



**Energy optimization in fisheries in
Southeast Asia and SEAFDEC initiatives
on energy optimization in fisheries**



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Southeast Asian fisheries production and trade of fishery commodities in 2007

Countries	Total Fisheries Production		Export of Fishery Commodities		Imports of Fishery Commodities	
	Qty (mt)	Value ('000 US\$)	Qty (mt)	Value ('000 US\$)	Qty (mt)	Value ('000 US\$)
Brunei Darussalam	3,227	11,464	93	5	14,043	13,355
Cambodia	525,100	58,038	55,812	32,566	4,200	8,222
Indonesia	7,510,767	7,683,427	854,601	2,258,919	145,230	142,750
Lao PDR	143,847	296,962	-	-	-	-
Malaysia	1,654,221	1,855,326	286,404	752,393	453,197	633,667
Myanmar	2,808,037	1,862,403	343,874	549,120	2,428	466,159
Philippines	4,710,952	3,912,137	173,076	569,790	200,136	149,483
Singapore	8,026	23,319	^a 2,855,492	482,435	^b 2,763,427	862,554
Thailand	3,675,382	3,986,931	1,964,685	5,965,978	1,379,598	1,743,482
Vietnam	4,315,500	4,544,750	835,826	3,783,834	50,435	364,018
TOTAL	25,211,212	23,937,795	7,369,862	14,395,040	5,012,694	4,383,690

Source: SEAFDEC Fishery Statistical Bulletin for the South China Sea Area 2007

Notes:

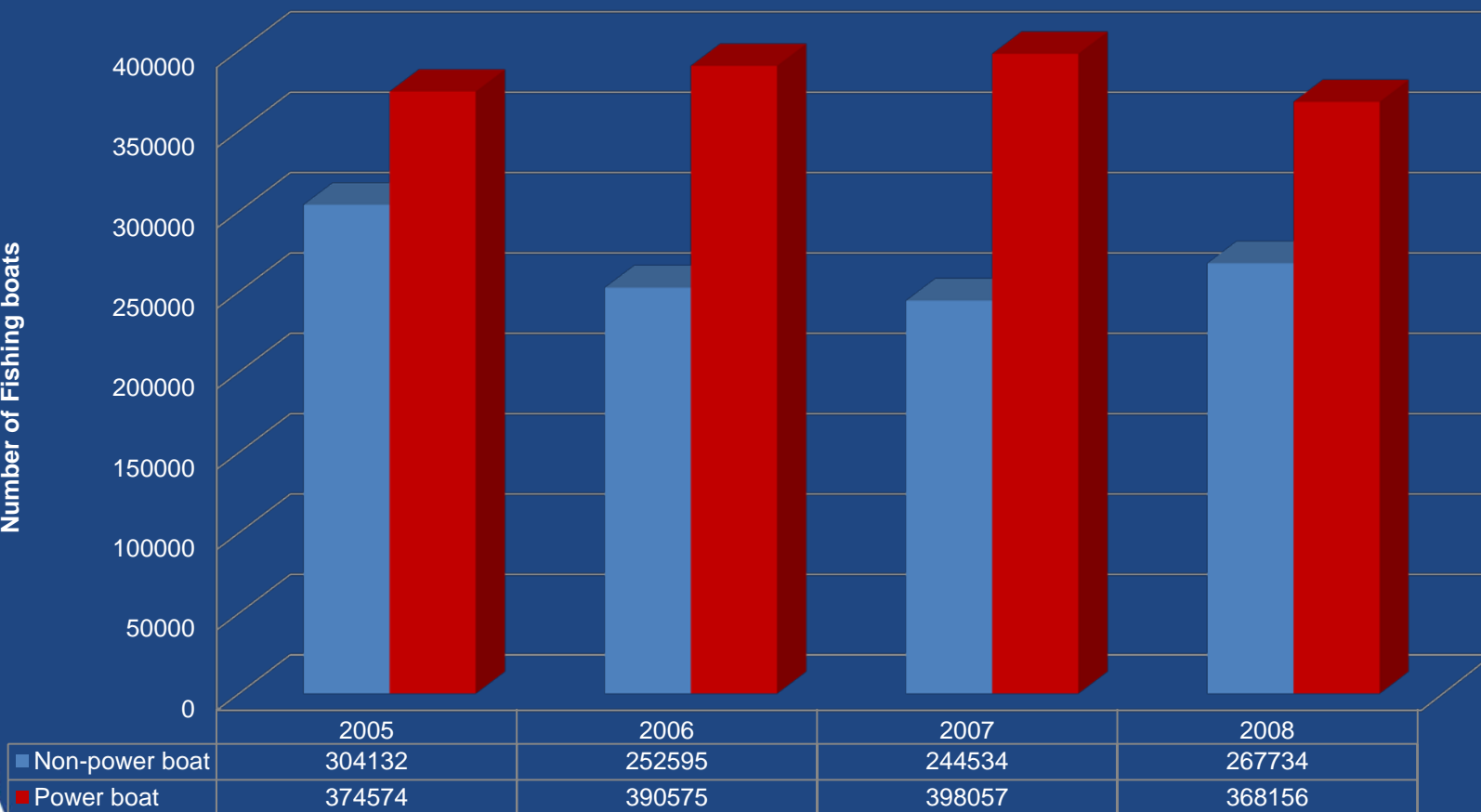
^a More than 96% of the export quantity of Singapore comprised the ornamental or aquarium fishes

