information material to promotion safety at sea in the region and enhancement and promotion safety at sea activities in the region for the future as the follow up based on the regional directives from Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Toward 2020. Moreover, Mr. Anurak Loog-On also presented the procedure of accident report and record to accident analysis & accident reduction and preventing.

3.2. International Maritime Organization (IMO)

17. The representative from IMO, Ms. Brenda Pimentel presented the background of IMO initiative activities related to safety at sea, and introduced the Code of Safety for Fishermen and Fishing Vessels and Voluntary Guidelines for the Design Construction and Equipment of Small Fishing Vessels that initiated and developed by IMO. The Code of Safety for Fishermen and Fishing Vessels

was focused on originally for skippers and crews of fishing vessels, directed towards competent authorities, training institutions, fishing vessels owners, fishing boat builders and other key stakeholders. The contents of the Code consists of; administrative requirements, legal implications and operational safety. Her presentation appears as **Annex 16**

3.3 Asian Research Center for Migration (ARCM)

18. The representative from ARCM, Prof. Dr. Supang Chantavanich presented the Investigating Fishing Boat and Migrant Fishing Crew in Thailand **(Annex 17).** Flags of convenience (FOC) system, including the migrant crew requirement in fishing sector as well as the reality condition of fishing crew with hard work but inadequate safety equipments and poorly paid. She also gave information on good practices modules to mitigate exploitation & promote good captain perception exploration such as knowledge about the sea, ability to catch more fish and good character. For inspection of fishing boat and crew there are many sectors involve: Marine Department, Marine Police and Navy, Immigration Office, Department of Welfare and labor protection (DWLP), fisheries Department (DOF) and Office of employment (DOE). The presenter highlighted that there are the needs to strengthen more on the safety at sea and working condition issues, the proposal in research should concern also on national policy, and we need also to consider the employ countries which also need to apply the safety concern for their migrant crew.

3.4 International Labour Organization (ILO)

19. The representative from ILO, Ms. Kuanruthai Siripatthanakosol gave the brief on Promotion on Safety at Sea based on labour protection Aspects **(Annex 18).** Presentation focused on the background of international labour standard. The ILO, a tripartite organization, started discussion on the need to have a comprehensive labour standard on work in the fishing sectors in 2002 which later was adopted in the form of the Work in Fishing Convention No.188 and its accompanying Recommendations No. 199 in 2007. The Work in Fishing Convention and its Recommendation has been tailored to reflect particular characteristics of the fishing industry. Having considered as a global labour standard, the objective of the Convention is to ensure that fishers worldwide are entitled to decent work, like all workers. The Convention adopts a flexible approach to the definition and scope of application but addresses what are the minimum requirements for work on board which should be applicable to all relevant fishers. There are: conditions of service; accommodation and food; occupational safety and health protection; medical care and social security. The presentation also focuses on update of Thailand's labour protection scheme for fishers working /employed by Thai employers under the Ministerial Regulations of the Labour Protection Act B.E.2541 (1988) which is the main Act on labour standard. However, the draft Ministerial Regulation, though it looks improved from the current Regulation, fails to address minimum requirements of labour standards offered in the Convention. This will lead fishers, regardless of nationality are inadequately provided protection.

IV. DISCUSSION ON IMPROVEMENT OF SAFETY AND WORKING STANDARD FOR FISHING BOATS AND FISHERS

20. The discussion on improvement of safety and working standard for fishing boats and fishers was made by separating the participants into two groups. Group I discussed on establishment of mechanism/ system for recording accidents at sea of small fishing boats, while Group II discussed on minimum requirements on safety and working standard for small fishing. The results of the group discussion appear as **Annex 19 and 20.**

V. DISSUCSSION ON HUMAN CAPACITY BUILDING AND AWARENESS BUILDING PROGRAMS ON SAFETY AND WORKING STANDARD FOR SMALL FISHING BOATS AND FISHERS

21. The plenary discussion on the needs for human capacity building and awareness building programs on safety and working standard for small fishing boats and fishers was conducted in two topics: 1) requirement of training and awareness building program to improve the safety at sea for small fishing boats and fishers in Southeast Asia; and 2) production of appropriate awareness building materials and training materials.

22. The common concerns on the needs for human resource capacity and awareness building program can be summarized as follow:

a. Training for the trainers courses (for local government and fisher folk), onsite training and/or mobile training programs should be conducted with the focus on basic of safety and working standard including the minimum requirement information, working condition, boat construction for safety aspects, rescue, survival on critical conditions.
b. The Member Countries should address the issues on safety at sea through conduct training program by national authority.
c. Crew members of the fishing boats should be well trained, in particular on the basic safety onboard fishing boats.
d. The responsible authorities should aware and make use of communication equipment such as weather radio broadcast in order to mitigate the accident at sea of the skipper and fishers.
e. Skippers and fishers should aware of safety and working standard such as the use of life jacket, how to make life jacket from the local/available materials and etc.
f. The simple extension media such as poster, booklets should be produced and used for raising awareness of all key stakeholders with the concern on safety and working standard for small fishing boats and fishers.

VI. INTRODUCTION OF OPTIMIZING ENERGY USE IN SMALL FISHING BOATS

6.1 Fisheries Research Agency (FRA)

23. The representative from FRA, Mr.Hideki Tsubata presented the Energy saving of fishing vessels in Japan **(Annex 21).** He focused on energy saving in fisheries, operational methods for energy saving, technical methods for energy saving, perspective of future technology development. The low productivity of many fleets is currently a major concern in the fisheries sector. The high oil price is one of causes of economic difficulties for the fleet. It is possible to reduce fuel consumption by means of operational methods and technical methods for energy saving or energy optimization, and possibly in the future innovative hull forms, fishing gear and other relevant technologies. Operational methods (software oriented practices) for energy saving technologies such as speed down, lightening vessel weight seem to be promisingly effective/usable methods for all type of vessels, irrespective of the size and type of fishing.

6.2 KLEISS Co., LTD.

24. The representative from KLEISS Co., LTD presented optimizing energy utilization **(Annex 22).** He showed the value and efficiency of the product namely “Fuel Economizer”. The material of this product is multi-national patented made up of variety of composite materials and contain ceramic particles, which are safe and stable. The function of this product can reduce greenhouse gases and

toxic emissions such as HC, CO, SO_2, NOX and CO_2. This product can reduce the cost and protect the environment.

VII. THE FUTURE ACTIVITIES AND PROJECT OF OPTIMIZING ENERGY USE FOR FISHING NI SMALL FISHING BOAT IN THE REGION

25. This agenda was facilitated by three representatives from SEAFDEC/TD. The proposal of project on Optimizing Energy Use in Capture Fisheries in Southeast Asia **(Annex 23)** was presented by Mrs. Panitnard Taladon. She explained the necessity of the project implementation which also related to Resolution and Plan of Action on Sustainable Fisheries for Food Security Towards 2020. The project objectives, activities and expected outcomes were also presented.

26. The topic on Optimizing Energy Use in Small Fishing Boat for Fish Handling **(Annex 24)** was reported by Mr.Suthipong Thanasansakorn. SEAFDEC/TD has promoted reduction of the post-harvest loss through introduction of good practice/techniques of fish handling onboard fishing boats under hygienic condition, starting with preparation of the fish holes onboard, tools and equipment, the use of water for fresh fish clearning, sorting and separation of the spoilage catch, temperature of fish holes (chilling room), appropriate arrangement of catch in the fish hole, techniques on the use of chilling ice seawater, and system of refrigerated seawater and brine. These methods could make temperature at the center of the fish body down to 0°C. With the aim to maintain good quality of the catch and optimize energy for fish handling onboard, particularly for “thermal energy storage” by producing and accumulating the cold medium (cold water, ice, and sherbet ice, etc.), this technology/knowledge can be used not only for improvement of catch quality onboard fishing boats but also can be applied at the landing sites; reduce the initial cost of the cooling system; reduce the energy cost for cruising; reduce engine maintenance as well as the manpower costs.

27. Moreover, the project proposal on “Reduction of Fuel Use in Fishing, Design and Construction of Trawl Net” **(Annex 25)** was presented by Mr. Isara Chanrachkij, Fishing Gear Technologist This project will be implemented in collaboration with Department of Fisheries, Thailand aiming to study the influence factors to reduce energy used in trawl fishing operation and study on greenhouse effect released from the trawlers.

VIII. DISSCUSSION ON COORDINATION AND COOPERATION BETWEEN REGIONAL/ INTERNATIONAL ORGANIZATIONS/ INSTITUTION AND MEMBER COUNTRIES

28. The representative from SEAFDEC/TD, Dr. Worawit Wanchana proposed the function, framework and responsibility of a network for “Safety at Sea and Optimizing the Use of Energy for Small Fishing Boats in Southeast Asia” (SOS Network). His proposal appears as **Annex 26**.

IX. CONCLUSION AND RECOMMENDATIONS

29. The Workshop agreed the recommendations which appear as **Annex 27**. Moreover, the Meeting also emphasized on the need to develop a dedicated electronic mail network on Safety at Sea and Optimizing the Use of Energy for Small Fishing Boats in the Southeast Asian region.

X. CLOSING OF THE 3rd REGIONAL TCHNICAL WORKSHOP

30. The Deputy Secretary-General of SEAFDEC and Deputy Chief of SEAFDEC/TD, Mr. Kenji Matsumoto thanked the participants for their active participation and for the information provided and discussion during the Workshop, which SEAFDEC could refer to in its continued efforts in promoting the improvement of safety at sea and optimizing the use of energy for small fishing boats in Southeast

Asian region. After ensuring that SEAFDEC would make efforts to promote the improved safety conditions of the region's fishing vessels and the fishermen on board in accordance with the international standards and practices. Moreover, It is started in the aspect of safety at sea and energy optimization in the region. He declared the Workshop closed. His Closing Remarks is shown as **Annex 28**.

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Mr.Kenji Matsumoto
SEAFDEC Deputy Secretary General & Deputy Chief of TD
3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats
19-22 December 2011, SEAFDEC Training Department

Distinguished Guests, Participants, Ladies and Gentlemen, Good morning!

It is indeed a great pleasure for me to welcome you all to this Third Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats. SEAFDEC had always recognized the importance of safety at sea for the fishing boats in our region which are generally considered small-scale. This Workshop is therefore part of our commitment to assist the Member Countries in promoting international safety measures and standards for their fishing vessels as well as for the fishers and the vessel crew.

We are all aware that there are over a million small fishing boats operating in the Southeast Asian region. Such big number could easily pose high risks in fishing operations. Although some fishers and crew could be very skillful as accomplished sailors, and possessing great amount of knowledge on weather and sea conditions, accidents involving fishing boats still continue to happen. This is coupled with natural disasters that could occur unexpectedly due to the effects of climate change and global warming.

Two workshops on safety at sea had been organized by SEAFDEC/TD in collaboration with the SEAFDEC Member Countries. The first was in 2003 followed by the second in 2010. The recommendations from those workshops included among others the establishment of a collaborative mechanism among relevant agencies, organizations and authorities for improvement and promotion of safety at sea for small fishing boats and other requirements, and preparation and implementation of regional guidelines for safety at sea of small fishing boats for Southeast Asia. Considering such recommendations as over-all framework, it was also suggested that appropriate programs on safety at sea be developed by the respective Southeast Asian countries, and that the implementation of safety at sea programs for small fishing boats should be continued to reduce accidents from fishing operations.

Moreover, the current volatility of fuel prices which is of significant concern for the future viability of the small-scale fisheries could have great impact of the livelihoods of fishers. Together with labor, fuel is the most important input cost in capture fisheries and is becoming a major constraint in the economic viability of fisheries. This is especially the case in developing countries where access to and promotion of fuel reducing technologies are extremely limited.
The link between energy usage, costs and greenhouse gas (GHG) emission could therefore be established as an important contribution of fisheries to GHG reduction, through the adoption of energy saving technologies and practices that reduce reliance on fossil fuel and contribute to the financial viability of small-scale fisheries.

In this regard, the 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats is being organized from today until Wednesday, as a follow up to international and regional initiatives related to safety at sea for small fishing boats. Our Workshop would place special focus on three aspects. First is the establishment of an appropriate mechanism for recording accidents at sea of fishing boats. The second is on the improvement of the working conditions of small fishing boat operators, and lastly, on the introduction and promotion of energy use optimization in small fishing boats in the Southeast Asian Region. There is lot of requirements to achieve the objectives of this Workshop. I therefore wish that all of us will do our active roles in attaining our goals.

With that note, Ladies and Gentlemen, I take great pleasure in declaring this important workshop open. I look forward to the success of this workshop, and hope that we can come up with recommendations which SEAFDEC and the Member Countries could use as framework for the formulation of appropriate programs and activities to promote the issue on Safety at Sea and Optimizing Energy Use for Small Fishing Boats in our region. Thank you once again and good day!

3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats

19-22 December 2011,
SEAFDEC Training Department

Overview of the Workshop

1st Regional Workshop on Safety at Sea for Small Fishing Boats (2003)

2nd Regional Workshop on Safety at Sea for Small Fishing Boats (2010)

⇒ Recommendations

3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats (2011)

Workshop Objectives

- To follow up the implementation and promotion of the regional recommendations on safety at sea from the 2010 workshop;
- To discuss the minimum requirements of safety at sea for small fishing boats, and working standard for fishers;
- To introduce and promote the optimizing energy use in small fishing boats;
- To develop guidelines, awareness building materials and training materials for safety at sea for small fishing boats, and working standard for fishers; and energy saving for small fishing boats; and
- To coordinate and cooperate with regional/international organizations/institutions and member countries including the establishment of a network for safety at sea and fuel optimization.

Agenda

Agenda 1: Opening session and introduction
Agenda 2: Overview of the Workshop
Agenda 3: Adoption of the agenda and arrangement

Agenda

Agenda 4: Presentation on the follow-up to the implementation and promotion of safety at sea for small fishing boats in Southeast Asia (by member countries)
Agenda 5: Regional/ International activities related to the implementation and promotion on safety at sea for small fishing boats

⇓

Up-to-date information on implementation and promotion of the Recommendations of 2010 workshop on safety at sea for small fishing boats in Southeast Asia

Agenda

Agenda 6: Discussion on improvement of safety and working standard for fishing boats and fishers
- Establishment of mechanism/system for recording accidents at sea of small fishing boats
- Minimum requirements on safety and working standard for small fishing boats and fishers

⇓

• Finalization of an accident recording form for small fishing boats.
•The minimum requirements on safety and working standard for fishing boats and fishers for developing regional guidelines.

Agenda

Agenda 7: Discussion on human capacity building and awareness building programs on safety and working standard for small fishing boats and fishers

- Requirement of training and awareness building programs to improve the safety at sea for small fishing boats and fishers in Southeast Asia
- Production of appropriate awareness building materials and training materials

⇩

Development of a training curriculum, awareness building materials and training materials and tool kits for safety standard fishing boats and fishers

Agenda

Agenda 8: Introduction of optimizing energy use in small fishing boats

Agenda 9: Future activities and projects of optimizing energy use in small fishing boats in the region

⇩

Understanding of key issues and implementing of activities on optimizing energy use for small boats in Southeast Asia

Agenda

Agenda 10: Discussion on coordination and cooperation between regional/international organizations / institutions and member countries

⇩

Establishment of a network of safety at sea and optimizing energy use for small fishing boats.

Agenda

Agenda 11: Conclusions and recommendations

Agenda 12: Closing

Agenda 13: One-day study trip

Time	Activity
0800	Leave SEAFDEC/TD for Samut Sakorn Province
0900-1000	Visit Samut Sakorn Fishing Port
1100-1200	Observe LPG use for small fishing boat
1200-1330	Lunch
1400-1500	Visit fishing boat dock yard
1500-1700	Visit Central Rama II

Thank you

3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats

19-22 December 2011, SEAFDEC Training Department

Keywords: capture fisheries, fossil fuel, greenhouse gas, safety at sea, small fishing boats

Provisional Prospectus

I. Background and Rationale:

There are over a million small fishing boats operating in the Southeast Asian region. This large number could easily pose high risks in fishing operations. Although some fishers and crew could be very skillful as accomplished sailors, and possessing great amount of knowledge on weather and sea conditions, accidents involving fishing boats would still continue to happen. Further, safety at sea would also be undermined by natural disasters that occurred unexpectedly/frequently also due to the effects of climate change and global warming.

Two workshops on safety at sea were organized by SEAFDEC/TD in collaboration with the SEAFDEC member countries in 2003 and 2010. The recommendations from those workshops included the establishment of a collaborative mechanism among relevant agencies, organizations and authorities for improvement and promotion of safety at sea for small fishing boats and other requirements such as good living conditions on board fishing boats through preparation and implementation of regional guidelines for safety at sea of small fishing boats for Southeast Asia. Considering the recommendations as over-all framework, the Workshop in 2010 also suggested that appropriate regional programs on safety at sea be developed by the respective Southeast Asian countries. In addition, the implementation of safety at sea for small fishing boats should be continued to reduce accidents from fishing operations.

Besides human well being, sustainable environmental development is another important issue, which needs to be taken into consideration. It is well recognized that, fisheries is an important sector, but also a source of increasing greenhouse gas (GHG) emission and that it needs to be part of the international climate change mitigation framework. More than 0.85% out of 1.47 million vessels used in fisheries are powered by fossil fuel in the Southeast Asian Region (2008). Considering the current volatility of fuel prices, this is of significant concern for the future viability of the small-scale fisheries and could be a major concern for their livelihoods. Together with labour, fuel is the most important input cost in capture fisheries and is becoming a major constraint in the economic viability of fisheries. This is especially the case in developing countries where access to and promotion of fuel reducing technologies are extremely limited. The link between energy usage, costs and GHG emission suggests that fisheries can make an important contribution to GHG reduction through adoption of energy saving technologies and practices that reduce reliance on fossil fuel and contribute to the financial viability.

In this regard, the 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats will be organized as a follow up to international and regional initiatives related to safety at sea for small fishing boats with special focus on (i) establishment of an appropriate mechanism for recording accidents at sea of fishing boats; (ii) improvement of the working conditions of small fishing boat operators; and (iii) introduction and promotion of energy use optimization in small fishing boats in the Southeast Asian Region.

II. Objectives:

1. To follow up the implementation and promotion of the regional recommendations on safety at sea from the 2010 workshop;
2. To discuss the minimum requirements of safety at sea for small fishing boats, and working standard for fishers;
3. To introduce and promote the optimizing energy use in small fishing boats;
4. To develop guidelines, awareness building materials and training materials for safety at sea for small fishing boats, and working standard for fishers; and energy saving for small fishing boats; and
5. To coordinate and cooperate with regional/international organizations/institutions and member countries including the establishment of a network for safety at sea and fuel optimization.

III. Date and Venue: 19 to 22 December 2011 (4 days), at SEAFDEC/TD, Thailand

IV. Expected Outputs:

1. Up-to-date information on current situation of implementation and promotion on safety at sea for small fishing boats in Southeast Asia.
2. Identification of the minimum requirements on safety and working standard for fishing boats and fishers.
3. Discussion on establishment of mechanisms/systems on recording accidents at sea of small fishing boats.
4. Introduction and promotion of the key issues on optimizing energy use in fishing for small boats in Southeast Asia.
5. Development of a regional guideline, awareness building materials and training materials of for safety standard and energy saving for small fishing boats and fishers.
6. Establishment of a network of safety at sea and optimization of energy used for small fishing boats.

V. Target Participants and Resource Persons:

1. Representatives from SEAFDEC member countries, who engage in and are responsible for safety at sea for small fishing boats and/or energy saving; and
2. Representatives from relevant national/regional/international organizations
3. Representatives from SEAFDEC Secretariat and Departments

VI. Agenda

1. Opening session and introduction
2. Overview of the Workshop
3. Adoption of the agenda and arrangement
4. Presentation on the follow-up to the implementation and promotion of the safety at sea for small fishing boats in Southeast Asia (by the member countries)
5. Regional/ International activities related to the implementation and promotion on safety at sea for small fishing boats
6. Discussion on improvement of safety and working standard for fishing boats and fishers
7. Discussion on human capacity building and awareness building programs on safety and working standard for small fishing boats and fishers
8. Introduction of optimizing energy use in small fishing boats
9. Future activities and projects of optimizing energy use in small fishing boats in the region
10. Discussion on coordination and cooperation between regional/international organizations / institutions and member countries
11. Conclusions and recommendations
12. Closing
13. One-day study trip to observe fishing boats, dock yards, etc.

VII. Provisional Agenda and Timetable

Monday 19 December 2011

0830-0900	Registration
0900-0910	Agenda 1: Opening of the Workshop • Opening Address by SG
0910-0920	Agenda 2: Overview of the Workshop
0920-0930	Agenda 3: Adoption of the Agenda and Arrangements
0930-1030	Agenda 4: Presentation on the follow-up to the implementation and promotion of the safety at sea for small fishing boats in Southeast Asia (15 min./country) • Cambodia • Indonesia • Japan • Lao PDR
1030-1100	Coffee/tea break and Group photo

1100-1200	Agenda 4: Presentation on the follow-up to the implementation and promotion of the safety at sea for small fishing boats in Southeast Asia (cont'd.) • Malaysia • Myanmar • Philippines • Singapore
1200-1400	Lunch Break
1400-1430	Agenda 4: Presentation on the follow-up to the implementation and promotion of the safety at sea for small fishing boats in Southeast Asia (cont'd.) • Thailand • Vietnam
1430-1700	Agenda 5: Regional/ International activities related to the implementation and promotion on safety at sea for small fishing boats • SEAFDEC • IMO (IMO Initiatives Towards Enhancing Fishing Vessel Safety) • ARCM (Migrant Workers on Fishing Boats) • ILO • Others
1800-1930	Reception Dinner

Tuesday 20 December 2011

0900-1045	Agenda 6: Group discussion on improvement of safety and working standard for fishing boats and fishers • Establishment of mechanism/system for recording accidents at sea of small fishing boats • Minimum requirements on safety and working standard for small fishing boats safety and fishers
1045-1100	Coffee/tea break
1100-1200	Agenda 6: Plenary discussion on improvement of safety and working standard for fishing boats and fishers
1200-1400	Lunch Break
1400-1545	Agenda 7: Group discussion on human capacity building and awareness building programs on safety and working standard for small fishing boats and fishers • Requirement of training and awareness building programs to improve the safety at sea for small fishing boats and fishers in Southeast Asia • Production of appropriate awareness building materials and

	training materials
1545-1600	Coffee/tea break
1600-1700	Agenda 7: Plenary discussion on human capacity building and awareness building programs on safety and working standard for small fishing boats and fishers

Wednesday 21 December 2011

0900-1045	Agenda 8: Introduction of optimizing energy use in small fishing boats • SEAFDEC • FRA • Others
1045-1100	Coffee/tea break
1100-1200	Agenda 9: Future activities and projects of optimizing energy use in small fishing boats in the region
1200-1400	Lunch Break
1400-1500	Agenda 10: Plenary discussion on coordination and cooperation between regional/international organizations / institutions and member countries
1500-1515	Coffee/tea break
1515-1600	Agenda 11: Conclusions and recommendations
1600-1700	Agenda 12: Closing of the Workshop

Thursday 22 December 2011

Time	**Activity**
0800	Leave SEAFDEC/TD for Samut Sakorn Province
0900-1000	Visit Samut Sakorn Fishing Port
1100-1200	Observe LPG use for small fishing boat
1200-1330	Lunch
1400-1500	Visit fishing boat dock yard
1500-1700	Visit Central Rama II

The 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy use for Small Fishing Boats

Boat registration, accident reporting and safety at sea

Chhuon Kimchhea
FiA, Cambodia

SEAFDEC TRAINING DEPARTMENT, THAILAND, 19 – 22 Dec 2011

Background

- Safety at sea and vulnerability reduction is an output (output2) of the Regional Fisheries Livelihood Programme (RFLP) that being implemented in countries namely Cambodia, Indonesia, Philippines, Sri Lanka, Timor-Leste and Vietnam. The RFLP have 5 outputs including Co-management mechanisms for sustainable management of fishery resources; Improved safety and reduced vulnerability; Improved fishery product quality and market chains; Strengthened and diversified livelihoods for fisher families; and Facilitated access to micro-finance services for fishers, processors and vendors. This programme have started in September 2009 and will end in August 2013.

Background (cont)

- **The main output 2 activities being conduced include:**
  - Vessel registration
  - Assessments of accident and their causes;
  - Awareness campaigns of dangers and hazards;
  - Training of fishers, boat builders inspectors in fishing boat safety;
  - Boat construction and safety equipment guidelines and regulation development;
  - Provision of communication systems and safety equipment
  - Multi-purpose early warning and weather systems;
  - Enhancement of disaster preparedness
  - Piloting of a simple accident reporting system in Cambodia, Indonesia and Timor-Leste

Boat Registration

- All type of boats/vessels have to register at the Ministry of Public Work and Transport.
- Incase of fishing boats
  - In addition, for **fishing boats** have to register at Fisheries administration Cantonment (FiAC) and Fisheries Administration (FiA) to comply with the proclamation on technical order of fishing vessel management.
    - Motorize boat < 33 HP registers at FiAC (province), and
    - Motorize boat > 33 HP registers at FiA (central)
- Census in coastal areas, there are 7.134 fishing boats (non-motorize boats=1058; motorize boats <10 PH=2921; <33HP= 2228; and >33 HP=927) in which only 2,737 (38.36%) motorize boats have been registered.

Accident reporting systems

- A pilot accident reporting and analysis systems for small fishing vessels in Cambodia was started in October 2010 and completed in July 2011. The aim of this project was to implement accident reporting systems and to test and verify the newly developed FAO FIRO Draft Guidelines with the competent authorities implementing an accident reporting and analysis system for small fishing vessels.
- Activities conducted include:
  - Conducting a national workshop;
  - Providing training of trainer (TOT) training workshop for 20 key national and provincial level government staff on the use of both a paper-format and an Excel-format for accident reporting;
  - Training 35 village data collectors on the use of a paper-format for accident reporting
  - Data collection and data analysis from December 2010 to July2011



Accident reporting systems (cont)

- Results:
  - **An accident reporting structure has been established and an accident reporting leaflet was produced in Khmer and disseminated.**

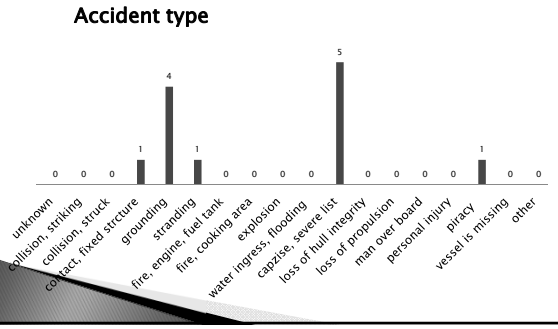
Accident reporting systems (cont)

- Results:

- Key national and provincial government staff and the village data collectors, who were members of Community Fisheries Committees were identified and have shown commitment to operating the accident reporting system.
- 12 trawl fishing boats suffered accidents at sea when fishing or during transit to and from the shore. 31 fishers were rescued, 11 were injured and two (2) fishers were killed. The total damage estimated total cost for these accidents was US$48,207. The accident types included capsizing, grounding, collision, and piracy. The accidents were caused by extreme weather, negligence, technical failure, having no lookout, and other operational errors.

Accident reporting systems (cont)

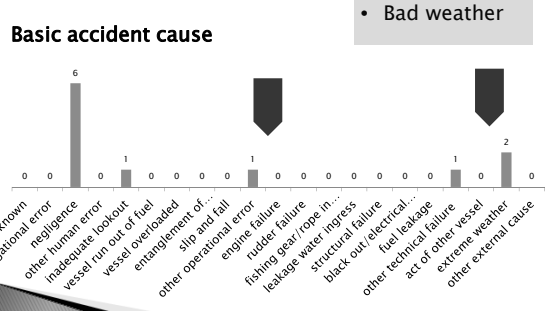
- Results:



Accident reporting systems (cont)

- Results:

Baseline survey
- Engine failure
- Bad weather



Safety at sea

- Activities and Results

1. Disseminate existing regulations on safety at sea

- Focused on boat license, boat construction and repairs, boat inspection, crew book and transfer of boat owner.
- Proclamation on technical regulation on fishing boat management (both English and Khmer) printed and disseminated to concerned stakeholders.
- 15 training courses were conducted in 15 Cfis in which 709 people (143 females) attended.

Safety at sea (cont)

- Activities and Results (cont)

2. Strengthening and building the capacity of CFis members on SatS for small scale fishing boat

- Focused on five minutes checking before going out to sea, safety checklist, causes of accidents, deck safety, fire fighting, essential safety equipment, man overboard, emergency situation, weather forecast, navigation lights, rules navigating and exercises.
- Trainings were conducted by NC on SatS in 15 CFis in which 723 people (165 females) attended.

Safety at sea (cont)

- Activities and Results (cont)

3. Conduct training course on accident reporting systems to local authorities and CFi members

- Focused on , reporting structure, information leaflet, reporting form and exercises on how to fill it.
- Training manual on accident reporting system produced and sent to FiA for and publishing (30 pages).
- Trainings were conducted in 15 Cfis in which 375 people (120 females) attended.

Safety at sea (cont)

- Activities and Results (cont)

4. Train boat builders, owners, skippers on boat building standard for CFis

- To present the current practices of boat building and finding the weak points;
- To practice on boatbuilding under guidance of IC;
- To disseminate new boatbuilding technology to boat builders.
- Training was conducted by IC and NC, 15 local boat builders participated in a hands on training course for wooden boat building.

Safety Equipment

- **Safety equipments bought for rescue boats:**
  - 12 ICOMs, 8 binoculars, 40 life jackets, 20 life buoys, 4 sets of GPS have been bought for 4 rescue boats and will be distributed shortly.

Lessons Learned and Recommendations

- Difficulty to understand terminologies used in the accident reporting format (i.e latitude and longitude);
- Role play exercise for each headline from the reporting format helping fishers to clearly understand the use of the form
- There is a need for focal point people (from FiA) to monitor and follow up the reporting systems at the provincial level
- LoA will be given to FiA cantonments on the implementation of accident reporting system while technical advice will be given from FiA central
- Maintain the good and close collaboration between CFi and FiA as it plays an important role to improve reporting systems
- Select the right institution to implement the programme.

Lessons Learned and Recommendations

- Too many topics to teach in one day for SATS – therefore more time for each topic must be devoted
- Navigation course was too short and tried to include too many things. The repeat of this should be considered.
- Safety and stability techniques were well understood for new improved boat building standard. However, improved boat building techniques requires more cost on bolts, anti painting foul which will be another constraint for boat builders and consumers to consider – therefore, a stability, safety and durability test will be conducted with stakeholders for the 9 boats built for 9 CFis
- Follow up training on standard wooden boat building should be conducted
- Training on fiber glass boat building and engine repair should be considered

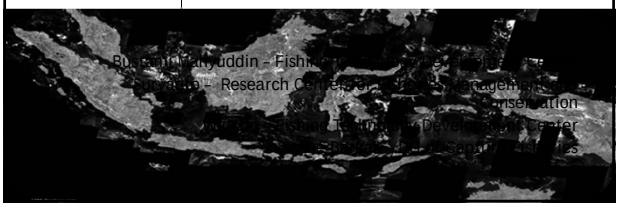
Lessons Learned and Recommendations

- Continue to promote small scaled fishing boat registration
- Purchase of lifejackets appears to be beyond most fishers. Should RFLP like to ensure widespread usage a mechanism to help fishers obtain lifejackets (via microfinance, through joint RFLP/donor funding etc).
- Actions to address the lack of a national weather forecast on Cambodia radio could be considered.
- Less women than men appear to be able to swim. Swimming lessons could be considered.
- The SATS poster could be provided in a smaller, waterproof version for boats.

Thank you ...

CURRENT SITUATION OF SAFETY AT SEA :

Progress of the Indonesia on Implementation and Promotion of the Regional Recommendation of Safety at Sea for Small Fishing Boats



OUTLINE

- *Introduction*
- *Problem and Threat*
- *Existing Activities*

INTRODUCTION

GENERAL

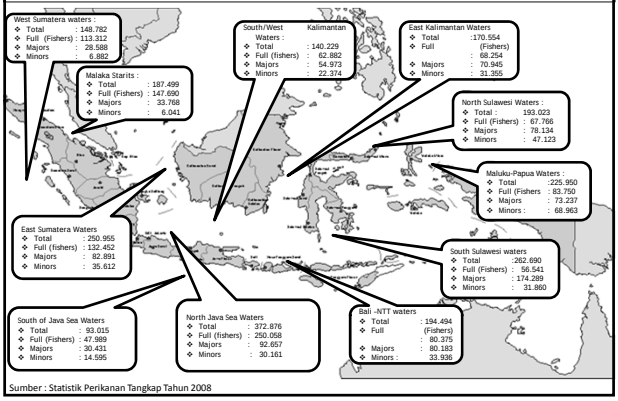
- Fishing at sea is probably the most dangerous occupation in the world.
- Over 24,000 fishermen die every year worldwidely. More than 50% of the world's population lives within 60 km of the coastline.
- Millions of people are depending on the scarce marine resources, they are depending on the fishermen and the fish that they bring home.
- THUS, lost of vessels and fishermen have a vital impact on the coastal communities.

INTRODUCTION

NATIONAL

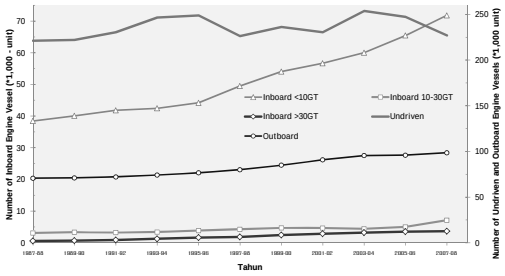
- Fisheries sector is a economic prime mover sector in Indonesia.
- Huge potency of marine fisheries 6.2 million tons/year. It needs professional human resources.
- The number of persons engaged in fishing sector bout 3 millions.
- Education level of fishing vessel personnel is still at low level, about 68.40 % of fisheries labor are not finish the elementary school.
- There are no national standard of fisheries education and training can meet the labor market needs
- For improving the fisheries education and training needs an international/ regional standard.
- Government of Indonesia (Ministry of Marine Affairs and Fisheries) decided to adopt STCW-F 1995 as a reference in improving the fisheries education and training (2002)

The Number of Fisherman by Category and Location in near shore Indonesia

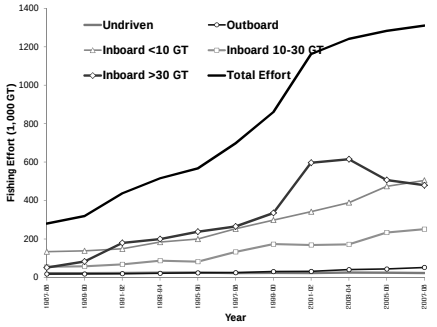


Sumber : Statistik Perikanan Tangkap Tahun 2008

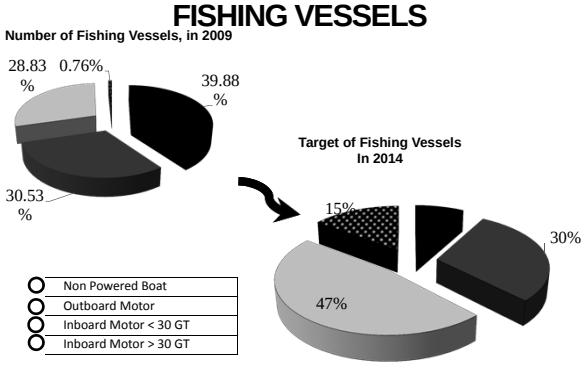
DEVELOPMENT OF FISHING BOATS IN INDONESIA



FISHING EFFORT



RESTRUCTURING OF INDONESIAN FISHING VESSELS



PROBLEM AND THREAT

PROBLEM AND THREAT TO IMPLEMENTATION OF SAFETY AT SEA FOR SMALL FISHING BOATS IN INDONESIA

- Dirty, Dangerous, Difficult (3D);
- Working Environment does not meet requirements;
- Limited and poor quality of equipment/ tools
- Low wages
- No Employment Agreements
- High Working Hours, Less Rest Periods
- No Obligation to Have Formal Certificates (Non STCW-F)
- Non Seafarer Identity

PROBLEM AND THREAT TO PROMOTE SEA SAFETY FOR SMALL FISHING BOATS IN INDONESIA

- Lack of awareness of stakeholders
- Lack of safety competency
- Lack of coordination between stakeholders
- Lack of awarenes of safety culture
- Low access of training and education

EXISTING ACTIVITIES

Development of appropriate incident reporting and investigation systems for the purpose of improving safety at sea

1 The Regional Recomendation

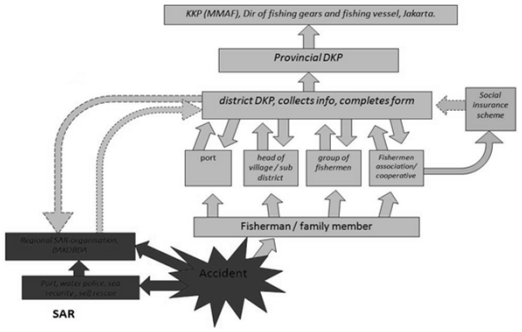
Indonesia has carried out an accident report program with the cooperation of FAO. The Implementation RFLP (Regional Fisheries Livelihood Programme) in NTT with a target of 4 (four) locations: 1. Kupang; 2. Kupang regency; 3. Rote NDAO District; and 4. Alor District. The outputs related to sea safety are :

- TOT Accident Reporting System
- Community Training on Accident Reporting System
- Piloting accident reporting system
- Procurement and delivery of Safety Equipment (life jackets, tools for engine repair and maintenance, red hand flares, etc)
- Identify the benefits of using safety equipments.

It has been noted as many as 84 accidents in 6 districts of NTT Province

ESTABLISHMENT OF REPORTING STRUCTURE PATTERNS THAT WERE DRAWN AND ORGANIZED FROM THE BOTTOM OR ON THE GRASS ROOT LEVEL

1 The Regional Recomendation



Promotion of small fishing boats registration.

2 The Regional Recomendation

Program Designation and Fishing Vessel Register is a follow-up provisions of Article 21 of the **Regulation of the Minister of Maritime Affairs and Fisheries No. PER.27/MEN/2009** on **Fishing Vessel Registration and marking**, it is deemed necessary to stipulate the specifications, code system, and procedures for writing identification of fishing boats.

Types of Fishing Vessels must be registered are :

1. Fishing vessels;
2. Fish Transporters ;
3. Vessels supporting fishing activities

The Registration is the requirements of issuing SIPI / SIKPI (fishing lisences), except fishing boats of less than 5 GT.

The registration of fishing boats at no charge.

The authorities granting for the registration and marking of fishing vessels are, as follows:

- **< 10 GT : Regencies /Cities**
- **10 -30 GT : Provinces**
- **> 30 GT :Central Government (Jakarta).**

Having registered, the vessel is numbered and recorded in Master Book of Fishing Boat .

On 2011 Central Government has conducted a survey and verification of fishing boats < 30 GT, including their fishing equipments. The activity was conducted all over Indonesia.

2 The Regional Recomendation

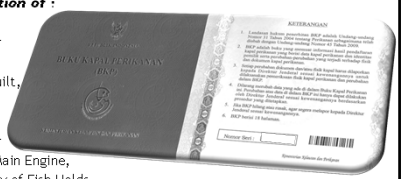
Book of Fishing Vessel

1. Containing the information of :

a) Vessel Identity ;
   1) Registration Number
   2) Name of Vessel
   3) Place and Year of Built,
   4) Material of Hull,
   5) Type of Vessel,
   6) Type of Fishing Gear
   7) Maker and Type of Main Engine,
   8) Number and Capacity of Fish Holds,
   7) Place of Registration,
   8) Vessel Identification
   9) Picture of Vessel

b) Owner Identity;

c) Note of any administrative and technical changes.



2. It is not tonnage certificate nor nationality certificates.

Promote and ensure that safety aspects, including considerations on working conditions and socio-economic development , are incorporated and addressed by concerned authorities while improving the monitoring and control of the status and use of small scale fishing vessels

3 The Regional Recomendation

Safety Monitoring Officer (Syahbandar) appointed to inspect the operational safety of fishing boats. They are placed in fishing ports after fulfilling the requirements of competence in the field of safety and security of shipping .

Presidential Decree No.10 /2011 of Improvement and Expansion Programme for People. Part of the programme is the Development of Fishermen Livelihood. The programme involved 11 ministries and agencies.

MMAF : (Fishermen's Live Improvement Programme) have distributed safety equipments, fish nets, navigation eq, outboard engines, FAD → work safely and productive

Regional Fisheries Livelihoods Programme (RFLP)
In addition to Sea Safety Subprogramme, it also has sub programme of

•Post Harvest and Marketing
- •TOT on Post Harvest
- •Camapign on Fish Food
- •Ice boxes for Fish Salers

•Livelihoods
- •Training and Equipment Procurement for seaweed farming
- •Training of 100 young entrepreneurs
- •Stakeholders and Institutional Indentification for diversified income oppotunities

•Microfinance
- •TOT on Financial Management Literacy in ACCU Bangkok
- •Workshop on Microfinance
- •Training on 360 Degree Financial Literacy Training for Community Group
- •Feasibility Study of Household Business
- •Pilot of saving, loan and mortgage system

Social Security Insurance of Local Fishermen
(Case Study in Brondong - East Java)

- In addition to RFLP, an implementation of *INSURANCE PROGRAM* for fishermen had been conducted with insurance companies (JAMSOSTEK).
- Total Fishermen : 13,776 people.
- The number of members of Fishermen involved on Social Security Programs on **May of 2009** : 2,244 people **(16%).**
- On **November 2011**, number of fishermen involved on the programme : 500 people **(3,6 %).**

LOCAL FISHERIES REGULATION ON FISHERY LEVY

- Each Regency has made a regulation of fishery levy based on the sale of fish auction. The Levy imposed on fishermen (50%) and fish buyers (50%) with the total levy of (5 ~ 6)% of sale of fish.
- (1 ~ 0.8)% of the levy is allocated to fishermen who experience sea accident. Some regencies budget the fund in the range of IDR.(2.5 m ~ 0.5) million/ person.

4 The Regional Recomendation

Establishment of Ship Insurance Consortium (KAKAP) for Indonesian Fishermen

- To empower wooden fishing boats as object banking credit guarantee.
- On 22 September 2010, has been made an agreement among insurance companies to form a fishing vessel insurance consortium.
- Indramayu regency as a Pilot Project, has registered 12 members of fishermen.

4 The Regional Recomendation

Strengthen local authorities and local organizations and promote application of safety at sea standards among the coastal communities.

An attempt to provide more precise and accurate data and information and through the provision of professional identity of fishermen. The data and information can be used as a tool to develop programmes to develop their business, skill and knowledge (including safety matters).

Fisherman Card (KN) apply to any Indonesian fisher men conduct ing fishing activities.

Plan of National Fishermen's card : 18 Provinces (34 locations) with total of 256 ,000 Cards

4 The Regional Recomendation

Promote technical and financial support from authorities, including subsidies, at all levels for issues of safety at sea, including considerations on working conditions and socio-economic development.

FUEL SUBSIDY PROGRAM:

- Letter of Minister of Maritime Affairs and Fisheries to the Coordinating Minister for Economy No: B.350/MEN-KP/VI/2010 dated June 9, 2010 concerning the Proposed Special Requirements for Subsidized Fuel for Marine and Fisheries Sector.
- Letter of Minister of Maritime Affairs and Fisheries to the Coordinating Minister for Economy No: B.797/MEN-KP/XII/2010 dated December 22, 2010 regarding the fuel subsidy for Marine and Fisheries Sector.
- Regulation of The Director General of Capture Fisheries and Head of BPH Migas No: 4593/DPT.2/TU.440.D2/X/2010 dated October 4, 2010, concerning oil prices for fisheries business.

5 The Regional Recomendation

The reason to to subsidy fuel on fishing boats :

- Fishing sector is a labor-intensive, productive and multiple socio- political.
- Fuel cost takes (60-70)% of operational costs.
- Fisheries business system is a revenue sharing system (between the skipper / owner of the vessel).
- Business risk is much greater than the work on land.
- Has a strategic role and great contribution to the provision of community nutrition and national income.

FUEL SUBSIDY IS ELIGIBLE TO INDONESIAN FISHERMEN USING DOMESTICALLY BUILT BOATS WITH TOTALLY INDONESIAN MANNING

5 The Regional Recomendation

Identify and promote the basic requirements for safety at sea in the following areas:

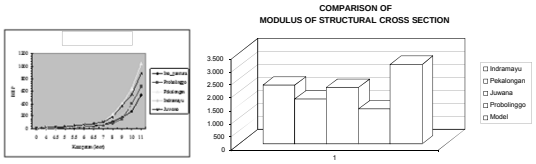
- *research on the design and construction of small fishing boats including the modification of traditional type boats;*
- *safety equipment including fire fighting and life-saving appliances;*
- *regular maintenance and repair of boats, gear and equipment; and development of regular boat inspection systems.*

6 The Regional Recomendation

RESEARCH ON DESIGN AND CONSTRUCTION

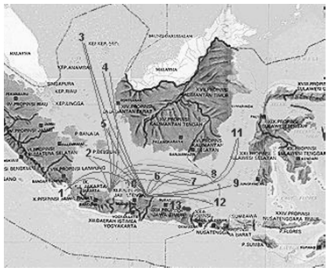
Reseaches to increase stability, working condition, structural strength and powering efficiency of traditional wooden fishing vessels of Java, Bali and South Sulawesi have been done.

The attempts were done through
- ❖minor hull form modification (some builders can read drawing)
- ❖deck re- arranggement (vs culture/ habit)
- ❖structural strength inspection (no obligation for small vessels to follow the regulation)
- ❖propeller design (vs mass product propellers)



6 The Regional Recomendation

VESSEL ROUTES AND DISTANCES FROM NORTH COAST OF JAVA



No.	DAERAH PENANGKAPAN	INDRA MAYU	PEKA LONGAN	JUWONO	PROBO LINGGO
1	Laksan	222		416	
2	Bangka Belitung	305		412	
3	Laut China	722		791	
4	Natuna	626	686	708	
5	Selat Karimata	361	388	430	
6	Bawean	277	208	111	
7	Masalembo	402	305	208	
8	Makasar	406	402	305	
9	Lumu lumu	611	613	416	
10	Kaimun	152	97	69	
11	Selat Makasar	625	583	472	
12	Kangean	498	375	264	
13	Selat Madura				83
14	Paiton				27
15	Pasuruan				55

6 The Regional Recomendation

COMMON FEATHURES OF TRADITIONAL FISHING VESSELS

Structure;
- There are collision and engine room bulkhead
- Water tightness of fish hold and engine room hatches are poor
- To increase the endurance, it is common they have extra fuel tank located above main deck.

Machineries;
- Marinized second hand truck engines
- Electric dynamo directly couple to main engine to generate electric power

Fishing Gear;
- Trawler made from modified rear axe wheel of truck, directly couple to main engine.
- No store for fish nets, the net is laid on main deck and other fishing equipment (buoys etc) stored on upper deck
- Manual crane/ gantry

Accommodation;
- No Galley
- No Lavatory
- Limited accommodation space

6 The Regional Recomendation

SAFETY ASSESSMENT
(INDENTIFY BASIC REQ FOR SAFETY AT SEA-SAFETY EQ)

A Risk Analysis study of Fishing Vessel (L < 24 meters) operating in East Java showed , the highest hazard assassement ratio :

- Design of Safety System (no appropriate devices, lack of knowlegde)
- Stability (weather, misplacement of equipment, overload) → study of traditional fishing boat operating in south and north coast of Java and Bali showed that re arranggament of deck space, tanks, placement of nets could increase stability.
- **Personal Protection Equipment (lack of safety awarness and no equipment).**
- Working Equipment (old and bad maintenance)

CULTURE OF VESSEL MAINTENANCE

"**Wiman dit**" is a philosophy of fishermen in Southeast Maluku district, Maluku. They build, maintain and keep the boat like a woman. They believe that the way they treat the boat will be the same the boat treat them.

Communities of this area build boats of "body" type with the length of (7 to 15) meters. The boat with a length of 7 meters and 1.5 meters wide can carry a payload of 3 tons and cost Rp. 5 million. This boat is outboard motor-powered.

Body type has known since 1980, where previously they build kalulis type, which has symmetry front and rear forms and used sail.

(Kompas, 10 Desember 2011, hal 15. kol 5-7)

6 The Regional Recomendation

7

The Regional Recomendation

Implement training and education programs for all stakeholders including the fishers , family members, boat builders and others, for basic requirements of: boat design and construction; equipment and its correct use (including avoidance of dangerous fishing practices); search & rescue operations; occupational health, working conditions and safety awareness; and awareness of environmental factors.