^b More than 91% of the import quantity of Singapore comprised the ornamental or aquarium fishes

- means no data available

Number of Fishing Boats in Southeast Asia

Number of Fishing boats



Remark : In 2005 and 2006 data from 6 countries
In 2007 and 2008 data from 3 countries



Number of fishing vessels in Southeast Asia

(initially compiled during the June 2012 Experts Group Meeting)

Country	Total		**Less than	**24 meters	Remarks
	*2010	**2011	24 meters	and over	
Brunei Darussalam	2,743	2,480	2,476	4	
Cambodia	-	7,034	7,034	0	
Indonesia	570,827	570,827	569,105	1,722	24 meters and over consist of 1367 fishing vessels, 355 fish carriers
Lao PDR	-	1,615	1,615	0	Fiber and wooden boats in Namtheun 2 Reservoir only
Malaysia	49,756	49,756	49,673	83	
Myanmar	32,824	28,357	27,000	1,357	
Philippines	-	473,400	472,804 (data covers 5,869 from 3.1 to 149.99 GT)	> 596 (data cover 150 GT and over)	
Thailand	-	**33,915	33,050	865	Data for 2012
Vietnam	***25,346	**128,000	127,700	~300	Data for 2012

* **Source:** Fishery Statistical Bulletin of Southeast Asia 2010
 ** **Source:** Report of Experts Group Meeting on Fishing Licensing and Boats Registration in Southeast Asia, Bangkok, Thailand, 25-28 June 2012. Southeast Asian Fisheries Development Center, Bangkok, Thailand; 97 p
 *** **Source:** Website – General Statistics Office of Vietnam
Note: Unless specified, data is for 2011



People engaged in Southeast Asia

- 4,193,000 fishers in the region
- 3,052,000 were full-time
- 805,000 were part-time mainly engaged in fisheries
- 336,000 were part-time partly engaged in fisheries

Source: SEAFDEC Fishery Statistical Bulletin for Southeast Asia 2008



Management Direction of Energy use in Fisheries in Southeast Asia

Capture Fisheries

Fish Handling and Post Harvest Technology

Aquaculture





Capture Fisheries

- Good maintenance of engine
- Promote of the use of alternative source of energy
- The smart design on the fishing gear and fishing vessels
- Promotion on the use of stationary fishing gear
- The improvement of fishing method control on the light fishing or light intensity





Fish Handling and Post Harvest Technology

- Good fish handling process and preservation
- Encourage the production of traditional fish products



Aquaculture

- Promote on the national and environment friendly aquaculture
- Promote the CO₂ footprint products for aquaculture



The ASEAN-SEAFDEC Resolution and Plan of Action 2020

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



Initiative activities for energy optimization in fisheries by SEAFDEC

The Project of
Optimizing Energy Use in Fishing Activities
(2013 – 2017)



To transfer appropriate knowledge and standard on
optimizing energy use in fishing and safety at sea
for small-scale fishing vessels in the Southeast Asian
countries