7

The Regional Recomendation

EDUCATIONAL STRATA OF FISHERIES HUMAN RESOURCES

- Uneducated : 68.40 %
- Elementary School : 26.24 %
- Junior High School : 4.76 %
- Senior High School : 0.97 %
- Vocational High School : 0.54 %
- Academy : 0.02 %
- University : 0.07 %

Government of Indonesia (Ministry of Marine Affairs and Fisheries) decides to adopt STCW-F 1995 as a reference in improving the fisheries education and training (2002)

7

The Regional Recomendation

SKILL STANDARDS OF OFFICERS AND SKIPPERS OF INDONESIAN FISHING VESSELS BASED ON STCW-F 1995 (Regulation of Transportation Ministry No. KM 09/2005)

Fishing Vessel Length	Deck department	Fishing Vessel	Engine department
≥ 24 m	Deck Officer Certificate of Competency for Fishing Vessel- I (ANKAPIN-I)	≥ 300 kW	Engineer Officer Certificate of Competency for Fishing Vessel- I (ATKAPIN-I)
12 m – 24 m	Deck Officer Certificate of Competency for Fishing Vessel- II (ANKAPIN-II)	100 kW - 300 kW	Engineer Officer Certificate of Competency for Fishing Vessel- II (ATKAPIN-II)
< 12 m	Deck Officer Certificate of Competency for Fishing Vessel- III (ANKAPIN-III)	< 100 kW	Engineer Officer Certificate of Competency for Fishing Vessel- III (ATKAPIN-III)

7

The Regional Recomendation

DECK OFFICER CERTIFICATE OF COMPETENCY FOR FISHING VESSEL- III

- Navigation and Position
- Plan of Voyage
- Radar Navigation and Electronics
- Keepwatching/P2TL
- Meteorologiy and Oceanography
- Magnetic Compass
- Communication
- Manoeuvring and Control of Fishing Vessel
- Shipbuilding and Stability
- Fishing Gears
- Maritime and Fisheries Laws
- Basic Safety
- Fishing Techniques
- Handling and Storage of Catches
- Code of Conduct for Responsible Fisheries

7

The Regional Recomendation

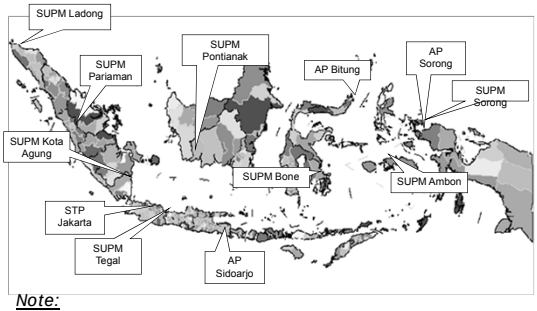
ENGINEER OFFICER CERTIFICATE OF COMPETENCY FOR FISHING VESSEL- III

- Main Engine
- Auxiliary Engine
- Maritime and Fisheries Laws
- Electricity of Vessel
- Guard Duty
- Maintenance and Repair
- Basic Safety
- Fishing Techniques
- Handling and Storage of Catch
- Code of Conduct of Resposible Fisheries

7

The Regional Recomendation

FISHERY HIGHER AND HIGH SCHOOLS OF MMAF



Note:
Exclude Education and Training Centres of Ministry of National Education and Culture

36

NUMBER OF GRADUATED STUDENTS OF FISHERY SCHOOL OF MMAF

7

The Regional Recomendation

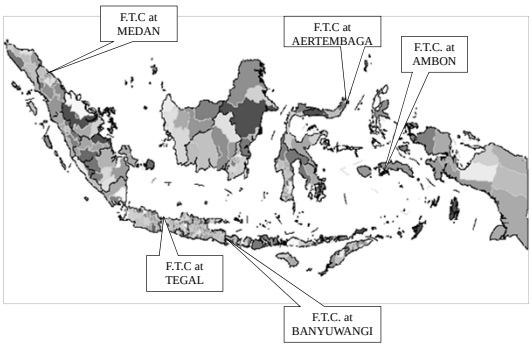
NO	NAME OF SCHOOL	Number/Year
1	STP Jakarta (Higher Education)	96
2	AP Bitung (Higher Education)	84
3	AP Sorong (Higher Education)	76
4	SUPM Ladong (High School)	54
5	SUPM Pariaman (High School)	83
6	SUPM Tegal (High School)	86
7	SUPM Pontianak (High School)	81
8	SUPM Ambon (High School)	68
9	SUPM Sorong (High School)	74
	TOTAL	702

Since 2011 : 40% of the students must be fishermen family. Before : (5 ~ 10)%

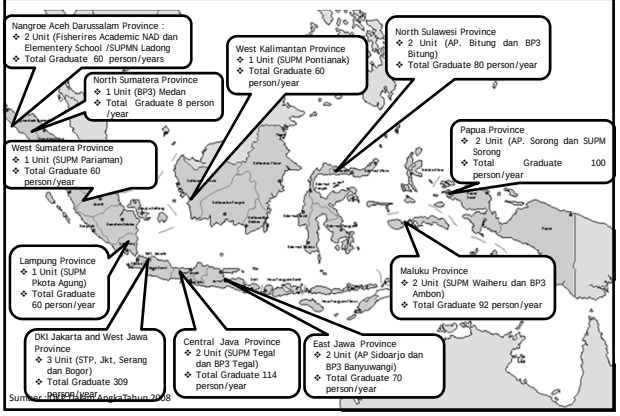
FISHERIES TRAINING CENTERS OF MMAF

7

The Regional Recomendation

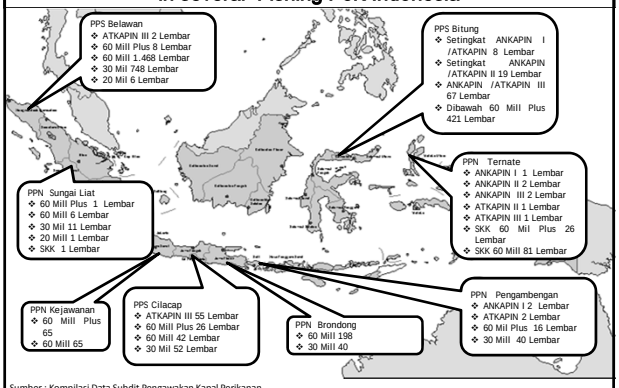


Number of Graduated Students/years and personils certified from several fishery school and fishery training center by province in Indonesia



Sumber : DKP, Dalam Angka Tahun 2008

The Number of Personils Competency Certified in several Fishing Port Indonesia



Sumber : Kompilasi Data Subdit Pengawakan Kapal Perikanan

CERTIFICATES

- Academic Sertificate
- Certificate of competency
  - Certificate of Deck Officer for fishing vessel (I,II,III)
  - Certificate of Engineer Officer for fishing vessel (I,II,III)
  - Certificate of Deck hand/oilier for fishing vessel
- Certificate of proficiency
  - For Officers also must have:
  - *Advanced Fire Fighting*);
  - *Medical Emergency First Aid*;
  - *Medical Care on Board*
  - ARPA *Simulator*
  - *General Radio Operator Certificate/GOC for the GMDSS*
  - *Proficiency in Survival Craft and Rescue Boats*;
  - *Ship Security Officer*

  BST-F (for all fishing vessel personnel)

BASIC SAFETY TRAINING PROGRAMME FOR SMALL FISHING VESSEL CREWS

7

The Regional Recomendation

- The Curriculum refers to STCW-F 1995
- Duration : 3 days
- Minimal educational background : prelimenary school.
- MMAF (700 persons/year)
- Ministry of Transportation (2012) : 10,000 persons

PROBLEMS

7

The Regional Recomendation

- **Lack of fisheries education and training facilities,** such as fishing and navigation simulator, engine room simulator, GMDSS Simulator, steering gear simulator, maritime English laboratory, fisheries training vessel, navigation workshop equipment, basic safety equipment, reference books, etc. To overcome such problems, fisheries education and training institutions should develop network and mutual cooperation with seafarer education and training institution or any other institutions.
- **Limited number of qualified trainers.** Therefore, it is necessary to send trainers to take required courses in overseas, on the job training in the fishing vessel.

PROBLEMS

7

The Regional Recomendation

- **The quality standard system is still poor. In relation to this matter, a fisheries quality standard education and training system need to be designed soon.**
- **Education and training cost is still too high for fishing personnel for which financial aids should be given to the institutions to support operational programme.**
- **Cooperation with fisheries stake holders is less concerned. It need stake holder concern in improving fisheries education and training.**

  In relation to this matter fisheries education institution should improve coordination to the fisheries satake holders

8

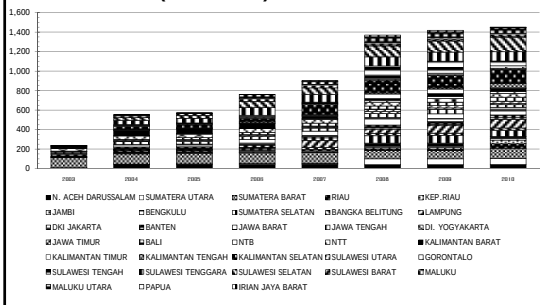
The Regional Recomendation

Promote awareness among policy makers, central authorities and broader public on the safety hazards facing people involved in fisheries in order to: Attract more attention and resources to be allocated to safety at sea aspects; Provide knowledge on the working conditions and hardship facing by fishers (which are increasing following the impact of climate change); and Raise political will to address safety at sea and in strengthening the local organizations.

8

The Regional Recomendation

NUMBER OF COMMUNITY BASED SURVEILLANCE GROUP (POKMASWAS) BY PROVINCES



- The main task of these communities is to inform any illegal fishing activities to local and central fishery authorities.
- The members are mostly fishermen.
- Practically, they always help the national/ local search and rescue agencies when any sea accidents happend →The task can be formally expanded to sea safety matters

9

The Regional Recomendation

Develop and promote the use of appropriate communication systems for: weather forecasting information; and search & rescue systems.

Developed by *United States Departement of Justice, International Criminal Investigative Trainning Asistance Program* (US DOJ ICITAP) and Ministry of Marine Affairs and Fisheries of Indonesia.

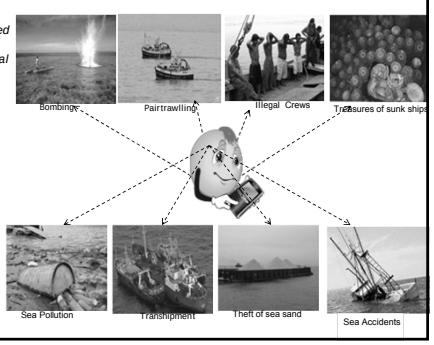
The system works based on GSM system; the **selected** surveillance groups have been equipped by HP (250 units – 2011 of 500 units).

Any one can send a message to the system → validated, verified to the selected group/ local authorities → send to competent authority

Short Message Service GATEWAY

Collaboration berween United States Departement of Justice, International Criminal Investigative Trainning Asistance Program (US DOJ ICITAP) with Directorate Monitoring and Surveilance, MMAF

To Suporting of Reporting from Fisheries Community (POKMASWAS) used SMS Gateway. system



VMS Online and Offline

9

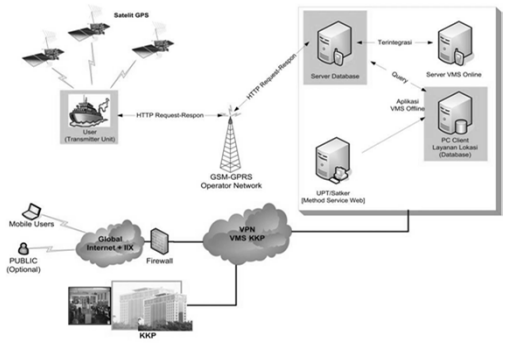
The Regional Recomendation

NO	DESCRIPTION	VMS ONLINE	VMS OFFLINE
1.	VESSEL TONNAGE	≥ 60 GT for Indonesian Vessels. Any Tonnages for Foreign Vessels	30 GT ~ < 60 GT
2.	TRANSMISSION SYSTEM	Transmitter → VMS Satelit Real Time.	Data stored on internal memory and transmitted to The Centre when ***GPRS*** *signal available*
3.	INSENTIVE	1ST Batch government owned transmitters. 2nd Batch : Transmitter bought by vessel owners. Air time : v. Owner responsible	Transmitter provided by Government for ALL (30 – 60) GT

VMS OFFLINE NETWORK SYSTEM

9

The Regional Recomendation



For definition of 'small fishing boats' and 'operational range', reference should be made on the respective rules and laws of individual countries.

10

The Regional Recomendation

Definition of "Small Fishing Boats" and "Operational Range"

10

The Regional Recomendation

FAO's definition of *"small-scale fisheries"* is taken from the FAO Working Group on Small-Scale Fisheries:

- *Small-scale fisheries can be broadly characterized as a dynamic and evolving sector employing labour intensive harvesting, processing and distribution technologies to exploit marine and inland water fishery resources.*
- *The activities of this subsector, conducted full-time or part-time, or just seasonally, are often*

  targeted on supplying fish and fishery products to local and domestic markets, and for subsistence consumption.
- *Export-oriented production, however, has increased in many small-scale fisheries during the last one to two decades because of greater market integration and globalization. While typically men are engaged in fishing and women in fish processing and marketing, women are also known to engage in near shore harvesting activities and men are known to engage in fish marketing and distribution.*
- *Other ancillary activities such as net-making, boatbuilding, engine repair and maintenance, etc. can provide additional fishery-related employment and income opportunities in marine and inland fishing communities.*
- *Small-scale fisheries operate at widely differing organizational levels ranging from self employed single operators through informal micro-enterprises to formal sector businesses.*

This subsector, therefore, is not homogenous within and across countries and regions, and attention to this fact is warranted when formulating strategies and policies for enhancing its contribution to food security and poverty alleviation (FAO, 2004).

THE DESIGN, CONSTRUCTION AND EQUIPMENT OF SMALL FISHING VESSELS

10

The Regional Recomendation

- The FAO, ILO and IMO : voluntary instruments regarding the safety of fishermen and fishing vessels;
  - ***Voluntary guidelines for the design, construction and equipment of small fishing vessels***, which apply to new decked fishing vessels of (12 -24) m in length
  - **Draft Safety Recommendations** for decked fishing vessels of L < 12 m and undecked fishing vessels.
- The International Organization for Standardization (ISO) is another global organization that has developed standards for boat design and building.
- The FAO, ILO and IMO publications will guide countries in setting up national regulations and policies for design, construction and equipment of small fishing vessels of less than 24 m in length.
- The ***Safety guide for small fishing vessels*** will also be a good guide to consult when designing national standards for the design, construction and equipment of small fishing vessels.

LWL AND SHIP MAIN PROPULSION ACCORDING TO STCW-F 1995

10

The Regional Recomendation

DECK DEPARTMENT

Fishing Vessel Size

1. ≥ 24 m and over
2. 12 – 24 m
3. < 12 m

ENGINE DEPARTMENT

Ship Main Propulsion

1. **≥ 750 kW**
2. **< 750 kW**

Small scale

- Outboard engine : < 10 HP; < 5 GT; Zone 1 (3 nm)
- Inboard engine : < 50 HP; < 25 GT; Zone 2 (3 -7 nm)

CONCLUSIONS AND RECOMMENDATIONS

- Although STCW-F 1995 has not been ratified yet, fisheries education and training institutions in Indonesia are already using principles of STCW-F 1995
- Classification of fishing vessels size based on STCW-F 1995 for engine department need to be adjustment in to 3 groups are the fishing vessel powered by < 100 kW, 100 - <300 kW and ≥ 300 kW instead of < 750 kW and ≥ 750 kW
- As fishing fleet in Indonesia are dominated by small-scale fisheries and the education level still in low level, the government should pay more attention to them to increase knowledge and skills on maritime safety of life at sea, property and protection of marine environment.
- Mutual cooperation is needed particularly in order to overcome problems of limited infrastructures.
- Education and training curriculum based on STCW-F 1995 covers knowledge and skills of navigation skills, maritime safety, and fishing skills as well as code of conduct for responsible fisheries, should be fully implemented to the fishing personnel in Indonesia.

SUPPLEMENT : DOCUMENTATION OF REGIONAL FISHERIES LIVELIHOODS PROGRAMME (RFLP) 2011

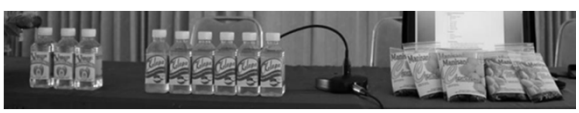
Training on engine maintenance and fishing gear repairing

Training on computer skills

Training on fiber glass and airbrush

Training on food processing

Training on trade and service



Discuss with Swiss Contact and Forla in Alor

ACCU Training Participants from BI & SMSE

Discuss with Head of SMSE Department in Alor

Meeting with Local Leader in Alor

MICROFINANCE WORKSHOP AND TOT
FINANCIAL MANAGEMENT TRAINING

Current Situation of Safety at Sea

~Progress of the Japan on Improvement of safety at sea for small fishing boats~

Akihiko Matsuda
National Research institute of Fisheries Engineering,
Fisheries Research Agency, JAPAN

1

Contents

- Standard of Fishing boat
- Standard of Crew
- Regulation Concern
- Accident report

Contents

- Standard of Fishing boat
- Standard of Crew
- Regulation Concern
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Standard of Fishing boat

Size of Fishing vessels	**Inspection Organization**
Less than 20GT	Japan Craft Inspection Organization
Over 20GT	the Japanese Government (the Ministry of Land, Infrastructure, Transport and Tourism)

4

Standard of Fishing boat

- Standard of Fishing boat is composed of 14 chapters as follows;
  1. General provision, 2. Hull, 3. Machinery installation, 4. Drain system, 5. Rudder, mourning and anchor systems, 6. Life-saving appliance, 7. Fire protection, 8. Crew accommodation, 9. Navigation equipment, 10. Electrical installation, 11. Special installation, 12. Stability, 13. Maneuvering, 14. Others.

Damage of Tsunami

26/04/2011

Prefectures	**Original**	**Damaged**
Hokkaido	16293	790
Aomori	6990	346
Iwate	10522	Almost all
Miyagi	9717	Almost all
Fukushima	1068	873
Ibaraki	1213	249
Chiba	5640	335

6

Contents

- Standard of Fishing boat
- Standard of Crew
- Regulation Concern
- Accident report

Standard of Crew

- License of small boat skipper

8

License of small boat

Small boat

1. Less than 20GT
2. 1 person can drive
3. Less than 24m

License of small boat skipper

1st class	No limits
2nd class	Flat water or less than 5 nautical miles from coast
Special class	Personal water craft 

License of small boat skipper

- The term of validity : 5years
- Renewal license
  Medical examination
  1) Eye tests
  2) Color blind tests
  3) Hearing tests
  4) Physical examination of disable

  Lecture class (50 min)
  1) Video (20 min)
  2) Presentation of safety (30 min)

Contents

- Standard of Fishing boat
- Standard of Crew
- Regulation Concern
- Responsible Agency for Safety at Sea

Regulation Concern

- Fisheries fundamental standard
- Fisheries standard
- Fishing vessel standard
- Fishing port standard
- Regulation of fisheries resource control etc……

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Contents

- Standard of Fishing boat
- Standard of Crew
- Regulation Concern
- Accident report

Emergency call and statistics

- Call 118
- The number contacts with the rescue section of Japan Coast Guard directly.
- Japan Coast Guard, Ministry of Transport, Fisheries Agency or insurance of fishing vessels collect statistics of fishing vessel accidents .

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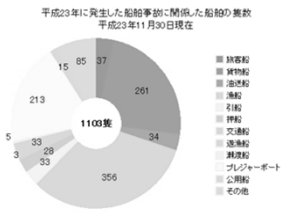
Ministry of transport



Only serious accidents

16

insurance of fishing vessels

年　度	引受隻数(隻)	保険金額(千円)	純保険料(千円)	事故件数(件)	支払保険金(千円)
平成13	224,674	1,348,459,346	19,007,040	62,158	20,003,824
平成14	220,254	1,299,647,615	18,949,193	59,442	18,499,733
平成15	216,336	1,258,127,988	18,794,796	61,069	19,768,365
平成16	212,580	1,216,211,374	18,673,636	64,025	18,868,860
平成17	208,652	1,168,363,161	18,115,921	59,954	17,413,593
平成18	204,101	1,122,259,088	17,859,612	54,830	17,401,617
平成19	199,430	1,085,822,801	17,397,920	51,218	15,277,356
平成20	195,201	1,059,024,970	16,085,433	44,677	13,854,265
平成21	191,580	1,029,798,649	15,643,541	45,388	15,961,607
平成22	187,886 (83.6%)	1,005,449,874 (74.6%)	15,398,851 (81.0%)	44,406 (71.4%)	14,056,236 (70.3%)

(注)平成22年度の下段の()書きは、平成13年度対比。

17

Thank you

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The 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats

Akihiko Matsuda
National Research Institute of Fisheries Engineering
Fisheries Research Agency, Japan

International regulation

- The 1993 Torremolinos Protocol
- Part B of the Code of Safety for Fishermen and Fishing Vessels
- Voluntary Guidelines for the Design Construction and Equipment of Small Fishing Vessels
- Safety Recommendations for Decked Fishing Vessels of less than 12 metres in Length and Undecked fishing vessels

Safety Recomendation

CONTENTS

Chapter/ Annex	Contents	Countries/Organisations which have submitted documents
Preamble		South Africa
Chapter 1	General provisions	Denmark
Chapter 2	Construction, watertight integrity and equipment	Japan
Chapter 3	Stability and associated seaworthiness	FAO, Spain, Russia Fed. Rep. of Korea, Japan
Chapter 4	Machinery and electrical installations	Norway
Chapter 5	Fire protection and fire fighting	Japan
Chapter 6	Protection of the crew	Denmark
Chapter 7	Life-saving appliances	Rep. of Korea
Chapter 8	Emergency procedures and safety training	Venezuela
Chapter 9	Radio Communications	Norway
Chapter 10	Navigational equipment	Iceland
Chapter 11	Crew accommodation	ICFTU, South Africa
Chapter 12	Manning and training	Rep. of Korea

assistance

- the Guidelines to assist competent authorities in the implementation of Part B of the Code of Safety for fishermen and fishing vessels, the Voluntary Guidelines for the design, construction and equipment of small fishing vessels and the Safety Recommendations for decked fishing vessels of less than 12 metres in length and undecked fishing vessels

The Guidelines to assist competent authorities

	Content	County/Organization
	Preface	All
	Introduction	All
Chapter 1	The Instruments	Korea
Chapter 2	Administrative Requirements	Japan
Chapter 3	Legal Implications	Norway
Chapter 4	Capacity-building	FAO/ILO
Chapter 5	Enforcement	Norway
Chapter 6	Operational Safety	South Africa/FAO
Chapter 7	Understanding Technical Provisions	Korea
Chapter 8	Human Element On Board	ILO
Annex 1	Assessment of needs for fishing vessel survey and inspection services	FAO
Annex 2	An example of a safety certificate	South Africa
Annex 3	Examples of survey checklists	Iceland
Annex 4	Example of an Inspection checklist with explanatory notes for vessels of Design Categories C and D	
Annex #5	Vessel and Boat building Sectors	FAO
Annex #6	Code for the Conduct of an Inspector of Small Fishing Vessels	FAO
Annex #7	Examples of relevant international agreements, both binding and voluntary	FAO
Annex #8	Annotated list of documents	All

Mind of the Safety Recommendation

- Every country can use
- Everything included

About stability criteria

* Main stability criteria is same criteria of Guideline, code, Toremolinos protocol and SOLAS. But it is not all-round criteria.
* Recommendation has 5 alternative stability criteria
  (1) *Approximate formula for the minimum metacentric height* GM_{min}
  (2) *A rolling period test option-1*
  (3) *A rolling period test option-2*
  (4) *Required metacentric height combined with a rolling period test*
  (5) *Offset load test*

About stability criteria

* A rolling period test should be conducted when the vessel is loaded according to the operating condition as specified in 3.7.1.1. The stability is deemed satisfactory if the rolling period (Tr), in seconds, is less than the breadth of the vessel (B), in metres.

Footnote :
This method is useful for vessels mainly in European region.

About stability criteria

Maximum rolling periods (T_r) in seconds

D	B(m)														
(m)	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
0.6	3.2	3.2	3.4												
0.7	3.8	3.5	3.5	3.5											
0.8	4.3	4.0	3.7	3.6	3.6	3.7									
0.9	4.3	4.6	4.3	3.9	3.7	3.7	3.8								
1.0		4.6	4.9	4.5	4.2	4.0	3.8	3.9	4.0						
1.1			4.8	5.1	4.6	4.4	4.2	4.0	4.0	4.1	4.3				
1.2				5.0	5.2	4.8	4.5	4.3	4.2	4.1	4.2	4.3			
1.3					5.1	5.3	5.0	4.7	4.5	4.4	4.2	4.3	4.4		
1.4						5.3	5.5	5.1	4.9	4.7	4.5	4.4	4.4	4.5	4.6
1.5							5.4	5.6	5.3	5.1	4.9	4.7	4.6	4.5	4.6
1.6								5.5	5.7	5.4	5.2	4.9	4.9	4.8	4.7
1.7									5.7	5.9	5.6	5.2	5.2	5.1	5.0
1.8										5.8	6.0	5.5	5.5	5.4	5.2

where:

B and D, in metres, are as defined in 1.2.5, and 1.2.20;

Footnote :
This table is useful for traditionally built vessels in South East Asia region.