Project activities

- SEAFDEC Regional Training Workshop on Optimizing Energy and Safety at Sea for Small-scale Fishing Vessels” 4 – 8 February 2013 in Bangkok, Thailand.
- On-site training activities in the Member Countries. SEAFDEC will be implemented to promote energy efficiency for fishing vessels and to minimize the contribution of the fisheries sector to green-house gas emission on promoting energy efficiency
- Setup/form a technical group to share information related to energy efficiency for their appropriate implications in the Southeast Asian countries
- Information dissemination




Regional and National Future Activities and Way Forward

**SEAFDEC Regional Training Workshop on
Optimizing Energy and Safety at Sea for Small-
scale Fishing Vessels**




**Regional and National Future Activities
and Way Forward**



Regional and National Future Activities and Way Forward

Practical Ways for Energy Optimization

- **Improvement of fishing vessels**
 - Improve fishing vessel hull
 - Use improved engine, propeller, and other related parts
 - Reduce speed of vessels where appropriate and as necessary taking into consideration optimum performance of engine
 - Conduct regular maintenance of hull, propeller, engine, etc.
 - Reduce total weight of vessel
- **Modification of fishing gear/method, and improvement of fish handling facilities**
 - Fishing gear modification
 - Low water resistance fishing gear
 - Application of LED in light fishing, wherever appropriate
 - Promote good practices and techniques for fish handling onboard



Regional and National Future Activities and Way Forward

Way Forward for Member Countries

- Consider the use of alternative energy for fishing operations
- Introduce the manuals of FAO and Fisheries Research Agency of Japan on fuel savings for small fishing vessels
- Integrate energy and fisheries policies for maximum benefit to small-scale fishers
- Conduct technical and economic feasibility studies on innovations and new technologies
- Conduct study on comparison of fuel consumption with total catch for each fishing gear and methods
- Accommodate the views of fishers on optimizing energy in planning and implementation
- Develop handbook on energy optimization to include definition of terms related to energy for common understanding by key stakeholders
- Improve trawl fishery to reduce energy consumption

Overview of Activities

Literature review

Regional Inception/Consultation Workshop

Research survey

Experiment prototype designs & field evaluation

Existing / local and new technologies

Campaign promotion for changing behavior and attitude

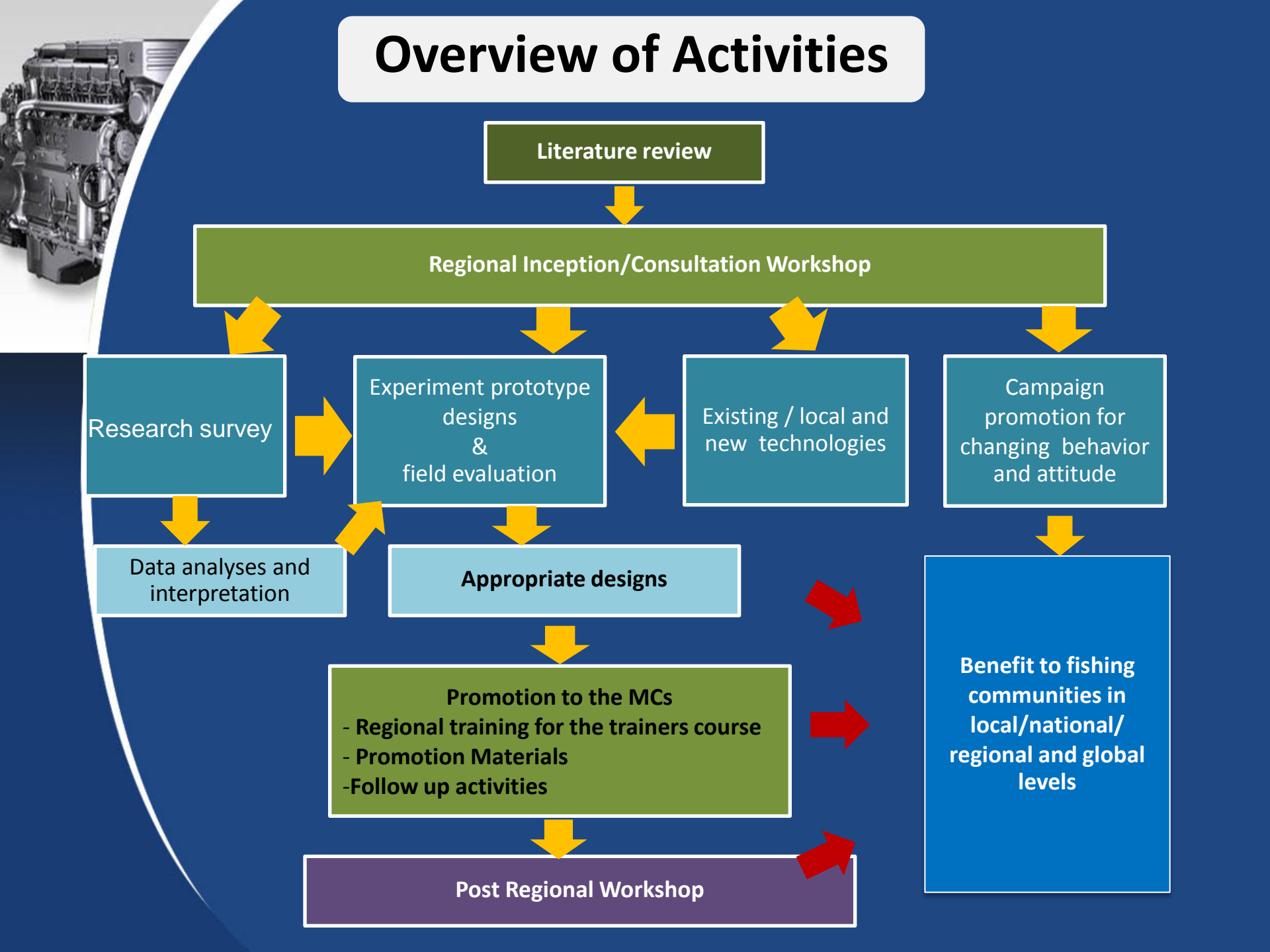
Data analyses and interpretation

Appropriate designs

Promotion to the MCs
- Regional training for the trainers course
- Promotion Materials
- Follow up activities

Post Regional Workshop

Benefit to fishing communities in local/national/regional and global levels





Activities

Activity : Optimizing energy

Activity 1.1: Research survey for fuel consumption and CO₂ emission

- 1.1.1 Estimation of fuel consumption and exhaust gas
- 1.1.2 Study on impact on the use of fuel consumption through assessment on cost/ benefit/ socio-economic in fishing operation

Activity 1.2: Mitigation of the fuel consumption and energy use in fishing operations (LIFE Fishing)

- 1.2.1 Improvement of engine efficiency and alternative fuels use
- 1.2.2 Alternative energies (wind energy/ others) use in fishing operations
- 1.2.3 Fishing gears and technologies modification to minimize fuel consumption and labor in capture fisheries

Activity 1.3: Introduction and promotion of designs/techniques/methods to optimize energy use in capture fisheries to the member countries

- 1.3.1 Trainers programs on “ Optimizing energy use in fisheries in SEA region”
- 1.3.2 Onsite training programs on “Improvement of engine efficiency and alternative fuels use”
- 1.3.3 Onsite training programs on “Alternative energies use in fishing operations
- 1.3.4 Onsite training programs on “Fishing gears and technologies modification to minimize fuel consumption and labor in capture fisheries”



Activities

Activity : Optimizing energy (cont')

Activity 1.4: Production of promotion materials and dissemination of information

1.4.1 Production of SEAFDEC toolkits and others promotion materials such as VCDs, posters, booklets, textbooks, etc.

1.4.2 Dissemination of publications and information through training programs, exhibitions, websites and etc.

Activity 1.5: Conduction of pre-mid and post regional consultation workshop

1.5.1 Conduction of pre- regional consultation workshop for regional information and recommendation on the optimizing energy use in capture fisheries in SEA region.

1.5.2 Conduction of mid-regional consultation workshop for the project monitoring and reviewing on the network/collaboration among SEAFDEC and its member countries

1.5.3 Conduction of post-regional consultation workshop for the project outcome communication and application

Activity1. 6: Project Monitoring and evaluation

1.6.1 Each of project activities will be monitored from time to time in order to measure if the project is being directed to the project goal and objective.

1.6.2 Project evaluation process will be carried out to measure whether the results come out.



Thank You