About stability criteria

* There is no all-round criteria.
  Exp. IMO made High speed craft code.
* Not only European criteria is severe for Asian fishing vessels but also Asian criteria is severe for European fishing vessels.
* Every recommended stability criteria which are working in the world are included.

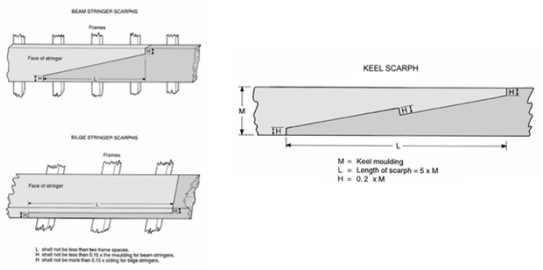
A lot of annex

Annex I	Illustration of terms used in the definitions	Annex XVIII	Basic Fist Aid Kit
Annex II	Construction standards for wooden vessels	Annex XIX	Personnel Protective Equipment
Annex III	Construction standards for GRP vessels	Annex XX	Requirements for buoyant apparatus
Annex IV	Construction standards for steel vessels	Annex XXI	Guidance on the requirements for lifesaving equipment
Annex V	Construction standards for aluminium vessels	Annex XXII	Recommendation for testing lifejackets
Annex VI	Anchoring and mooring equipment	Annex XXIII	Correct securing of hydrostatic release units
Annex VII	Structural strength of hatch covers	Annex XXIV	Safety Training
Annex VIII	Guidance on the dimensions of freeing ports	Annex XXV	Safe operation of winches, line haulers and lifting gear
Annex IX	An approximate determination of small vessel stability by means of the rolling period	Annex XXVI	GMDSS
Annex X	Recommended practice on portable fish-hold divisions	Annex XXVII	Range of VHF for various transmitting/receiving units
Annex XI	An example of a stability notice	Annex XXVIII	Use of Mobile Telephones in distress and safety communications
Annex XII	Guidance on additional stability criteria for beam trawlers	Annex XXIX	Radar reflector
Annex XIII	ISO Practical buoyancy test	Annex XXX	Equipment required to comply with the Collision Regulations
Annex XIV	Guidance on tools and spares to be carried onboard	Annex XXXI	International Code of Signals
Annex XV	Steering gear	Annex XXXII	Distress Signals
Annex XVI	Recommended practice exhaust systems	Annex XXXIII	Basic Pre-sea safety training
Annex XVII	Guidance on the installation of electrical equipment	Annex XXXIV	Annotated list of pertinent publications

Annex II Construction standards for wooden vessels

Annex II Construction standards for wooden vessels

How to make a tough vessel



Conclusion

- We made the Safety recommendation for useful not only European but also Asian fishing vessels.
- The recommendation included every criteria or information.
- Only problem of the recommendation is the volume(more than 200 pages)

Safety at Sea and Optimizing Energy use for Small-scale Fishing Boats in Lao PDR

(Mr. Phouthong Singhakham, Vientiane Livestock and Fisheries Section)

I. Introduction:

Lao PDR is land locked country, but it is rich by resource, condition, location and geography mountainous, plateau and immense plain along the Mekong and its tributaries.

Namngum Reservoir is first hydropower reservoir resulted after the completion of the Namngum Dam in late 1971. The reservoirs mainly located in the area of the Vientiane Province. The reservoir has a total surface area of about 478 square kilometers (48,000 ha), average dept of 19 meters and altitude above sea level 212 meters. There are 6 districts covering the reservoir (Keoudom, Vangvieng, Thoulakhom, Hom, and Xaisomboon). There are in total 24 villages bordering the Namngum reservoir that are composed 2,877 households and 3,159 families. The population is more than 19,000 people of whom 800 are fisherman there is about 2,000 boats (the engines boats and paddle boats).

Number small fishing boat is registration Namngum Reservoir Fisheries Management Center (NRFMC). People caught fish mainly for household consumption and sold to market and restaurant (Luang prabang Province and Vientiane Capital). The fishing season is during wet season (April-November each year).

II. Problems at Namngum Reservoirs

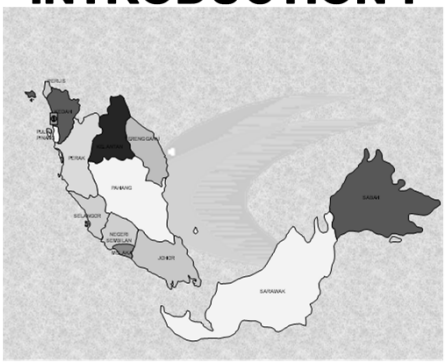
Lao PDR experiences a tropical climate with alternative wet and dry season is dominated by a Southwest monsoon with high rain fall, temperature and humidity. Thus it is an important problem on safety at reservoir for small fishing boat and fishers every year, usually occurred big storm, wave, windy, tree broken, etc.

III. Recommendation

Before or after natural disaster we recommend to local authorities and local organization as follow:

- Strengthened fishing community's information net work in relation to safety.
- Establish effectual forecast weather by authority concerns.
- A voice to fishing during bad weather condition.
- Decentralize news from television, radio, and hand phone to people.

INTRODUCTION :



MALAYSIA

- Geophysicals:
- Land area:

  329,733 km²
  - Peninsular 40%
  - Sabah 22%
  - Sarawak 38%
- Coastline:
  - 4,675 km
- Coastal area:

  373,500km²
- EEZ area:
- 548,800 km²

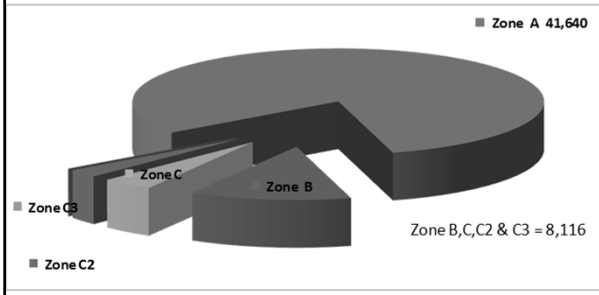
Sarawak 29% Sabah 16%

Classification of Small-Fishing Vessels

Zone	Area	Classification
A	Operating in all zones but concentrating in Zone A (0-5nm)	Reserved solely for artisanal (traditional) or small scale fishermen using traditional fishing boats of less than 40 gross registered tonnage (GRT) and owner operated; Traditional Gears 1. Trap 2. Hook-and-line 3. Drift net or gill net 4. Seine net 5. Hand lift net 6. Bag net or stow net 7. Barrier net

Fishermen & Fishing Vessels

- No. Of Fishing Vessels (Year 2010) : 49,756 (41,640 – Zone A)
- No. Of Fisherman (Year 2010) : 129,622 (74,985 – Zone A)
- All vessels are registered

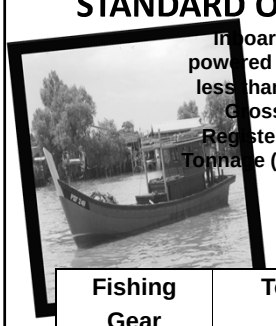


STANDARD OF FISHING BOATS

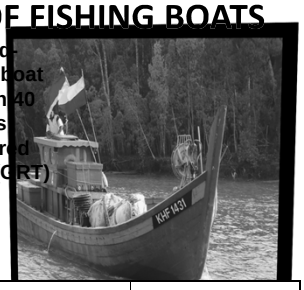
Small outboard power boat (locally called sampan/ perahu)

State	Length (Outboard Powered/ Non Powered)	HorsePower
Peninsular Malaysia	< 11m	< 120
Sarawak	< 15m	< 140
W.P.Labuan	< 11m	< 120

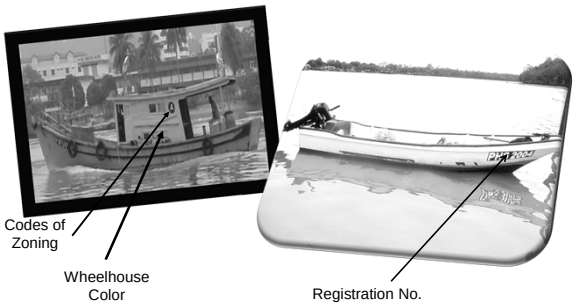
STANDARD OF FISHING BOATS



Inboard-powered boat less than 40 Gross Registered Tonnage (GRT)



Fishing Gear	Tonnage (GRT)	HorsePower (Maximum)
Traditional	Less than 25	200
	25 to 40	300



The vessels must be registered and will be identified through various markings such as fixed registered number, code zone, colour of the wheel house (inboard-powered boat)

MARKING AND IDENTIFICATIONS

- Wheelhouse of the fishing vessel must be painted with color specified for the state :
- ? = Identification of the vessels so that they would not encroached into another states water

State	Color
Pulau Pinang	Light Blue
Perak	Dark Yellow
Selangor	Orange
N. Sembilan	Dark Green

State	Permanent Letters
Melaka	MKF
Johor	JHF
Pahang	PAF
Terengganu	TRF
Kelantan	KNF
Labuan	LNF

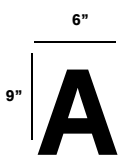
- The permanent letters of the registration number is according to state

MARKING AND IDENTIFICATIONS

Code of Zones:

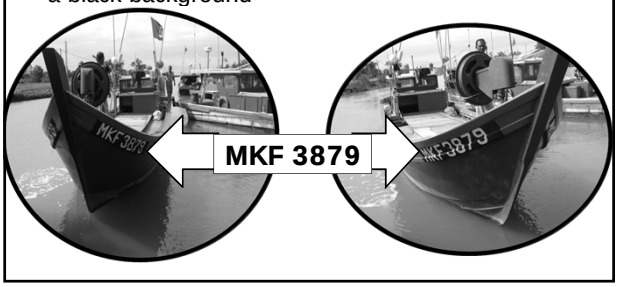
- Code of Zones must be painted on **both sides** of the wheelhouse in white with a black background
- Size of the code of zone to be painted is according to the vessel size
- ? = To determine the fishing area of the vessel

Vessel Size	Code Zone
< 25 GRT	9" x 6" x 1.75"
25 - < 40 GRT	12" x 8" x 2.5"
40 & > 40 GRT	18" x 12" x 4"



REGISTRATION NUMBER

- The Registration number must be carved on both sides of the fore part of the hull of the vessel
- The carved number must be painted in white with a black background



STANDARD OF CREW

STANDARD OF CREW

1. **THE NUMBER OF CREW**

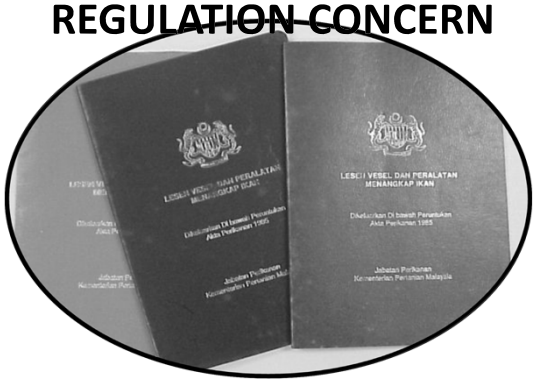
Type	Max. Crew
Sampan/ perahu	2
Inboard- powered boat	3

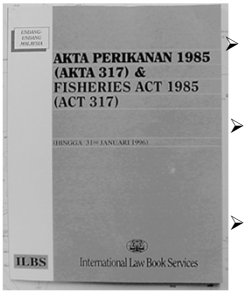
- Safety and comfort

2. **FISHERMEN REGISTRATION CARD**

- **Genuine**
- **120 days/year as fishermen**
- **Working only on licensed fishing boats**

REGULATION CONCERN





- **Fisheries (Maritime) (Licensing Of Local Fishing Vessel) Regulations 1985 Act 1985**
- **The fishing vessel registration system is under responsible of the Department Of Fisheries Malaysia.**
- **Safety at sea –**
  - **Vessel inspection for every renewal of licences**

VESSEL INSPECTION (COMPULSARY)

APPLICATION (RENEWAL OF LICENCE)

↓

CHECKING OF THE REGISTERED BOAT

↓

?

↓

STATE DIRECTOR DECISION

↓

RENEW LICENCE

↓

END

RENEWAL OF LICENCE

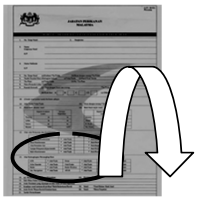
A. **Registration number;**
B. **Fishing vessel base.**
C. **Name, address and identification card number of owner or owners;**
D. **Type of vessel;**
E. **Length, breadth, width, depth; Gross Registered Tonnage (GRT)**
F. **Power of main engine or engines**
G. **Safety equipment**
H. **Equipment**
I. **Vessel condition-seaworthy of vessel**
J. **Vessel originality**
K. **Type of fishing method or methods;**

?

Plastic Vessel Number Plate is issue out each year while renewable of the fishing licence.
Purpose:
1. **Seaworthy of vessel**
2. **Safety – crew**

INSPECTION FORM

•Use during fishing vessel inspection
• For each vessel
•Main purpose:
i. Seaworthy of vessel
ii. Navigational and life saving equipment
iii. Genuine vessel through the markings
iv. Fishing equipment



Life jacket

Fire extinguisher

lifebuoy

1. Seaworthy
   a. vessel
   b. engine
2. Navigational and life saving equipment such as
   a. Life jacket
   b. Fire extinguisher
   c. Life buoy

RESPONSIBLE AGENCY FOR SAFETY AT SEA

- **Department Of Fisheries (DoF)**
  - Licencing and Resource Management Division
    - Plan and supervise the development of coastal fishery/ deep sea fishery/ inland fishery resources
  - Resource Protection Division
    - Maintaining law & order
    - Coordinating search and rescue operations in the Malaysian Maritime Zone
  - Fisheries Extension Division
    - Training , guidance and advisory services
    - Transfer of new technology to fishermen

- Engineering Division
  - Produce and promote hygiene on board(HOB) vessel design
  - Provide technical consultation on design and construction of fishing vessels
- Biosecurity Division
  - Auditing and certified all complied HOB fishing vessels
  - Provide database all complied HOB fishing vessels
- Fisheries Training Institute Malaysia (IPM, Chendering, Terengganu)
  - Produced skilled fishermen
  - Provide training for fishermen to upgrade their technical capabilities in various aspects including safety at sea

- Fisheries Development Authority of Malaysia (LKIM)
  - Provide and supervise the effective use of credit for the adoption of new fishing technology and for investment in related fisheries industry sub-sectors
- Malaysian Maritime Enforcement Agency (MMEA)
  - Maintaining law & order
  - Coordinating search and rescue operations in the Malaysian Maritime Zone
- Department of Occupational Safety and Health(DOSH)
  - Provide awareness in various aspects of safety at sea
  - Monitoring all accidents occur at sea
  - To enforce OSHA Act 1994

REPORT FORM FOR OCCUPATIONAL ACCICENT/DANGEROUS OCCURRENCE

Particulars of vessel and accident will be reported here

PROMOTE BASIC REQUIREMENTS FOR SAFETY AT SEA

- Fisheries Training Institute has conduct SIKAP (Certificate of General Safety for Fisheries) since 2001
- This course is converted to basic safety training courses(BST) in 2010 to comply STCW-F 1995
- The course contain:-
  i) Fire Prevention and Fire Fighting
  ii) Personal Survival Technique
  iii) Personal Safety and Social Responsibility
  iv) Elementary First Aid

PROMOTE AWARENESS AMONG STAKEHOLDERS

- DOF has establish community based fisheries management (KPEP- Group of Fisheries Economic Management)
- Promote awareness on fisheries resources management, value added and marketing'
- Give training on regular maintenance and repair of boats, engines and equipments
- Promote awareness on safety at sea

PROMOTE THE USE OF APPROPRIATE COMMUNICATION SYSTEMS

- DOF has establish PUKAOP Hotline Stickers to be distributed and displayed at fishermen jetties.
- Hotline number for telephone and SMS and radio frequency are as follows:-
  - Tel & SMS 03-8888 5018
  - 'Radio Nelayan' *Fishermen Radio* (HF 5802.0 kHz)

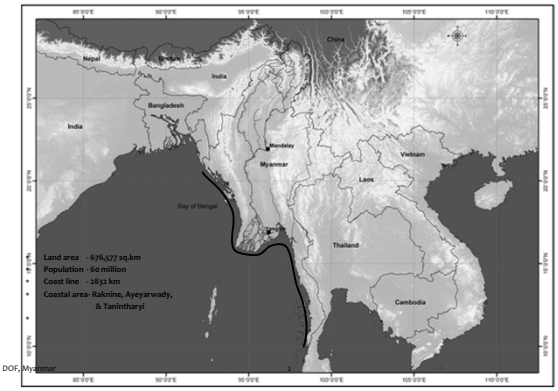
3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats
19-22 December 2011, SEASFDEC Training Department

Small Fishing Boats Safety at Sea

MYANMAR

Khin Maung Aye
Department of Fisheries
Myanmar

Introduction



Classification of Fishing Boats

Non-powered Fishing boat

Powered Fishing boat

- **Outboard Engine**

- **Inboard Engine**

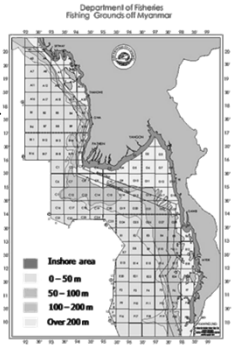
Marine Capture Fishery

a. In-shore Fishery

- 5 nautical mile from shore (*Rakhine coastal*)
- 10 nautical mile from shore (*Ayeyarwady & Taninthayi*)
- Not more than 12 HP engine & 30 Feet length of the boat.

b. Off-shore fishery

- Outer area of inshore to end of EEZ
- More than 12 HP engine boat
- Bottom trawl, Purse seine, Surrounding net, Drift net & Long line.



Number of inshore fishing vessels

Year	Mechanized Boat	Non-mechanized Boat	Total
2004-05	14176	16687	30863
2005-06	14099	16361	30460
2006-07	14284	16284	30568
2007-08	14289	15219	29508
2008-09	14052	14645	28697
2009-10	13788	17054	30842
2010-11	13255	15102	28357

Number of off-shore fishing vessels (2010-11)

No	Type of Gear	National	Foreign
1	Trawl	936	218
2	Purse seine	168	57
3	Stow net	561	-
4	Drift net (Gill net)	218	-
5	Long line	7	109
6	Squid cast net	35	12
7	Fish Trap	122	-
Total		2047	396

National Fishing Vessel Registration System

(1. Inshore Fishing Vessel)

- **By the Authority from the Department of Marine Administration (DMA) and General Administration Department inspected and process all inshore vessels .**
- **After fishing vessel have inspected by DMA and General Administration Department, the Department of Fisheries (DOF) issue fishing and fish carrier licence to the inshore vessels.**

DOF, Myanmar 7

National Fishing Vessel Registration System

(2. Offshore Fishing Vessel)

- **Department of Marine Administration (DMA) inspects and process all vessel according to the procedure and rule of the IMO for registration so as to be safe from danger the LSA inspected.**
- **The Department of Fisheries (DOF) issue fishing and fish carrier licence to the vessel after recorded on fishing vessel registration which has vessel registration from the DMA.**

DOF, Myanmar 8

Word colour on line colour of fishing vessel

Description	Place of Licence Issue	Word colour on Line Colour of Hull
Off Shore Fishing Vessel	Taninthayi	**White**
	HO/Ayeyarwaddy/Mon	**White**
	Rakhine	**White**
Off Shore Carrier	Local Carrier	**Red**
Foreign Fishing	Joint Venture	**Red**
	OTS (Long Line, Squid, Trap)	**Red**
	Fishing Right	**White**

DOF, Myanmar 9

Marine Fishery Production

No.	Year	Production (Thousand metric tons)
1	2004-2005	1228.71
2	2005-2006	1375.67
3	2006-2007	1525.32
4	2007-2008	1689.76
5	2008-2009	1867.51
6	2009-2010	2060.76

DOF, Myanmar

Safety Management Measures

Fishing vessel safety and SAR activities

❖ **Inspection authority at sea**
- * Myanmar Navy
- * Myanmar Coast Guard

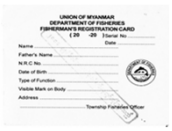
❖ **Inspection authority at shore**
- * Department of Fisheries
- * Myanmar Port Authority
- * Myanmar Custom
- * Immigration Department
- * Department of Marine Administration
- * Myanmar Police Force

DOF, Myanmar 11

Safety Management Measures

Inspection at port activities

- **Check in Check out reporting system.**
- **LSA and fire fighting equipment**
- **Fishing gear**
- **Crew list**
- **Fishing Licence**
- **Vessel registration**
- **Communication equipments**

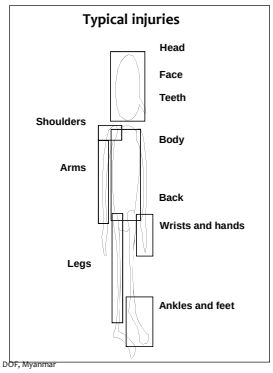


DOF, Myanmar 12

Data recording

- DOF is responsible for Data recording, analysis and necessary feed back.
- Another competent authorities are Myanmar Navy, Coast guard, and Myanmar Police Force.
- Every Department have their own team to collect data, and analysis. Needs synchronize among agencies.
- Authorities provide the helps and necessary thing through specific team.
- Three times a day position and weather reporting system by SSB

Data recording




Fishing Vessel Personnel Accident Recording Form

Date .....

Vessel
1. Name of vessel ..... Skipper name .....
2. Type of vessel ..... GRT ..... LOA ..... Breadth ..... HP .....
3. Location or fishing ground number .....

Accident
1. Name of person accident .....
2. Age ..... work experience ..... (year) Rank on board .....

3. Date and time of accident ..... Area of incident in the ship .....
4. Sea condition/weather .....
5. Work conducted when an accident occurred .....
6. Where injuries at the body .....
7. Detail causes of accident and casualties .....

7. Other

(Skipper's signature)

Casualty and Death of Fishing Vessel Personnel

Year	Dead Case			Casualty	Total
	Drop into sea	Accident	Serious by sick		
2009-2010	18	11	7	5	41
2010-2011	33	5	19	5	62
2011-2012	22	5	9	5	41

- The Statistics shows that there is a great need to improve the safety record of fishing vessel personnel.
- Detailed causes of some accidents and casualties of fishing vessel personnel have been analysed and countermeasures identified.
- Lessons must be learned from accident reports.

Casualty and Death of Fishing Vessel Personnel

Fishing vessels personnel Casualty and death by storm-beaten in 15-16 March 2011

- Number of vessels (inshore/off-shore) - 56
- Number of crews - 3776
- Search and rescue - 3751
- Lost/dead - 25

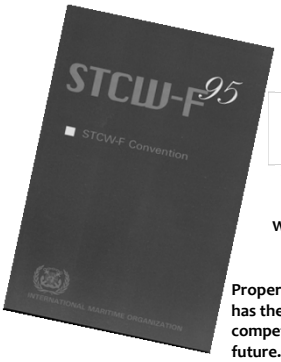
- Number of stow net raft - 3549
- Number of Fishermen - 12437
- Search and rescue - 11850
- Lost/dead - 586

stow net raft

- Stow net rafts move to fishing ground by towing vessel.
- Set at about ten miles from the shore line by anchor.
- There are not insurance policy for non-powered vessel yet in Myanmar.
- Currently, Government set up the life insurance for those fishermen.

Constrain

- Weak of Check in Check out reporting system.
- Use local make floating equipment for life saving .
- Use traditional medicine for health.
- No facilities for communication equipment onboard.
- Lack of First aid knowledge and survival at sea.
- Long time stay at sea
- Difficult to get data from remote areas



IMO

Training Provisions in the 1995 STCW-F Convention

Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel

Properly implemented and administered, STCW-F has the capacity to supply well trained and competent Fishing Vessel Personnel for the future.

DOF, Myanmar 19

Training Program for Fishermen

Two main responsible Department and Training Institute

Department of Fisheries
Institute of Fisheries Technology

- **Fishing Technology**
- **Fish Handling**
- **Safety at sea**

Department of Marine Administration
Institute of Marine Technology

- **Navigation**
- **Seamanship**
- **LSA**

DOF, Myanmar 20

Training and the STCW-F 1995 Convention

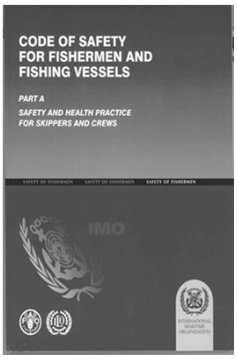
The standards of competence that have to be met by fishing vessel personnel are defined in the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995.

Training – curriculum development

- **Personal survival and life saving**
- **Emergency procedures**
- **Fishing vessel manoeuvering and handling**
- **Fishing vessel construction and stability**
- **Medical and first aid**
- **Search and rescue**
- **Prevention of marine pollution**

DOF, Myanmar 21

Safety and health for fishing vessel personnel



Detail of Training Curriculum

Duties and responsibilities
Education, training,
Health and medical care
Safety in fishing operations and fish handling
Safety in exposed areas
Special safety precautions
Life-saving appliances and emergencies
Abandoning vessel, survival and rescue
Safety of navigation and radiocommunicat
Shipboard facilities for crewmembers

22

Awareness safety posters




DOF, Myanmar 23

Optimizing Energy use for Small Fishing Boats

Introduction utilize of wind energy for save fuel and reduce environmental impact program
(Collaboration with SEAFDEC/TD)






DOF, Myanmar 24

Conclusion

- **To conduct proper training and carry out extension program to fishing vessel personnel for awareness of safety at sea.**
- **To improve collecting Information and data for Accident causation.**
- **To collaborate and cooperate with Authority, Boat builder, Boat owner and Crew for safety at sea.**
- **Need advance technology of safety at sea support by International / Regional Organization.**

DOF, Myanmar 25

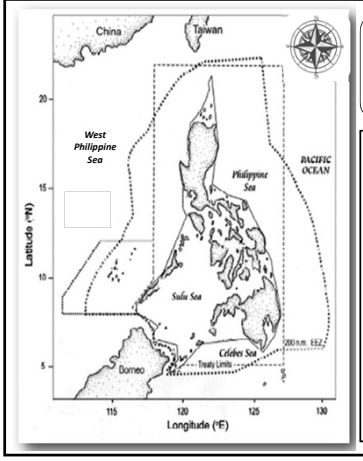
Thank

DOF, Myanmar 26

PHILIPPINE FISHERIES

Drusila Esther E. Bayate
Esmeralda Paz D. Manalang
Bureau of Fisheries and Aquatic Resources
Philippines

Bangkok, Thailand, 21 December 2011

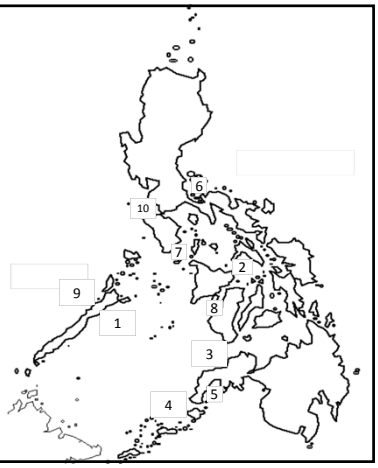


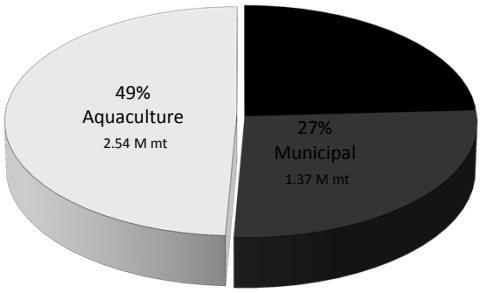
Marine Jurisdictional Boundaries of the Republic of the Philippines

- **Straight Baselines –** Republic Act (R.A.) 5446
- **Treaty Limits –** Treaty of Paris, 1898
- **200 mile Exclusive Economic Zone (EEZ)-** Presidential Decree 1599, 1970
- **Kalayaan Claim –** PD 1596, 1971

Philippine Major Fishing Grounds
(Zarragoza, E.C. et.al., 1996)

1. West Sulu Sea
2. Visayan Sea
3. East Sulu Sea
4. South Sulu Sea
5. Moro Gulf
6. Lamon Bay
7. Cuyo Pass
8. Guimaras Strait
9. West Palawan Waters
10. Manila Bay





% Contribution of each Fisheries Sub-sector to Total Production (5.16 M mt) of CY 2010

Types of Fishing Vessels in the Philippines

- **Commercial**
  - fishing vessels operating outside the 15km municipal water and has a gross tonnage greater than 3.1.
- **Municipal/Artisanal**
  - fishing vessels operating within the 15km from the shoreline and has a 3GT or less.

Continued...

6,374 Commercial Fishing Boats

469,807 Municipal Fishing Bancas (small boats)
(177,627 motorized)
(292,180 non-motorized)

Operators:

1.78 Million engaged in municipal fishing
7,800 engaged in commercial fishing

Large scale Commercial Fishing Vessel

fishing utilizing active gears and vessels of more than one hundred fifty (150) GT.

Medium scale Commercial Fishing Vessel

fishing utilizing active gears and vessels of 20.1 GT up to one hundred fifty (150) GT

Small scale Commercial Fishing Vessel

fishing with passive or active gear utilizing fishing vessels of 3.1 gross tons (GT) up to twenty (20) GT

Paddle driven **Sailboat**

Non-Motorized

Municipal Fishing Vessel

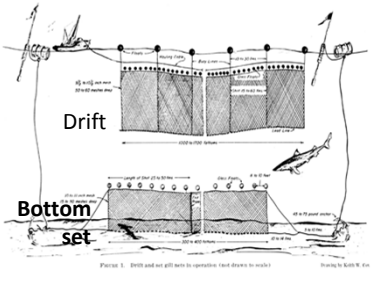
Motorized

Municipal Fishing Vessel

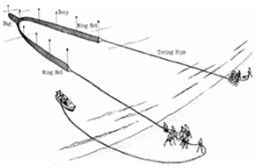
Use at least 16 Hp single cylinder engine

Major Municipal Fishing Gears in the Philippines

Gillnet

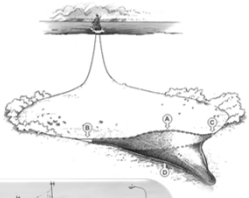


Seine

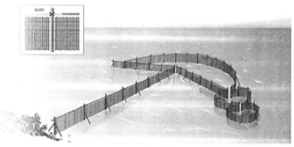


Beach seine
(Sahid/sinsoro)

Boat seine (Danish seine/Zipper/Hulbot-hulbot)



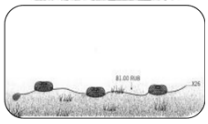
Traps



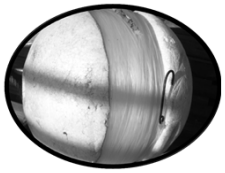
Fish Coral

Crab pot

Fish pot

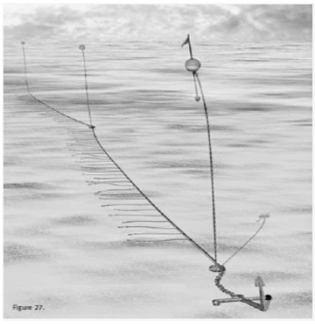


Hook & Line



Simple
Handline

Bottomset longline



Lift net

Stationary liftnet

Lever/Raft net

Government Agency	Function
Maritime Industry Authority (MARINA)	**Seaworthiness and Sea Safety of Boats**
DA-BFAR	**Fishing Boat and Gear License** **Fisheries Management**
Municipal/Local Government Units	**Fishing Boat and Gear Licenses below 3GT**
Philippine Coast Guard	**Search and Rescue, Vessel Inspection, Clearing departing vessels from ports**
PAGASA **(Phil. Atmospheric Geophysical and Astronomical Services Administration) - National Fishing Weather Bureau**	**Weather bulletin/advisory**

Maritime Incidents Report CY 1995-2007 by PCG and 2008-2009 by MARINA

Incident Type	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	*2008	*2009
Aground	15	1	0	9	6	1	2	2	6	3	3	1	0	3	0
Sinking	5	8	5	19	7	2	5	5	16	11	6	9	2	36	1
Collision	1	1	1	2	0	2	2	1	7	3	2	0	0	0	0
Caught Fire	6	0	0	0	0	0	2	0	2	2	1	1	2	0	0
Capsized	10	8	1	8	16	13	5	3	57	38	10	6	7	6	1
Missing	0	0	0	0	0	0	1	1	29	10	4	4	2	4	0
Drifted/ engine trouble	2	1	0	3	0	3	1	0	17	11	2	0	5	1	0
Flooding	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Ramming	0	4	0	0	0	2	0	0	1	2	2	0	0	0	0
Others	0	0	0	0	3	5	4	0	4	2	5	0	1	5	1
TOTAL	**39**	**23**	**7**	**41**	**32**	**28**	**22**	**13**	**139**	**86**	**35**	**21**	**19**	**55**	**3**

* - data taken from MARINA (2008 & 2009)

Compliance to Recommendations:

1. **Code of Conduct for Responsible Fisheries**
2. **Registration system on responsible fisheries**
3. **Re-inventory of Commercial Fishing Vessel and Gear Licenses (Memo dated July 14, 2011 and September 15, 2011)**
4. **Establishment of Closed season on fishing of sardines in specific fishing grounds.**
5. **Prohibition of fishing practices and gears that endanger human safety (such as muro-ami, *paaling,* fishing with explosives and noxious substances).**

Problems Encountered

1. **No sea safety standard for small boats -**
   National government agencies are responsible for fishing boats above 3GT. Regulation of small fishing boats are newly devolved (E.O. 305, 2008) to local government units who have inadequate human and institutional capability to formulate policies for safety standards of small fishing boats.
   - 822 Coastal Municipalities

2. **Registration and regulation of small fishing boats within the jurisdiction of local government units while sea safety standards are implemented by national government agencies (MARINA)**

3. **No training on sea safety for small fishing boats**

Agri-Food & Veterinary Authority

Safety at Sea

Small Fishing Boats in Southeast Asia

(Singapore)

Agri-Food & Veterinary Authority

Contents

1. Number of Fishing Boats
2. Types of Fishing Boats
3. Classification of Fishing Boats
3. Safety Inspection & Requirements

Agri-Food & Veterinary Authority

Number of Fishing Boats

S/N	Fishing Boat Prefixs	No. of Fishing Boats as of Dec. 2011	Remarks
1	**SF**	33 Boats	Outboard Engine, Petrol
2	**SFC**	95 Boats	Outboard Engine, Petrol
3	**SMF**	5 Boats	Inboard Engine, Diesel
4	**SMFC**	4 Boats	Inboard Engine, Diesel

Two Licensing Authorities:
-Maritime & Port Authority (MPA)
-Agri-Food & Veterinary Authority (AVA)
-All 137 fishing boats are licensed by AVA.

Agri-Food & Veterinary Authority

Types of Fishing Boats

Made of fibreglass.

Agri-Food & Veterinary Authority

Types of fishing boats

Made of wood.

Agri-Food & Veterinary Authority

Classifications of Fishing Boats

S/N	Fishing Boat Prefixs	Classification	Purpose
1	**SF**	Local Fishing Boat	Commercial Fishing Activity
2	**SFC**	Servicing Fish Culture Farm Boat	Transportation of farm workers, goods and cargoes
3	**SMF**	International Fishing Boat	Commercial Fishing Activity
4	**SMFC**	Servicing Fish Culture Farm Boat	Transportation of farm workers, goods and cargoes

Agri-Food & Veterinary Authority

Safety Inspection & Requirements

- Renewal of licence annually
- Annual inspection
- Inspection
  - ✓Structure of boat
  - ✓Crew record book
  - ✓Safety equipments

Agri-Food & Veterinary Authority

Safety Inspection

Crew Record Book

Boat and Licence Details

Boat owner and crews information

Agri-Food & Veterinary Authority

Safety Requirements

- MPA's Regulations
- Compulsory to install the HARTS or AIS Transponder System
- For accountability purposes during any exigencies
- Distress signal activated from boat's transponder
- MPA and Police Coast Guard will activate search and rescue operations.

Agri-Food & Veterinary Authority

Safety Requirements

AIS Transponder

HARTS Transponder

Agri-Food & Veterinary Authority

Thank You!

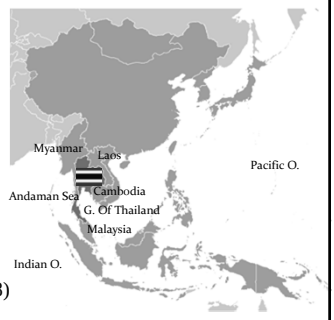
SMALL FISHING BOAT

IN THAILAND

TERAYUT SRIKUM
CHALIT SA NGA NGAM
DEPARTMENT OF FISHERIES THAILAND

Description of Thailand

- **Location**: Southeast Asia
- **Area**: 514,000 km^2
- **Population**: 64 million
- **Seasons:**
  - -Summer
  - -Rainy
  - -Winter
- **Coastline** : 2,815 km
  - -Andaman sea (937)
  - -Gulf of Thailand (1,878)



Classification of fishing boat in Thailand

- Commercial fishing boat : inboard-powered of more than 10 gross tons
  - -Fishing gear : trawl, purse seines
- Small fishing boat : non-powered, outboard- powered and inboard-powered boats of less than 10 gross tons or less than 14 m length
  - -Fishing gear : gillnets, traps, set bag nets, lift nets, hooks and line , etc.

Trammel-net

Crab bottom gill net

Fish gill net

Squid trap

Fish trap

Traditional boats in Andaman Sea Coast

Traditional boats in the Eastern Gulf of Thailand

Traditional boats in the Southern Gulf of Thailand

Boat registration and fishing licensing in Thailand

- All boats including fishing boats registered to Department of Marine
- Fishing license were issued by Department of Fisheries

Number of fishing boat registered, 2004-2009

YEAR	TOTAL (unit)	Less than 14 m (unit)	%
2004	16,432	7,306	44.46
2005	13,647	5,490	40.28
2006	12,552	5,037	40.12
2007	13,056	6,118	46.85
2008	12,920	6,222	48.15
2009	16,891	9,721	57.55

Source: Fishery Statistic Analysis and Research Group, DOF

- In 2009

DOF provides the marine fishing vessels survey program under the National Marine Fisheries Development Policies

Objective

- to known the total vessels that operated in Thai water

Fiberglass boat builder group

Reducing of energy use

Demonstrated boat

Speed of different sailing type

sailing type	speed (KT)	Wind speed (KT)
Triangle	4.7	10.5
Rectangle	5.8	11.8
Trapezoid	2.9	9.5


Fishing gear test



Extended to the fishermen


DIRECTORATE OF VIET NAM FISHERIES

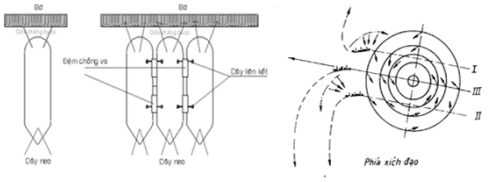
Implementation and promotion of safety at sea for small fishing boats in Viet Nam

Presenter by:Dang Quang Huy
Tran Van Luan
DEPARTEMENT OF CAPTURE FISHERIES
AND RESOURE PROTECTION

1

- Building supplementation the technical standards:

- Technical regulation for small fishing boats less than 50 HP
- Technical standard of safety equipment for fishing vessels from 90 HP upward.
- Conducting technical regulation for anchoring and mooring equipment; the principles for Storm precaution and avoiding skills



Contents

2

2. Implement training and education programs

- Training for more than 100 inspectors and register for 28 coastal provinces per year
- Provided more than 200 inspector certificate for for 28 coastal provinces from 2010 -2011

- Training for vessels skippers and crews

Table 2: THE REPORT OF NUMBER OF FISHING SKIPPER, CHIEF MACHINE AND CREWS (2010)

Skippers (1)				Chief machine (2)				Total (1)+(2)	Crews	Mechanics	In total
Small rank 20– < 90HP	5thRank 90–<400 HP	4thRank >=400 HP	Total	Small rank 20– < 90HP	5thRank 90– <400 HP	4thRank >=400 HP	Total				
16628	24148	3470	44246	6080	17417	2465	25962	70208	19301	45	89554

5

I. Implementation procedure

1. Registration and inspection for fishing boats

- According to the Law of Vietnam Fisheries : All of fishing vessels must be registered.
- All fishing boats has engine capacity from 20 Hp upward must be inspected safety condition following rules for classification and construction of small fishing vessels . Vietnam has 64,726 vessels from 20HP upward.

Table: The number of fishing vessels and result of registration, inspection 2011

Engine capacity	Number of vessels	Rate (%)	Registered	Non - Register	inspected	Non-inspection
<20 HP	64,139	49.8				
20- <50 HP	30,995	24				
50 - < 90 HP	9,551	9.11				
90 HP upward	24,180	18.7				
Total	128,865	100	128,113 (99,4%)	752	63,379 /64,726 (97,9%)	1,347

- Education and dissemination for fishers of 28 coastal provinces:
- Government level
- Local level

3. Investigation and report of fishing vessels accidents

Report system:

Ministry of Agriculture and rural development (MARD) has regulation document for reporting of vessel accidents.

Local government must comply with regulation:

Type report: Monthly, yearly
Immediately accidents
Typhoon, storm

2011, Building statistic software of vessel accident: guide and provide for 28 local government

Accidental investigation:

MARD and Coastguard, Navy, Coast Police, Waterway police forces joining the State fisheries management activities; Insurance companies.

4. Technical and financial support

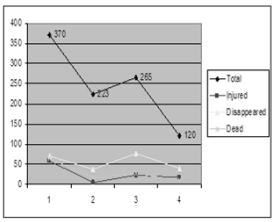
- Government funding vessels improvement; safety training; supporting to change new engine; support radios , life-saving appliances for inshore fishing vessels; support accidents insurance for fishing crews
- No-government organizations:

- France support Vietnam government establishing the center of monitoring, control and surveillance for fishing vessels operating in DECAFIREP (14 million Euros); Denmark support for strengthening capture component.
- FAO support for project of sustainable fisheries livelihood program for coastal communities.

7

III. Safety status

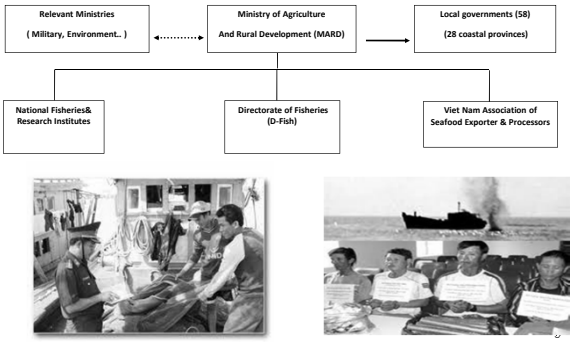
Incident type	2008	2009	2010	2011	Total
Collision	66	6	68	11	**151**
Aground	18	1	5	2	**26**
Sank	155	111	65	30	**361**
Brocken engine and Hulls	92	5	37	29	**163**
Fire and Explosion	39	1		4	**44**
Occupational accident		99	90	44	**233**
Total	**370**	**223**	**265**	**120**	**978**
Injured	59	4	22	16	**101**
Disappeared	71	37	76	39	**223**
Dead	65	16	27	10	**118**



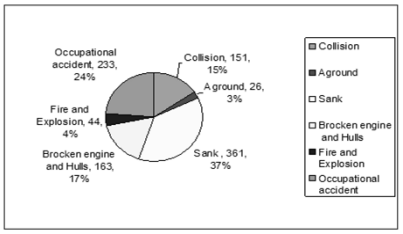
Total: From 2008 to 2011: 978 accidents

10

5. Collaborate



- Accident types



II. Difficulties

- Too many small vessels operating leads not enough inspectors (280 inspectors/64.000 Vessels shell be checked safety condition).
- Lack of professional inspectors to check safety condition following technical standard.
- Natural disaster: averagely, Viet Nam has 9 to 11 storms, typhoons.
- Lack of fisheries logistic as fishing ports, navigation indicators
- Statistic systems are weak.
- Fishers have lower education level comparing others.

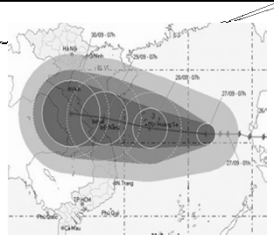
9

Some evident and causes

Vessels are sank because of quality of anchoring and mooring equipment

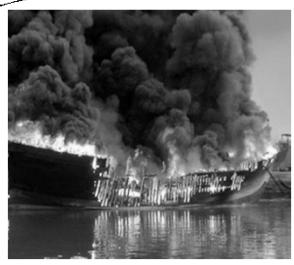
The vessels do not guarantee about sinking prevention features because of the wooden structure holds of vessels which do not ensure about watertight features. Those leads risk and dangers for vessels operating at sea.

12



- Vessels are sank because lack of information about weather condition, typhoon
- Lack of experience and driver skills, knowledge's to avoid storms

13



- Fishing vessels are fired because of careless; lack of fire protection and fire fighting

14

Using second hand engine, Non – marine engine

Vessels are sank because of broken engine
(in case of bad weather)

15

The main engines installed on fishing vessels in Vietnam are often old, second-hand. More than 88.5 % fishing vessels have old engines or are not kept in accordance with the time period needed.

Small vessels lack of Safety equipments include life equipments, fire-fight equipments, sinking preventing equipments, radiotelegraph equipments, and navigational equipments.

16

IV. Recommendation

* Strengthening Monitoring and punishment

* Promoting fishermen's awareness and skills in order to implement responsible fishing operations and safety at sea.
* Building and incentive fishers operating together as team or fishing group to protect and rescues themselves when accident.
* State, government more supporting for humanity rescues activities; analysis and statistic activities to find out the precaution solutions.
* To strengthen and extend international cooperation.
* Promotion human capacity and technical equipment for surveyor organization and inspectors

17

Thank you !

18

SEAFDEC activities related to the implementation and promotion on safety at sea for small fishing boats

Training Department

Organized Safety at Sea Workshop in the Region

1st Regional Workshop on Safety at Sea for Small Fishing Boats	2003
2nd Regional Workshop on Safety at Sea for Small Fishing Boats	2010
3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats	2011

Outcome from Workshops

1st Regional Workshop on Safety at Sea for Small Fishing Boats

+

2nd Regional Workshop on Safety at Sea for Small Fishing Boats

RECOMMENDATIONS ON SAFETY AT SEA FOR SMALL FISHING BOATS IN SOUTHEAST ASIA

Production of Information Materials

- Production of poster on safety at sea
- Production of poster on alleviation of accident in the sea
- Accidental Recording From of Fishing Boats
- Production on safety guideline for fishing boats (on progress)

Enhancement and Promotion Safety at Sea in the Region

The ASEAN-SEAFDEC Conference on Sustainable Fisheries for Food Security Towards 2020 "Fish for the People 2020 Adaptation to a Changing Environment" 13-17 June 2011, Bangkok, Thailand

Enhancement and Promotion Safety at Sea in the future

Resolution on Sustainable Fisheries for Food Security for the ASEAN Region Toward 2020

- Improve the working conditions of people engaged in fisheries activities, and strengthen measures for safety of fishing vessels taking into consideration regional specificity

Enhancement and Promotion Safety at Sea in the future

Plan of Action on sustainable Fisheries for Food Security for the ASEAN Region Towards 2020

- Adjust existing programs to promote safety at sea
- Strengthen efforts to address safety at sea, including considerations of working conditions and socio-economic development, and ensure that these considerations are addressed by all concerned authorities while improving monitoring and control of the status of conditions, especially on small fishing boats.

Thank you

The 3rd Regional Workshop on Safety at Sea and Optimizing Use for Small Fishing Boats

Atty. Brenda V. Pimentel
Regional Co-ordinator
IMO Regional Presence for Technical Co-operation
in East Asia

19 -22 December 2011
Samur Prakan, Thailand

Background: International Initiatives

- 1960's – IMO, FAO and ILO agreed to cooperate and developed the Code of Safety for Fishermen and Fishing Vessels
- 1982 – the Voluntary Guidelines for the Design and Equipment of Small Fishing Vessels were completed

Background: International Initiatives

- 1977 – Convention on the Safety of Fishing Vessels was adopted (Torremolinos Convention); followed by the Torremolinos Protocol)
- Mid-1990's – IMO with participation of FAO and ILO undertook a review of the Code and the Guidelines

3

Background: International Initiatives

- 2004 – the review was completed and the revised texts of the Code and the Voluntary Guidelines were approved by the Maritime Safety Committee of IMO
- 2004 – during the same meeting of the MSC, it was agreed that Safety Recommendations for Decked Fishing Vessels of Less than 12 m in length and undecked fishing vessels were to be ,oed

Background: International Initiatives

- 2010 – the IMO-MSC approved the Safety Recommendations
- FAO and ILO approved the Safety Recommendations through their respective governing bodies.

Instruments Developed thus far..

- Code of Safety for Fishermen and Fishing Vessels
- Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels
- Safety Recommendations for Decked Fishing Vessels of less than 12 meters in length and Undecked Fishing Vessels

6

2011 – the Guidelines to Assist Competent Authorities in the Implementation of Part B of the Code of Safety for Fishermen and Fishing Vessels, the Voluntary Guidelines for the Design and Construction and Equipment of Small Fishing Vessels and the Safety Recommendations for Decked Fishing Vessels of Less than 12 meters in Length and Undecked Fishing Vessels (Implementation Guidelines) was approved by IMO through the MSC

7

Code of Safety for Fishermen and Fishing Vessels

- Part A – was originally for skippers and crews of fishing vessels but after revision of the Code it is now primarily directed towards Competent Authorities, training institutions, fishing vessel owners, representative organizations of crew and NGOs' having recognized role on crew's safety and health
- Part B- for fishing vessel builders and owners

8

Purposes of Part A of the Code

- Provide information with a view to promoting the safety and health of crew members on board fishing vessels; and
- Serve as a guide to those concerned with framing measures for the improvement of safety and health onboard fishing vessels.

9

Purpose of Part B of the Code

Provide information on the design, construction and equipment of fishing vessels with a view to promoting the safety of fishing vessels and safety and health of the crew

10

Purpose of Implementation Guidelines

- Assist Competent Authorities to give effect to the provisions of the instruments (Code for the Safety of Fishing Vessels. . .)

11

Overarching Objectives of the Implementation Guidelines

- To inculcate a safety culture in the fishing industry through the implementation of a regulatory framework which covers safety instruments developed for the safety of fishing vessels and involving the major stakeholders such as the fishing operators and their crew, ship/boat builders, training centers, etc.

12

Contents of the Implementing guidelines

- Administrative Requirements
  - assessment of national needs
  - communications with industry
    * linkages between ministries
    * measures when implementing new safety measures
  - assessment of the requirements for safety equipment & construction materials

13

Administrative requirements

- - registration of fishing vessels
- - casualty/incident investigation
- - development of a safety strategy

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Legal Implications

Purpose of the implementing guidelines is to help competent authorities to build their own legislation and regulations or other measures for the safety of fishing vessels

Key areas Covered:

- register – record of the vessels that fly a country's flag
- safety certificate- inspections undertaken

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- safety equipment – regime for the approval of safety equipment
- survey resources – capacity to inspect all fishing vessels so recognized organizations can be allowed to carry out surveys
- special requirements for developing countries, i.e. technical co-operation

16

Operational Safety

- Onboard vessel safety management
  - Awareness of safe practices
- Fishing vessel safety management regulations
  - To highlight the need for the fishing vessel owners, crew to acquire safety culture
- Safety codes
  - Bring to the attention of stakeholders of a set of standards and norms to create a safe working environment

17

Capacity Building

- Manpower Development Programmes – e.g. training and certification of both the competent authorities and those who are manning the fishing vessels
  - Qualification requirements for professional administrators, legal and survey/technical staff involved in:
    * survey/inspection services
    *ship/boat building of fishing vessels

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Investigating Fishing Boat and Migrant Fishing Crew in Thailand

Prof. Dr. Supang Chantavanich
Asian Research Center for Migration
Supang.C@chula.ac.th, chansupang@gmail.com

Sea Fishing industry and migrant fishing crew in Thailand

- Contribute to 80% of world's fish production (China, Thailand, Vietnam)
- Fishing in international and national seas
- Illegal, unreported and unregulated (IUU) fishing (20% of global catch)
- Type of fishing boat
  Local : 3 sizes
  International : 2 sizes

IUU reasons

- No international register for fishing vessels
- "Flags of convenience" (FOC) systems : offerings flags for use e.g. Panama, Costa Rica
- Flag status unwilling / unable to enforce their law over vessels on forcing seas and employ foreign workers

(Gabriela Steinmen, 2011)

Conditions of fishing crew

- Longer trip at sea → higher crew cost →recruiting migrant crew → forced labour and exploitation
- Unregistered
- Long working hours
- No safety equipment
- Physical and psychological violence with captain and crew
- Poorly paid
- No/limited access to complaint mechanisms

ARCM studies of good practices to mitigate exploitation

- Fishing boat captain
- Inspection of fishing vessels and crew
- Dream Pier Award

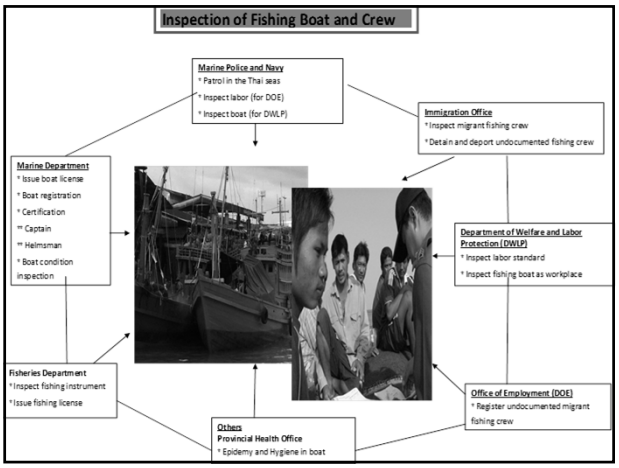
Good practices for fishing boat captain

- This model investigated opinions of owner of fishing boat, Thai and migrant employees in the fisheries sector and fishing boat captains themselves on the agreeable qualities of good captain. If most captains possess three aspects of qualities in their performance:

Good practices for fishing boat captain (cont.)

- Knowledge about the sea
- Ability of catch more fish
- Good characters

  Migrant workers will be better protected because they will work with skillful leader who can make high income but will be sympathetic and honest to them.



Vessel and labour inspection model for migrant workers in fishery sector

- This model focuses of fishery sector but looks more into how to regulate migrants who are not registered and tries to examine the problems and find some practical ways to regulate migrant workers in this sector.

Outstanding Fishing Pier Award

- The model tried to suggests the pier to be examined in terms of working equipments, safety instruction, provision of clean drinking water and WC to workers, light and ventilation in the workplace, accommodation and transports.

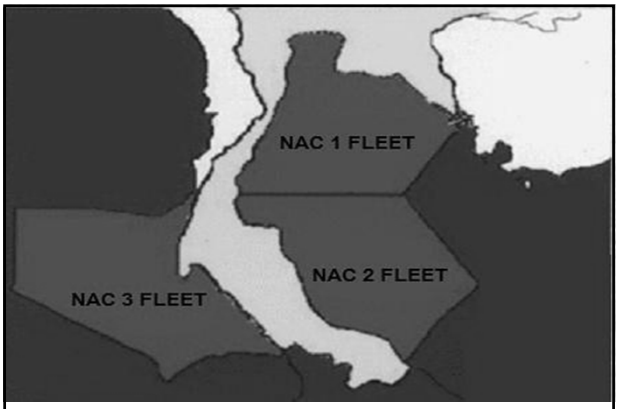
Role of Sea Patrol by Marine Force

- The Royal Thai Fleet has the Nac1 Fleet, Nac2 Fleet and Nac3 Fleet patrol and protect the fishing boats and prevent illegal enterprises as far as the fleet use strategy is concerned. Each of the 3Nac's consists of 15-20 patrol ships or so, and 2-3 planes or helicopters or so.

- The Nac1 Fleet headquarter supervise the upper Gulf of Thailand including the Ko-Kai-like gulf downwards to the boundary line between Choomporn Province and Suratthanee Province. The headquarter is in Sattahip District, Cholburi Province.

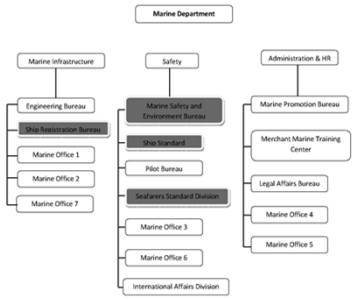
- The Nac2 Fleet headquarter supervise the lower Gulf of Thailand starting from the boundary line between Gulf of Thailand, Choomporn Province and Suratthanee Province to the seaboard area adjacent to Malaysia. The headquarter is in Muang District, Songkla Province.

- The Nac3 Fleet headquarter supervise the entire Andaman seashores. The headquarters is in Phuket Province. (See Map1 for illustration)



Map1: Area as Supervised by the 3 Nac's Fleet
(Adjusted from the map used in http:www.navy.mi.th)

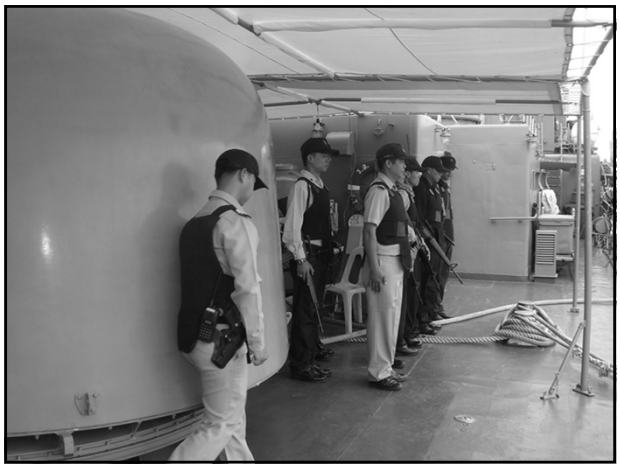
Role of Boat Inspection by Marine Department



Mission

- To enforce the Navigation in Thai Waters Act, Thai Vessels Act, Prevention of Ship Collision Act, Mercantile Marine Promotion Act and other relevant laws.
- To conduct the study for the development of water transport infrastructure.
- To regulate water transport and shipping industry.
- To cooperate and coordinate with relevant local and international agencies and organizations in the field of water transport and shipping industry including agreements and international conventions.
- To carry out other work entrusted by law or the Ministry of Transport or the Cabinet.

STEP 1: Steps in boat **I**nspection



Step 2 : the commander ordered the navies to be prepared for the assignments.

STEP 3: The crew was inspected by Labour Inspection Authorities**.**

STEP 4: Documents concerning the ship and foreign labour on board were inspected.

Step 5: some navies were on alert, protecting other navies' safety.

Primary findings

- Not all offices are functioning according to their mission specified in the laws.
- Naval Combating Crime in Sea Act B.E> 2490 not fully enforced and out of date (Section 11, 23, 57, 63, 70)
- A strong felt need to make concerted efforts among government offices and other stakeholders (e.g. Fisheries Associations) to coordinate in fishing boat and fishing crew inspection and standardization.
- An action research, capacity building and regular monitoring are needed.

International good practices in protecting fishing crew

- High priority to crew's welfare: accommodation, minimum age, medical examination, conditions of work especially minimum hours of rest, crew safety (Japan)
- Combat against IUU fishing initiated by civil society groups and academic circles (Norway)
- Agreements with seamen's unions prohibit thraws from spending more than 40 days at sea (Iceland)

International good practices in protecting fishing crew (cont.)

- Fisheries subsidies by state in rich countries allow industries not to use cost-saving solutions (cheap labour, maximum catch, etc.)
- Labour Coordination Centers(LCC) in 7 provinces, National Fisheries Association (NFA) becomes the only agency to employ migrant workers for fisheries through Thai MOL (DOE) who signs recruitment contracts with neighboring countries (Thailand – in progress as of August 2011).

Australian AID

Promotion on Safety at Sea from Labour Protection Aspects

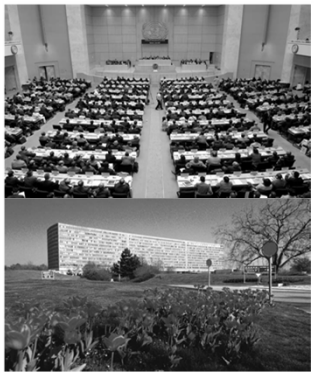
SEAFDEC, TD, Samut Prakarn
December, 2011

Australian AID

Outline

- ILO's Structure and the ILO TRIANGLE Project
- International Labour Standard Working at Sea: ILO Convention No. 188 and Recommendation No.199
- Thailand 's Labour Protection
- Tripartite Cooperation under the ILO: Thailand

ILO: the only tripartite U.N. Agency



Established: 1919
Bring together govts, workers and employers to promote"decent work" – productivity, fair income, security and social protection and equality for all women and men

Australian AID

TRIANGLE: Aim & Approaches

To increase labour rights protection and decent work opportunities for MWs in the GMS and Malaysia

- Outcomes on : Policy development and legal framework; capacity building; support services
- Sector-based: Domestic Work, Fishing, Agriculture, Manufacturing, and Construction
- Tripartite + working approach
- Bilateral and multilateral (ASEAN) cooperation
- Gender-responsive
- Emphasis on monitoring and evaluation
- Five years initiatives, supported by Aus AID

Project Coverage

Activities currently running in 15 sites in countries of origin and destination:

- Cambodia
- Lao PDR
- Viet Nam
- Malaysia
- Thailand

Australian AID

Background: C.188 and R.199

C.188	R.199
• Adopted in 2007	• Adopted in 2007
• Legally binding instrument	• Non-legally binding document
Voting results:	Voting results:
For:437	For: 443
Against: 2	Against : none
Abstentions: 22	Abstentions: 19

** Argentina and Bosnia and Herzegovina have ratified ***

Objective of the C. 188

"… to ensure that fishers have decent conditions of work on board fishing vessels with regard to ***minimum requirements*** for work on board; conditions of service; accommodation of food; occupational safety and health protection; medical care and social security…"

Definitions and Scope of Application

****All fishers and all fishing vessels engaged in commercial fishing operations*****

" fishers" - every person employed or engaged in any capacity or carrying out an occupation on board any fishing vessel including those paid on the basis of profit sharing - **BUT**, excluding pilots, naval, govts officers shore based persons and observers;

" fishing vessels" - any ship or boat, of any nature whatsoever, irrespective of the form of ownership, used or intended to be used for the purpose of commercial fishing;

"commercial fishing" - all fishing operations, including fishing operations on rivers, lakes or canals, with the exception of subsistence fishing and recreational fishing

Scope of Application: Flexible approach

- Exclusion from the requirements of this Convention/ from certain of its provisions

❖ special problems of a substantive nature raised **in light of particular conditions/services** (Art.3)

❖ **In light of insufficiently developed infrastructure or institutions** (Art. 4)

- **Through consultation –** representing tripartite structure/members

Article 8: Responsibilities

Vessel owners: ensuring the skipper is provided with the necessary resources and facilities to comply with the obligations of this Convention

Skipper: ensuring the safety of the fishers on board + OSH awareness and the safe operation of the vessel

Fishers: compliance with the lawful orders of the skipper and applicable safety and health measures

Minimum Requirements

- Minimum age: **16 years** / 15 years but with authorisation by competent authority and must complete compulsory scholling. However, if work does jeopradise health, safety or morals, fisher should not be less than 18 years of age

- Medical examination

Conditions of Services

- Hours of Rest- vessels regardless of size remaining at sea more than 3 days:

❖ establish **minimum rest period** no less than;

➢ 10 hrs in any 24 hrs period;

➢ 77 hrs in any 7 days period

❖ temporary exceptions – only when specified reasons but **fishers shall be compensated period of rest ASAP**

❖ not to impair the right of the skipper to require fishers work necessary for immediate safety of the Vessels, persons on board or the catch

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Cont.

- Crew list
- Fisher's work agreement containing at least;

❖ Personal profile, position, name of employer/vessel owner
❖ Effective and expiry date and place of an agreement made
❖ Reg. No. of vessel, voyage (s) taken
❖ working conditions: wages no less than minimum wages, minimum period of rest, annual leave, sick leave, social security/ insurance and repatriation entitlement

- Payment : ensure a monthly or regular payment

Australian AID

Accommodation & Food

- Sufficient size and quality, including toilet and washing facilities
- Sufficient nutritional value, quality and quantity, drinking water supplies
- No cost

Medical care, health protection and SS

- **Medical care**
- **Occupational health and accident prevention**
- **Social security**
- **Protection in the case of work-related sickness, injury or death**

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Compliance and Enforcement

- **Effective jurisdiction and control - inspections, reporting, monitoring, complaint procedures, penalties and corrective measures**
- **Enter into force:**

12 months after the date of ratification by:
10 states – 8 are costal states

Thailand's Labour Protection: Challenges

- Prominent problems related to irregular migration such as serious labour rights and human rights violation in identified risk sectors including **work in fishing**

- Labour Protection Act 1998 (LPA)– Non-discrimination principle but low level of enforcement, especially on labour inspection

Australian AID

Cont.

- No comprehensive Act dealing with work in fishing covering safety at sea, working condition and licensing
- Lack of an inter-ministerial cooperation dealing with sea fishery work (protection, safety, licenses)

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Latest Development

- Revision of Ministerial Regulation No. 10 (issued under the LPA) concerning labour protection of workers (not yet enforced)

Highlights:

- Enforceable to any sea fishery work employing from 1 fisher onwards; sea fishery work is both in and outside the kingdom of Thailand (current law: up to 20 fisher)
- No limit of time regarding the operation of sea fishery work outside the kingdom of Thailand (current law: less than a year)
- Minimum age: 18 years of age (current law: 16 years of age)

Tripartite + Cooperation under ILO: Thailand

- Govts: DLPW, DOE (MOL), DOF (MOAC):

❖ Provide informal comments on a Draft Ministerial Regulation (ongoing)

❖ Baseline Survey Employment practice and Working conditions in a fishing sector (pipelined)

❖ Study on compliant mechanisms during employment (pipelined)

❖ Develop Labour inspection guidelines and training modules (initial focus on a fishing sector) (pipelined)

❖ Good Labour Management Practice (on discussion)

Cont.

- Workers: Trade Unions/ CSOs (FAR)

❖ Paralegal advocates on labour rights

❖ All forms of legal assistance – counselling and litigation

❖ Organising migrant workers leading to membership-based organisations (collective bargaining principle)

❖ OSH trainings – TOT (skipper), training of fishers (Rayong, Trat and Samut Sakhon)

Cont.

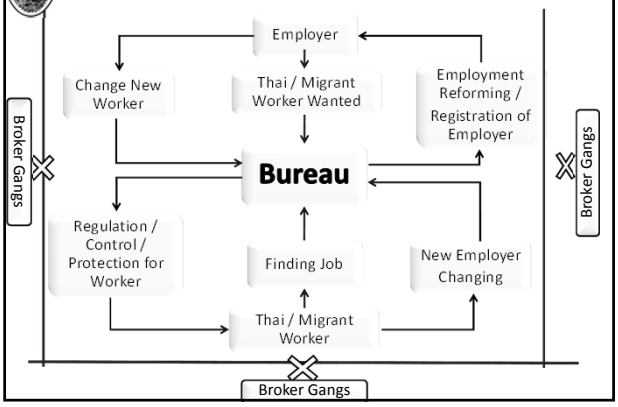
- Employers: NFAT (National Fisheries Association of Thailand)

❖ Develop COC employment practices and protection (Self regulation instrument)

❖ Feasible study on Labour Centre (employment practices and working condition) to reduce irregular migration

❖ Develop OSH guidelines and training modules: TOT for Skipper and for fishers

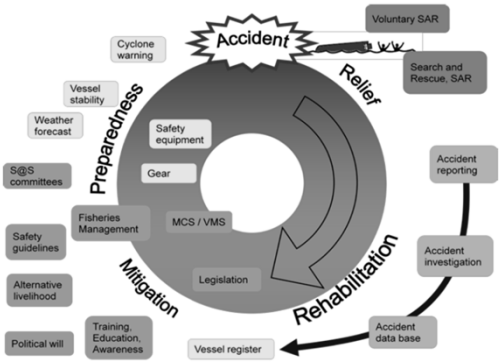
Model of Labour Recruitment Placement and Employment on Fishing Vessels Services Center Agency by NFAT



Australian AID

THANK YOU

Establishment of mechanism/ system on recording accidents at sea of small fishing boats



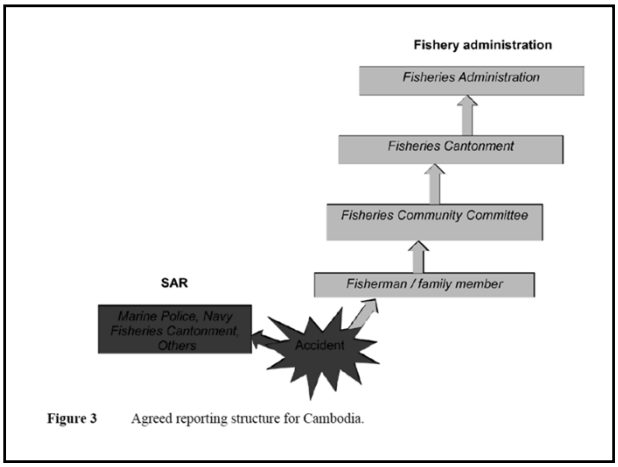


Figure 3 Agreed reporting structure for Cambodia.

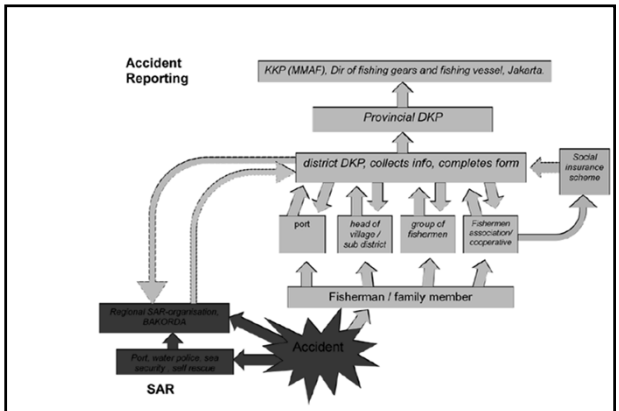
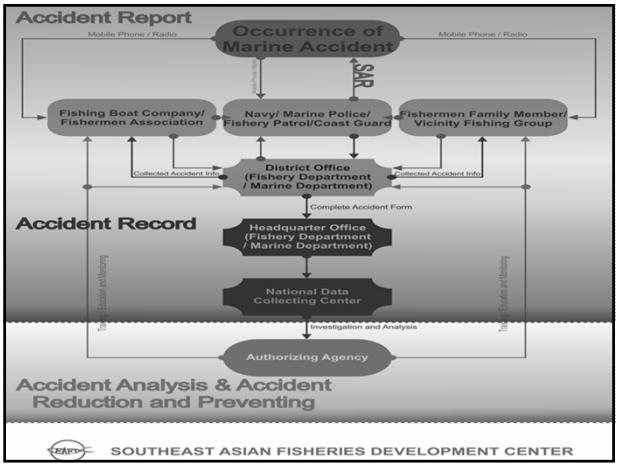


Figure 5 Reporting structure agreed for Indonesia.

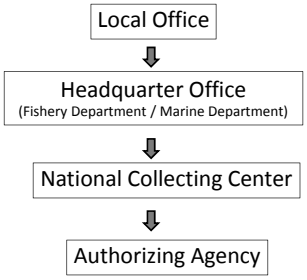


Comments from participants

- Myanmar
  - Training and capacity building in data collection…
  - Age, part of body (?),add more details
- IMO
  - Premises/reasons for data collection/reporting…determining causes of accidents…and/or as a basis for rescue missions…more forms depending on specific purposes (i.e. SAR, accident reporting only, etc)
- Singapore
  - Provide spaces for sketches/for illustrations…on sea conditions…checklist…Beaufort scale…
  - -to make the form easy to fill-up
- Indonesia
  - Checkbox…equipments necessary for rescue missions…
  - Interests of insurance..
- Philippines
  - On the form…segregate data pertaining the vessel and the accident…and emergency responses…

Accident recording form for Fishing Boat

Accident Recording and Reporting



Thank you

Minimum requirement on safety and working standard for fishing boats and fisher

I. Safety for small fishing boat

- < 12 m and 12~24 m length of the boat (climate and national definition)

	< 12 meter length	12~24 meter length
1. Navigation	- Navigation light - Magnetic compass - Fishing Sign/light - Anchor and mooring equipment	- Sound signal (horn) - Anchor and mooring equipment - GPS or Magnetic compass or Navigation light or Chart
2. Safety Equipment	- Lifejacket (or alternative) - Flash light - Handflare - Whistle - First aid kit - Promotion of the safety culture (poster, information and communication materials, etc) - Paddle	- Lifejacket - Lifebuoy - First aid kit - Handflare - Fire extinguisher (small size) - Safety shoes and helmet - Promotion of the safety culture (poster, information and communication materials, etc) -
3. Design/condition of the fishing boat	- Boat design (including sea worthiness, stability, buoyancy where appropriate) - Boat materials - Capacity of engine - Periodical maintenance	- Sea worthiness - Deck arrangement - Boat construction information - Capacity of engine - Check list for on board o Hull check o Engine check o Fuel check o Fish hole check - Periodical maintenance
4. Communication equipment	- Mobile phone or wireless communication	- Wireless communication equipment (radio or transceiver, mobile phone)
5. Other	- Promotion of the safety culture (poster, information and communication materials, etc) - Logbook	- Promotion of the safety culture (poster, information and communication materials, etc) - Insurance (boat and fishers) - Local weather forecast - Logbook
6. Fishing Crew	- Competency certificate -	

- Regional assessment/study of small boat stabilizer should be carried out

II. Working Standard

1. Age and skill	- Minimum age: 16 or 18 years old - Minimum education: primary school - Health documentation, especially good eye-sight (include color blind) - Fisher ID (to be issued by fisheries authority)

	- Swimming - Fishing gear proficiency certificate (fish handling and fishing operation) - Competency certificate (skipper and engineer)
2. Hours of work	- Minimum working hours (refer to ILO)
3. Work agreement	- Sharing fair profit among fishers (also refer to ILO) - Working agreement contract (only applicable for the boat size 12~24m)
4. Living condition	- Safe and hygienic standard
5. Sanitation and health	- Sufficient facilities/sanitation - Sufficient provision (food and water)
6. Others	- Sufficient fishing equipment for fish handling and fishing operation - Minimum tools for repair and maintenance of fishing boats

Energy-saving of fishing vessels in Japan

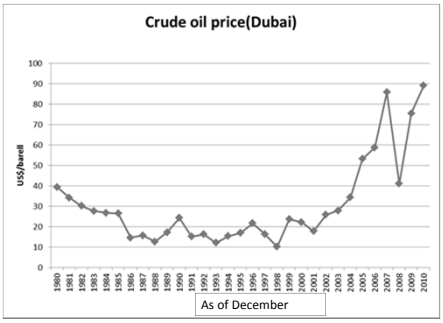
National Research Institute of Fisheries Engineering,
Fisheries Research Agency
Hideki Tsubata

National Research Institute of Fisheries Engineering

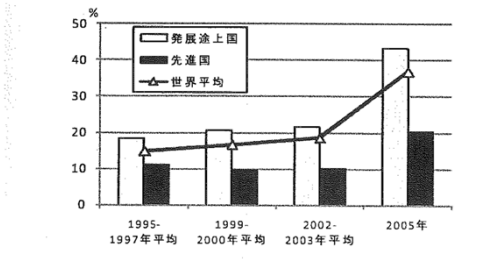
Contents

1. Background

1) The trend of crude oil price

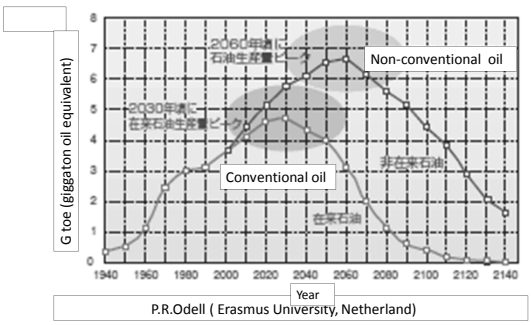


2) Ratio of fuel oil costs toward fishery incomes



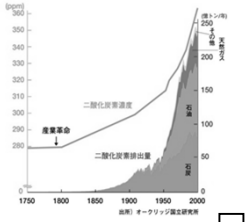
資料：FAO「The state of world fisheries and aquaculture 2006」を基に水産庁で作成

3) The future of Crude oil resources

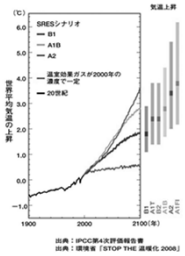


4) The trend of GHG emission and temperature

The trend of concentration and quantity of CO2



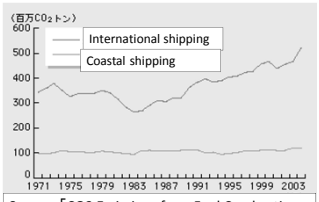
The forecast of mean air temperature in the world



Kyoto Protocol to the UNFCCC (entry into force Feb. 2005)

5) CO2 emission from Ships

・CO2 emission from international shipping tend to increase with growing market of world shipping trade (about 3% of all CO2 emission)



Source: 「CO2 Emissions from Fuel Combustion (IEA)」

MARPOL amendments (adopted at MEPC 62, 15 July 2011 and apply Energy Efficiency Regulations to new ship of 400GT and above engaged on International shipping)

2. Energy-saving in fisheries

2-1 Operational methods for energy-saving

1) Awareness of one's fuel consumption

2) Speed Reduction

3) Lightening weight

4) Cleaning hull, rudder and propeller

5) Suitable temperature of freezer

6) Engine/machinery maintenance

2-1 Operational methods for energy-saving

1) Awareness of one's fuel consumption

Fuel flow indicator on the bridge

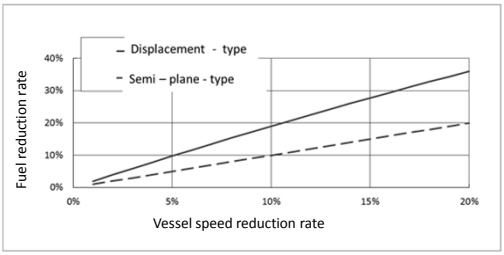
Real- time monitoring

The 1st step is to know how much fuel oil is consumed

2-1 Operational methods for energy-saving

2) Speed reduction

10% slow down ⇨ 20% save



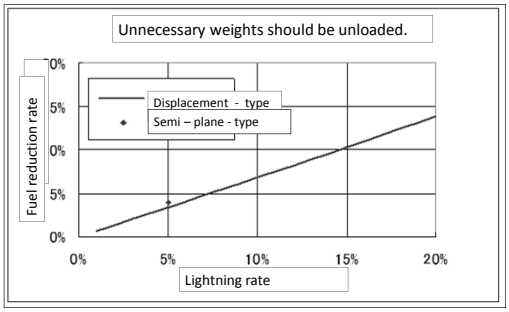
Relationship between vessel speed reduction rate and the fuel reduction rate when navigating a fixed distance

2-1 Operational methods for Energy-saving

3) Lightening weight

5% weight down ⇨ 4% save

Unnecessary weights should be unloaded.



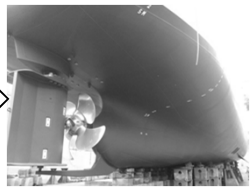
2-1 Operational methods for energy-saving

4-1) Cleaning hull, rudder and propeller

Clean up ⇨ 10% save

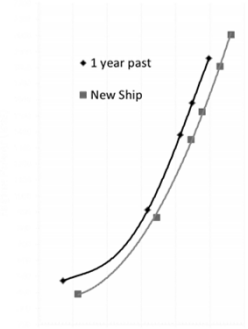
The fuel consumption rises up due to the roughness of the hull underwater surface, the rudder and the propeller, resulting from the growth of seaweed, barnacles etc.

⇨



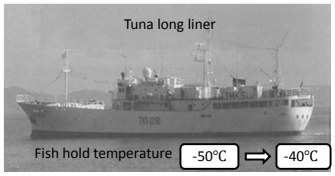
2-1 Operational methods for energy-saving

4-2) Power curve comparison



2-1 Operational methods for energy-saving

5) Suitable temperature of freezer



7% Fuel Reduction

2-1 Operational methods for energy-saving

6) Engine/machinery maintenance

2-2 Technical methods for energy-saving

1) Bulbous bow

2) Fins

3) Appendage

4) Engine replacement

5) LED fishing lights

6) Controllable pitch propellers (CPP)

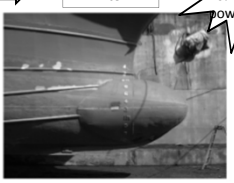
7) Fuel-efficient fishing gear

2-2 Technical methods for energy-saving

1) Bulbous bow

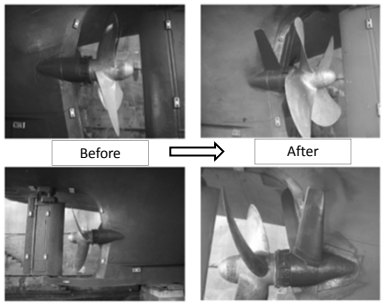
Before ⇨ After

Ex.
10% Engine power save



2-2 Technical methods for energy-saving

2) Fins



A multiple fin installed ahead of a ship's propeller will help eliminate unwanted rotating flow and increase propulsive efficiency.

2-2 Technical methods for energy-saving

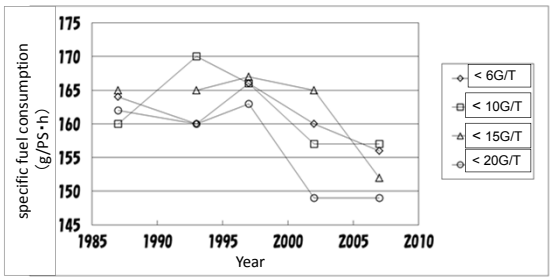
3) Appendage

New type bilge keel to streamline the water flow besides the hull underwater

Low-resistance cover for acoustic transducer of echo sounder

2-2 Technical methods for energy-saving

4) Engine replacement



Improvement of specific fuel consumption of main engine

2-2 Technical methods for energy-saving

5) LED fishing lights

The large scale stick-held dip-net for the saury equipped with LED fishing lights

2-2 Technical methods for energy-saving

6) CPP

Superiority in ship control

Full speed ⇔ Low speed

Ahead ⇔ Astern

Without changing engine revolution

Caution

Incorrect pitch and revolution can easily result in significantly increased fuel consumption

Important

Good combination between pitch and engine revolution leads to fuel saving of from 3 to 10%

2-2 Technical methods for energy-saving

7) Fuel-efficient fishing gear

Traditional type trawl net made of polyethylene

New type trawl net (low resistance) made of ultra high strength polyethylene

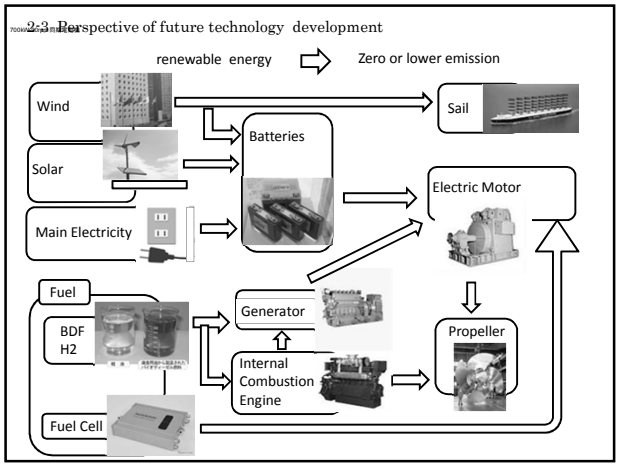
2-3 Perspective of future technology development

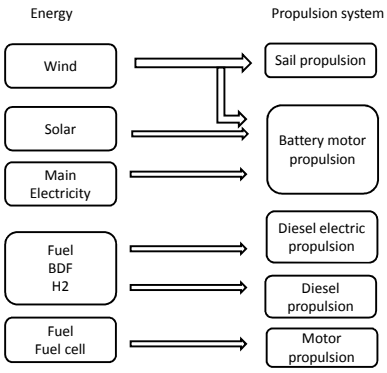
1) Sail

2) Wind/solar power generator

3) Bio-diesel fuel (BFD)

4) More effective searching technology for fishing ground/fish school

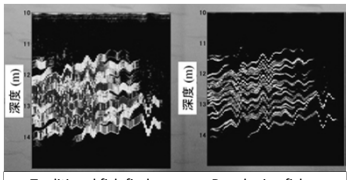




［Example］

○ Research on rechargeable battery propulsion system

○ Research on acoustic technology such as sonar for improving the accuracy of searching fishing ground and target identification



Traditional fish finder

Developing fish finder (high-precision)

3 Summary on applicability of the technologies

Technical element	Small Boat (Coastal)	Medium/Lager
2-1 Operational methods 1) Awareness of fuel consumption	○	○
2) Speed reduction	○	○
3) Lightening weight	○	○
4) Cleaning hull, rudder and propeller	○	○
5) Suitable temperature of freezer	–	○
6) Engine/machinery maintenance	○	○

Technical element	Small Boat (Coastal)	Medium/Lager
2-2 Technical methods for energy-saving 1) Bulbous bow	△	○
2) Fins	–	○
3) Appendage	△	○
4) Engine replacement	○	○
5) LED fishing lights	△	△
6) CPP	–	○
7) Fuel-efficient fishing gear	△	○

4 Conclusion and discussion

1) The low productivity of many fleets is currently a major concern in the fisheries sector. The high oil price is one of causes of economic difficulties for the fleet.

2) It is possible to reduce fuel consumption by means of operational methods and technical methods for energy saving or energy optimization, and possibly in the future innovative hull forms, fishing gear and other relevant technologies.

3) Operational methods (soft ware oriented practices) for energy saving technologies such as speed down, lightening vessel weight, seem to be promisingly effective/usable methods for all type of vessels, irrespective of the size and type of fishing.

4) Such operational methods can be adapted without significant increase in the incurred costs. However, it might be difficult to say that such technologies have been properly applied in the practical site of fishing activities so far.

4 Conclusion and discussion (continued)

- 5) (continued)Therefore, we have to make efforts to work on further extension of these methods into the fisheries sector in the region.
- 6) On the other hand, with regard to technical methods for energy saving such as reform of the hull, machinery and fishing gear/ methods, incurred costs would largely vary from type to type of fishing vessels and its expected effects would also fluctuate much depending on the individual vessel 's condition and the type of fisheries. Therefore, it should be recognized that it is difficult to demonstrate the magnitude of the cost-performance of energy saving technologies in a uniform and quantitative manner.
- 7) Many of energy saving technologies explained this time are mostly those which are applicable to medium and larger scale fishing vessels, and not sufficient for small scale boats except for the operational methods. Accordingly, henceforth we need to expedite the study about technologies especially for small boats.

4 Conclusion and discussion (continued)

- 8) In addition, we need to promote a study on the issues by not only pursuing the single aspect of energy /cost saving technologies but also executing more comprehensive/synthetic approach combined with other aspects such as profitability, improvement of safety at sea and working conditions for fishermen on board as much as possible .
-
- 9) When trying to introduce respective relevant technologies into the sector, it is indispensable to provide fishermen with appropriate technical advices and engineering services on a case by case and /or an individual demand basis. In this regard, some appropriate framework for providing opportunities for technical transfer and capacity building should be taken into consideration by the SEAFDEC and its member countries.

Optimizing Energy Utilization

Richmond Ilao,
Business Development Manager
KLEISS CO.,LTD.

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Energy Efficiency & Conservation

- **Energy conservation = efforts to made to reduce energy consumption**
  - **Behavioral, Attitude, etc.**
- **Energy efficiency = achieved through the application of technology**
  - **Renewable energy sources**
  - **Energy saving technologies**

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Energy Efficiency

- **Achieved through the application of technology, for example:**
  - **Solar & Wind Technologies**
  - **LED/Induction Lighting System**

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Virtually everyone benefits when individuals, companies, and entire communities reduce the amount of energy they use.

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Benefits of Energy Conservation

- **Reduced Air Pollution**
- **Better Health and Safety**
- **Saving Money**
- **Life Span**
- **Improved Image**

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What is one option that the Southeast Asia Fisheries can do to *optimize energy use* and *protect the environment*?

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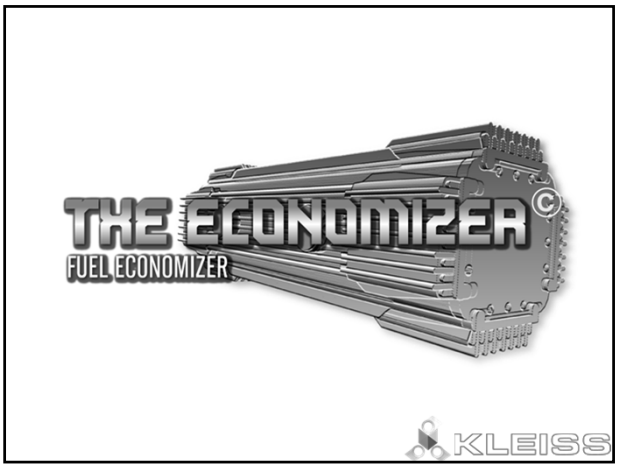
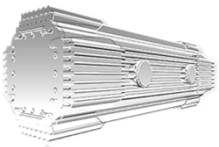


INTRODUCTION



What is Fuel Economizer?

- **Material:**
  - **Multi-national patented made up of variety of composite materials and contains ceramic particles, which are safe and stable.**
- **Functions:**
  - **Shortens the hydrocarbon chains, thus promote better combustion efficiency.**

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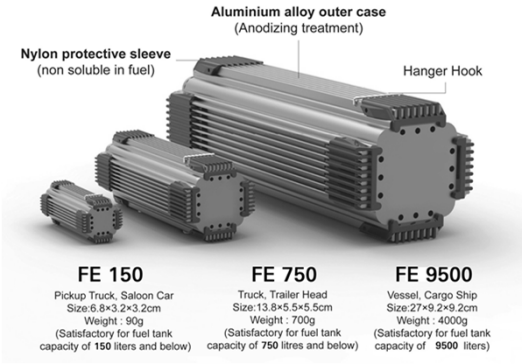

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Why We Need It?

- **Cost Down**
  - **Save hydrocarbon fuel by 8-20%**
  - **Less carbon deposition, lower engine temperature**
  - **Extend the lifespan of the vehicle or engine.**
- **Environment Protection**
  - **Reduce harmful greenhouse gases and toxic emissions such as HC, CO, SO2,NOX and CO2**

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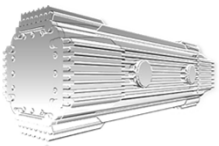
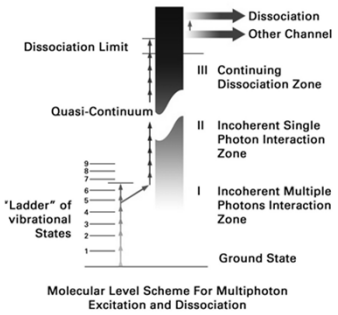
THEORY



How Does It Work?

- **Molecular Multi-Photon Process**
  - **The hydrocarbon molecule absorbs a number of photons at assorted wavelengths 4-20 microns**
  - **causing molecular vibrations, i.e. rise to bond stretching and bending in hydrocarbon (HC) molecules .**
  - **Excited hydrocarbon's constituent electrons can climb up the ladder of vibrational states and reach excited states.**

Multi-Photon Process



Molecular Level Scheme For Multiphoton Excitation and Dissociation

Increasing reactant vibrational energy is most effective at promoting reaction, and the increasing in vibrational energy is indeed relatively more important than raising temperature in enhancing a molecular reaction.

When a photon is absorbed by a molecule, it ceases to exist and its energy is transferred to the molecule. This energy can be transferred to vibrational, rotational, electronic, or translational forms.

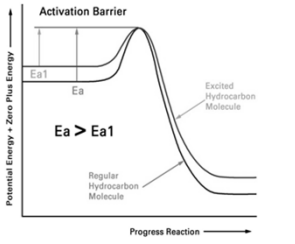
Reaction Profile

The reaction rate W is determined by

Arrhenius equation: $W=ke^{-E/RT}$
Where k is constant,
R is the universal gas constant,
T is the temperature in kelvin,
E is the activation energy (the energy required to overcome activation barrier).

The lower the activation barrier is, the higher the reaction rate will be.

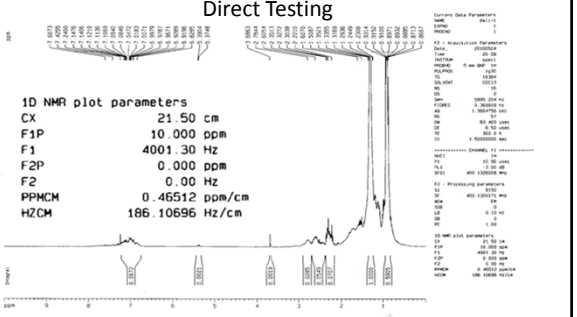
The excited fuel has lower activation barrier for reaction with increased combustibility to burn faster in cylinders, allowing more heat released from the fuel in early cycle to transform to mechanical energy, and less heat loss in later cycle to raise exhaust gas temperature (EGT). This results in increased power, lower specific fuel combustion and reduced HC, CO, SO_2, NO_X and CO_2 emissions.



Reaction Profiles of Regular Hydrocarbon Molecule and Excited Hydrocarbon Molecule

400MHz NMR Spectroscopy

Direct Testing

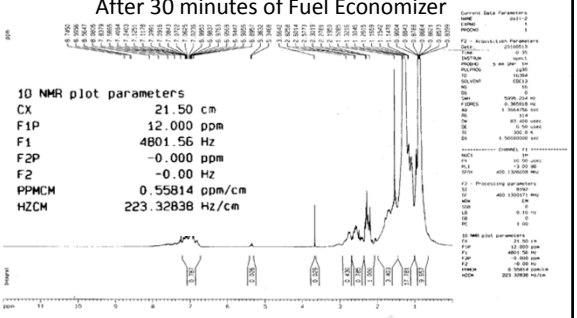


1D NMR plot parameters

CX	21.50 cm
F1P	10.000 ppm
F1	4001.30 Hz
F2P	0.000 ppm
F2	0.00 Hz
PPMCM	0.46512 ppm/cm
HZCM	186.10696 Hz/cm

400MHz NMR Spectroscopy

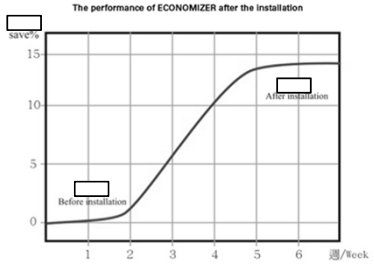
After 30 minutes of Fuel Economizer



1D NMR plot parameters

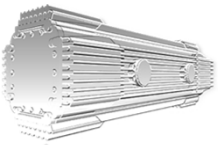
CX	21.50 cm
F1P	12.000 ppm
F1	4801.56 Hz
F2P	-0.000 ppm
F2	-0.00 Hz
PPMCM	0.55814 ppm/cm
HZCM	223.32838 Hz/cm

Performance After Installation



Oxygen Stimulator, FE-150,
FE750, FE-9500

INSTALLATION



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Oxygen Stimulator

1. Open the Covering of Air Filter

2. Clean the Area with Wet Tissue and Alcohol Swab

3. Adhere Oxygen Stimulator to position

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FE-150

- **Suitable for tanks 150 liters.** Pickup truck and Saloon Cars.

1. Remove the rear seat and unsecure the fuel pump

2. Take Off the Pump and Drench the Fuel here. (Fore Diesel Saloon Car).

3. Drench the Fuel Economizer Through the Filling Hole (Small Diesel Truck

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FE-750

- **Suitable for tanks 750 liters. Big truck, Trailer or Generators**

Drench the Fuel Economizer through the Filling Hole

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FE-9500

- **Suitable for Tanks 9,500 liters. Cargo Ship, Storage Tanks, Power Generators**

Secure the Fuel Economizer 9500 with Rope and Drench it into the Fuel Tank.

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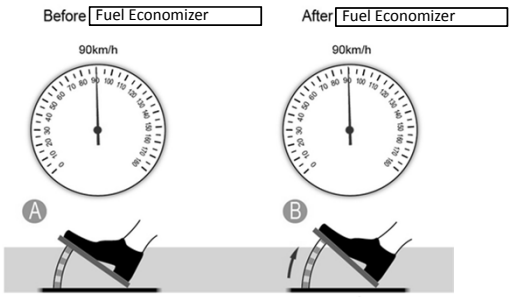
Fuel Paddle Saving Habits



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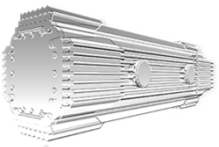
3.5 Tons, 43 Tons Trailer, 2300 CC Minivan, Non-Toxic Testing

TUV RHEINLAND REPORTS



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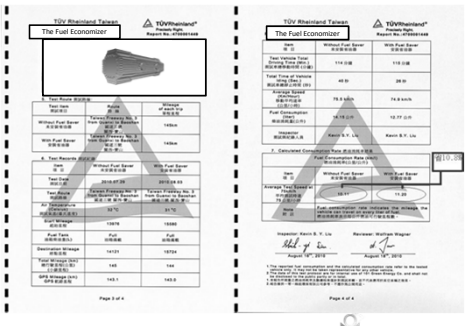
3.5 Tons



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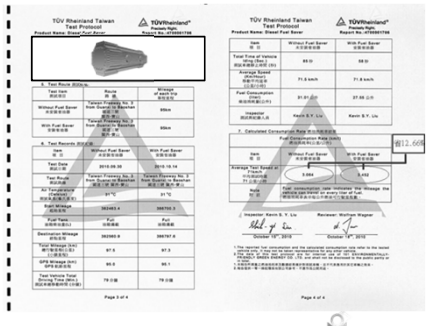
43 Tons Trailer



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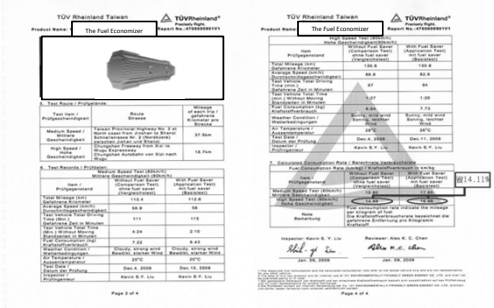
2300cc Minivan



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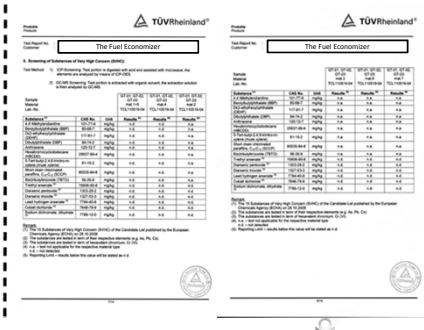
Non-Toxic Testing



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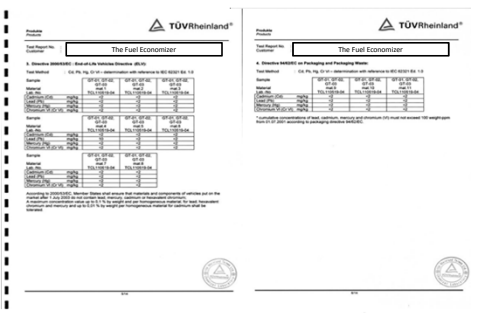
Non-Toxic Testing



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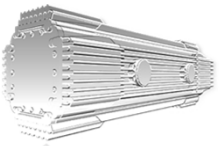
YANMAR Malaysia

VISCOSITY TEST REPORT



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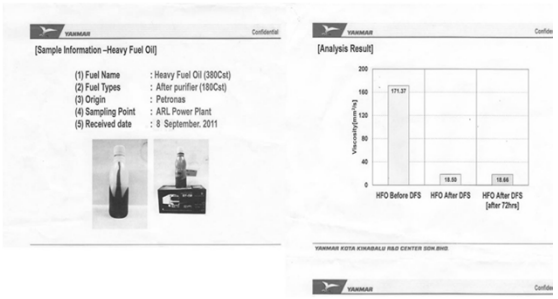

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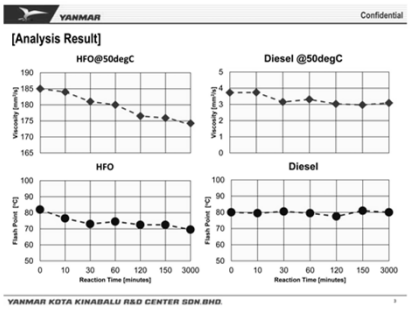

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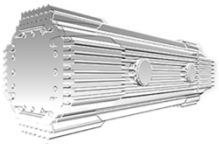
BOSCH Diagnosis

CO2 EMISSIONS TESTING



KLEISS

Bulldozer (Before)

BOSCH Diagnosis for Petrol-Engines

BOSCH ESA V 5.02 Deu 9 2009
Mess bench serial number 122068
Date 03.05.2010
Time 15:14

Workshop address
Anschrift Zeile 1
Anschrift Zeile 2
Anschrift Zeile 3
Anschrift Zeile 4
Tel.:
Fax.:

Vehicle Details
Registr. number
Odometer Reading
Vehicle ID Number
Vehicle manufacturer
Type
Registration date
Emissionkey no. **
Manufacturer no.
Vehicle type no.

Oil temp. ---- ----

Speed	CO %vol	HC ppmvol	PEF	Lambda	CO2 %vol	O2 %vol
----	0.002	3	0.518	----	2.58	17.06

KLEISS

Bulldozer (After Fuel Economizer)

BOSCH Diagnosis for Petrol-Engines

BOSCH ESA V 5.02 Deu 9 2009
Mess bench serial number 122068
Date 03.05.2010
Time 16:05

Workshop address
Anschrift Zeile 1
Anschrift Zeile 2
Anschrift Zeile 3
Anschrift Zeile 4
Tel.:
Fax.:

Vehicle Details
Registr. number
Odometer Reading
Vehicle ID Number
Vehicle manufacturer
Type
Registration date
Emissionkey no. **
Manufacturer no.
Vehicle type no.

Oil temp. ---- ----

Speed	CO %vol	HC ppmvol	PEF	Lambda	CO2 %vol	O2 %vol
----	0.002	4	0.518	----	2.50	16.99

KLEISS

Exhaust Testing

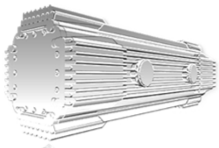
BOSCH
Diesel exh.gas analysis
Test report
VSM-Euro: V1.80 21.10.98
RTM vers: V2.0 02.08.96
Date: 27.01.2010
Time: 13:49
VEHICLE IDENTIFICATION
Make :
Model :
Type :
Licence:
Mileage:
Engine : N. aspiration
RESULTS
Visual check: OK
Engine conditioned

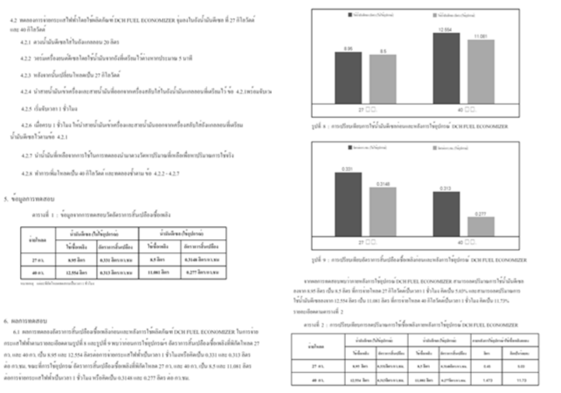
No.	k[1/m]
k1	0.49
k2	0.60
k3	0.52
k4	0.59

Mean value (k1 - k4) 0.55 OK
Limit value k 2.50
Test passed
Stamp / Signature

- Tested in 18-year old vehicle, 35 ton capacity
- Vehicle Emissions: 0.55, 15% reduction after 15 days of Fuel Economizer
- Takes time to get rid of carbon deposits
- Running Distance Before: 10
- Running Distance After: 12

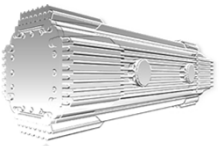
PEA REPORT



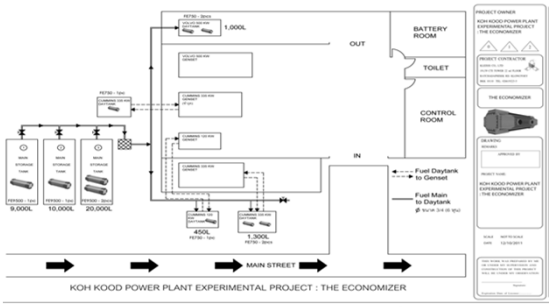


Provincial Electricity Authority
Asia Steel Transport
State Railway of Thailand

REFERENCES

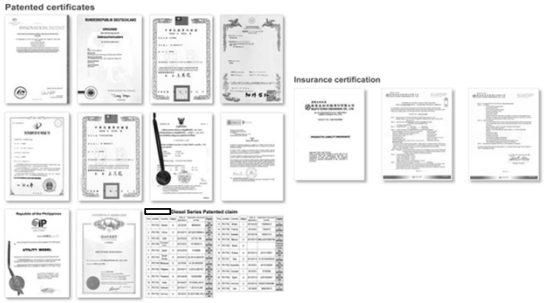


KLEISS



KLEISS

Patent & Insurance



KLEISS

Conclusion

- **The Fuel Economizer is one useful way for Southeast Asia Fisheries to be able to make an important contribution to GHG reduction; Increase energy usage and at the same time save costs**
- **Let's work together to help make our planet a cleaner and greener place.**

KLEISS

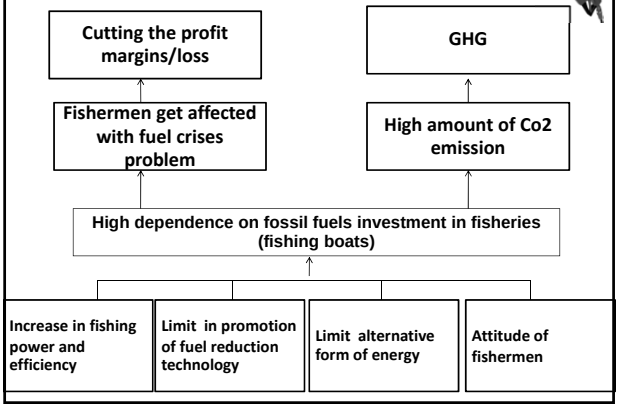
Optimizing Energy Use in Capture Fisheries in Southeast Asia

SEAFDEC/TD

Introduction

- **Fuel is the most important cost in capture fisheries and a major constraint to economically viable fisheries.**
- **More than 0.85 million out of 1.47 million vessels used in fisheries are powered by fossil fuel burning engines.**

Necessity of Project



Relation to Resolution and Plan of Action on Sustainable Fisheries for Food Security Towards 2020 (Adaptation to a Changing Environme

Refer to the Resolution:

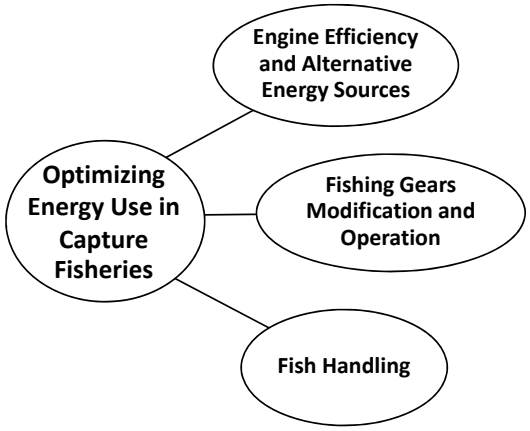
Support ASEAN efforts to promote low carbon development by minimizing the contribution of the fisheries sector to green-house gas emissions, with emphasis on promoting energy efficiency and use of alternative energy sources;

Refer to the Plan of Action:

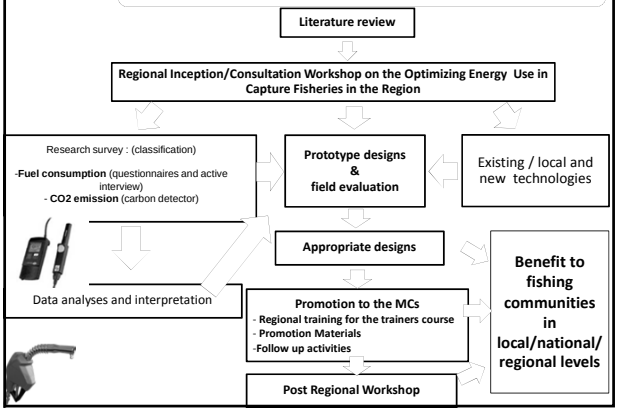
Increase the efficient use of the alternative energy sources and reduce the use of carbon fossil energy by using appropriate fishing gear and fishing boats designs in fishing operations.

Project Objectives

1. **To Reduce the Use of Fossil Fuels in Capture Fisheries**
2. **To Reduce CO_2 emission from fishing boats and fishing operations**



Activities



Activities Plan

Activities	Y1-2013				Y2-2014				Y3-2015				Y4-2016				Y5-2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Literature review																				
2. Regional Inception/Consultation Workshop on the optimizing energy use in capture fisheries																				
3. Research survey by using questionnaires and active interview - amount of fuel use in different types of fishing boats - CO2 emission of difference type of fishing boats and operations.																				
4. Data/information analyses and interpretation																				

Activities Plan

Activities	Y1-2013				Y2-2014				Y3-2015				Y4-2016				Y5-2017			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
5. Prototype designs and field evaluation																				
6. Report of the project progress through the regional workshop																				
7.Introduction/Promotion on the appropriate designs/technologies to MCs																				
7.1 Training for the trainers programs																				
7.2 Promotion materials																				
7.3 Follow up activities																				
8. Regional Workshop for the project outcome and achievement																				

Expected Output

- Baseline information on the amount of fuel consumption/used in different types of fishing boats/operations
- Baseline information on CO_2 emission from different types of fishing boats/operations
- Appropriate alternative energy sources/designs / techniques to be used in fisheries in SEA
- Appropriate fishing gears designs & operations and fish handling systems in optimizing energy use
- Hand books and promotion materials on optimizing energy use in capture fisheries

Thank You very much

Optimizing Energy use in small fishing boat
Sail fishing boats

The use of sail for fuel saving on a fishing boat,

The use of sail depends on satisfactory stability of the boat. The *Righting Moment* at a heeling angle of 30 degrees is often used by Naval Architects as a criterion to determine the maximum allowable sail area.

Ballast will often be required to permit a sufficiently large sail area to be carried. The weight of ballast increases resistance and thereby fuel consumption when under power.

Fishing boats do not necessarily need extra ballast if heavy fishing gear such as many of driftnets, pot are stored low in the hull and the crew can act as “live ballast” to increase the righting moment. The cost of the sailing rig can be kept low by making mast and spars/booms of timber, bamboo grown locally

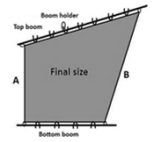
Windward ability depends on a deep and effective keel area. The increased draught causes problems in shallow areas. Windward ability requires sails set on a high mast to be effective. The wire rigging often interferes with the fishing operation.

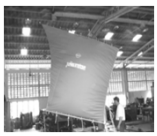
The wind resistance of mast and rigging will increase fuel consumption when under power in a head wind. To reduce this demerit the mast was designed simply installation when required to sailing with the wind. The cost of the sail and rigging is justified by the saving in fuel.

The critical factor is the motivation of the fishermen for the use of sail. The fishermen must however be willing to accept the slower speed compared with a “normal” powered boat when going against wind and waves.

In countries with living traditional in the use of sails, the low powered fishing boat with efficient sails could be an attractive alternative. Another case is when fuel or engine spare parts are in short supply; a sailing boat will then be able to arriving home or continue fishing.

Sail is often necessary as a safety measure in case of engine breakdown. In this case a simple lugsail and rigger will be satisfactory.





Length of A and B before edging with the line rope is longer than the certain area about 10 to 20%, this is because to made sail area perform shape as an airplane wing, fat or normal sail upon this margin definition.
Fat sail : the boat powerful but low speed
Normal sail : suitable for power and speed

Sail area(sq.m) = Bwl x Lwl x (1.5 to 2.0)

SEAFDEC/TD - Department of Fisheries Thailand

REDUCTION OF FUEL USE IN FISHING

DESIGN AND CONSTRUCTION OF TRAWL NET

OBJECTIVES

- Studying the influence factors to reduce energy used in trawl fishing technology
- Studying the Greenhouse effect caused by trawl fishing operation

EXPECTED OUTCOMES

- Technology to develop trawl fishing gear and practice in saving fuel consumption
- Prototype of trawl nets with saving fuel features
- Reference for study of greenhouse effect cause by fishing operation
- Sets of media disseminate to public, e.g. fisheries industry, local community

CONCEPTUAL FRAMEWORK (1)

Optimize Fuel Use

- Fishing Vessels and Deck Machineries
- Fish Handling Technologies
- Fishing Gear and Practices
  - Fishing Material /Specification
  - Fishing Construction/Design
  - Fishing Practices/Operation

→ Selected appropriate dimension and material specification

CONCEPTUAL FRAMEWORK (2)

Trawl Fishing Net and Practices

- Fishing Material and Specification
  - ❖ Net Selection
  - ❖ Rope Selection
  - ❖ Weight/Buoyancy Selection
- Fishing Gear and Practices
  - Fishing Material
  - Fishing Construction
  - Fishing Practices
- Fishing Gear Construction
  - ❖ Pattern of Cutting
  - ❖ Otter Board
- Trawl Operation
  - ❖ Trawling Speed
  - ❖ Net Setting

CONCEPTUAL FRAMEWORK (2)

Trawl Fishing Net and Practices

Fishing Material and Specification

- Net Selection ; *to reduce weight - resistance trawl net*
  - ❖ Material - *Suitable twine size*
  - ❖ Mesh size- *Suitable mesh size at major part of net*
- Ground Rope Selection ; *to reduce weight -friction trawl net*
  - ❖ Material - *Suitable size*
  - ❖ Pattern of ground rope - *reduce friction with bottom*
- Weight/Buoyancy Selection
  - ❖ Amount of float assembly with ground rope
  - ❖ Amount of weight assembly with ground rope

CONCEPTUAL FRAMEWORK (2)

Trawl Fishing Net and Practices
Fishing Gear Construction

- Pattern of Cutting; *to reduce weight – resistance- friction*
  - ❖Shape of trawl net – Slimmer
  - ❖Pattern of Webbing – less dragging above sea bottom
- Otter Board: *to reduce weight – friction with bottom*
  - ❖Otter Board Material
  - ❖Otter Board design

CONCEPTUAL FRAMEWORK (2)

Trawl Fishing Net and Practices
Trawl Operation

- Trawling Speed
  - ❖Suitable speed to reduce fuel consumption
- Net Setting
  - ❖Influence of environment ; current, wind

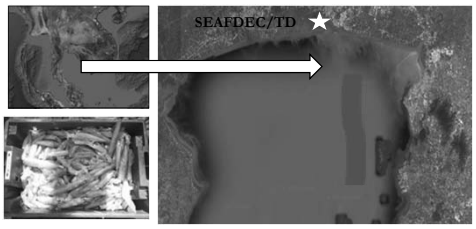
CONCEPTUAL FRAMEWORK (2)

Data/Information Collection

- Fuel consumption → Oil-flow meter
- Net Performance → Catch Result (Catch per Unit Effort)
  Economic (Income)
  Physical Characteristic
- Greenhouse gas → Calculation
  Greenhouse gas sensor

AREA- PERIOD OF EXPERIMENT

- Shipboard experiment conduct in the upper Gulf of Thailand
- September 2011- September 2012



Target Species

NETWORK FOR SAFETY AT SEA AND OPTIMIZE THE USE OF ENERGY FOR SMALL FISHING BOATS IN SOUTHEAST ASIA
(SOS Network)

DRAFT

<>< <>< <>< <>< <>< <>< <><

ASEAN-SEAFDEC Conference 2011

Resolution:

para13: Improve the working conditions of people engaged in fisheries activities, and ***strengthen measures for safety of fishing vessels*** taking into consideration regional specificity.

Plan of action:

para 20: Adjust existing programs to take into consideration the effects of climate change, focusing on the programs for (i) managing fisheries and habitats, (ii) reducing fishing capacity and combating illegal, unreported and unregulated (IUU) fishing, (iii) strengthening local organisations, and (iv) ***promoting safety at sea*** and other priority areas. Develop indicators and reporting measures to assess how actions of the programs build resilience to climate change.

para 30: Strengthen efforts to ***address safety at sea***, including considerations of working conditions and socio-economic development, and ensure that these considerations are addressed by all concerned authorities while improving monitoring and control of the status of conditions, ***especially on small fishing boats***.

Function:

1. Purpose for SOS Network, with a view to strengthen international/regional/national coordination and cooperation among the agencies concerned on the implementation and promotion of the program/initiatives/activities related to: (i) safety at sea of small fishing boats; and (ii) optimize the use of energy in fishing; for Southeast Asia.

2. The SOS Network will be to:
   - Share and disseminate information on the implementation of programs/initiatives/activities related to the safety at sea and optimize the use of energy use in fishing in Southeast Asia; and
   - Assist in monitoring the situation in the development of program/initiatives/activities in line with the view to promote safety at sea of small fishing boats and optimize the

use of energy in fishing in the Southeast Asian Countries.

Role:

3. The role of SOS Network is to provide information and recommendations on the issue related to safety at sea of small fishing boats and optimize the use of energy in fishing for Southeast Asian Countries.

4. It is envisaged that the SOS Network should contribute to:
   - Improve current practice to reduce: (i) the accident at sea of the small fishing boats; and (ii) energy use in fishing operation
   - Enhance inter-agency and inter-sectoral coordination at national, regional and international levels on safety at sea of small fishing boats and optimize the use of energy in fishing operation;
   - Strengthen regional cooperation on R&D, knowledge/technology transfer, and human/institution resources capacity building on the issues related to reduction of accident for small fishing boats, and energy use in fishing operation.

Members of SOS Network:

5. Members of SOS Network include, and show in the Figure 1.
   - National focal points (fishery administration)
   - International, regional, and national experts
   - SEAFDEC
   - ???

Plan of Actions for SOS Network by SEAFDEC

6. The major outputs from the 3rd RTW on Safety at Sea and Optimizing Energy Use for Small Fishing Boats, including: (i) minimum requirements for safety and working standard for small fishing boats and fishers; and (ii) recommendations for optimizing the use of energy in fishing, are used as a basis for formulation of the follow-up actions for SOS Network.

7. The priority issues that identified during the 3rd RTW include:
   - Promotion safety standard of small fishing boats and fishers in Southeast Asia
   - Follow up the progress of national initiatives related to accident at sea of small fishing boats recording/reporting
   - Promotion of research and development on design and construction of fishing boat, gear and operation to reduce the accident at sea, and to optimize the use of energy for small fishing boats (to be based upon the local indigenous knowledge)
   - ???

THE 3rd REGIONAL TCHNICAL WORKSHOP ON SAFETY AT SEA AND OPTIMIZING ENERGY USE FOR SMALL FISHING BOATS
19-22 December 2011
SEAFDEC Training Department, Thailand

DRAFT

Summary of Discussions and Recommendations

1. Development the appropriate guidelines on safety at sea for Southeast Asian region which following considerations:
    - the design of fishing boats which reflect the nature of fishing activities of the region
    - local tradition intellectual/knowledge of fishing activities which have been pass through generations in individual countries' need to be respected and preserved
    - adjust/modify the fishing vessels (traditional style) that are used in the region to improve the stability and safety, and introduce this to boat builders
2. Promote and ensure that safety aspects, including considerations on working conditions and are incorporated and addressed by concerned authorities while improving the monitoring and control of the status and use of small scale fishing vessels
3. Promote the use of accident recording form for fishing boat by modified from FAO form to sustainable in the region. The procedure of accident recording and reporting should be engaged by local office; headquarter office of Fishery Department/ Marine Department, Nation colleting Center and Authorizing Agency respectively
4. Strengthen local authorities and local organizations and promote application of safety and working standards among the coastal communities.
5. Implement training and extension programs for trainer and all stakeholders including the fishers, skipper, crew, family members, boat builders and others via onsite training and/ or mobile training for basic requirements of:
    - boat design and construction;
    - minimum requirement for safety and working standard
    - safety equipment including fire fighting and life-saving appliances;
    - occupational health, working conditions and safety awareness; and
6. Develop and promote the use of appropriate communication systems for:
    - weather forecasting information; and
    - rescue systems.
7. Produce promotion and extension material media such as poster, booklets to rise up awareness on safety and working standard for small fishing boats and fishers.

CLOSING REMARKS

Mr. Kenji Matsumoto

SEAFDEC Deputy Secretary General & Deputy Chief of TD

3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats
19-22 December 2011, SEAFDEC Training Department

Distinguished Guests, Participants, Ladies and Gentlemen, Good evening!

First of all please allow me to thank all of you, for your active participation during our workshop. We are indeed very thankful to the representatives from the member countries of SEAFDEC as well as from the regional and international organizations for providing valuable inputs in this workshop.

We have specifically noted the efforts done and the achievements made by the countries and other organizations in terms of safety at sea not only for fishing boats but also for the welfare of fishers as well. SEAFDEC could therefore anchor from such experiences for our continued efforts towards improving the conditions of fishing vessels as well as the living conditions of the fishers on board the vessels.

We wish to ensure you that SEAFDEC would strive to enhance the collaborative efforts that we have started at this workshop in order to come up with the most appropriate strategies for safety at sea. From your recommendations, SEAFDEC can develop the future plan of activities aimed at optimizing energy use for small fishing boats for the Southeast Asian region.

SEAFDEC would also continue to make efforts to promote the improved safety conditions of the region's fishing boats and the fishers onboard in accordance with the international standards and practices including promotion of optimizing energy use for small fishing boats in the future. I am sure that your recommendations during this workshop would contribute to a number of activities in the future that could alleviate the conditions of the fishing industry.

With that note Ladies and Gentlemen, let me now declare this Workshop closed. Lastly, I wish you all safe journey on your return to your respective countries. Thank you once again and good day.