

**"Needs Survey" under the
Governmental Commission
on the Projects for
ODA Overseas Economic Cooperation
in FY2012**

Summary Report

**Indonesia, Thailand, Philippines, India,
Brazil**

**Development of Shipbuilding/Repairing
with its Supporting Industries in
Developing Economies**

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Introduction

In the developing economies which have long coastline or be the archipelagic nations, although, shipping has been playing vital role to support their economic activities and life of inhabitants, ships are mostly imported as second-hand and operated without proper maintenance due to lack of the ship building or maintaining capability at the domestic shipbuilding/repairing yards.

This improper ship maintenance is one of causes of serious marine disasters in the developing economies resulting in loss of human lives, marine properties and negative impact to the environment.

Some developing and booming economies have keen interests in Shipbuilding and Ship Repairing industry not only to support shipping industry to be sound but also to develop it by taking its advantages of labor, capital, technology incentive nature with its fringe industries potential. In addition, building export ship is expected to contribute improving the national balance by getting foreign currency.

Small and Medium scale shipbuilders in Japan have advanced technologies based on their long experience in building ships. They are supported by well established fringe industries, such as, steel production, ship machineries, and electric equipments, and closely bonded with the industries and Japanese ship owners. The bonds between them form an industrial network, called "Maritime Cluster".

In order to solve and improve the issues to develop shipbuilding/repairing industries in developing economies, assistance by Japanese Small and Medium scale shipbuilders/repairers with the Maritime Cluster would be effective. On top, some of Japanese shipbuilders are seeking a new market in abroad where they are expecting new shipbuilding opportunities and low labor costs so that they can compete in the global market and regain back order logs lost in the last decade.

Under the circumstances described above, this needs survey is conducted in Indonesia, Thailand, Philippines, India, and Brazil to find the possibilities implementing projects in the Shipbuilding / Repairing and its supporting industry filed with participation or cooperation with Japanese enterprises by utilizing Japan's ODA.

I. Description of the current situation and development needs of the concerned development issues in the target country(ies)

Indonesia and Philippines are the archipelagic nations required safer and sound shipping, Thailand and India have long coastline and Brazil has a long river to transport domestic products and goods. In the countries, their economic activities and life are dependent on the shipping.

Some of them are desirous to develop shipbuilding industry to support domestic shipping so that they repair or build domestic ships corresponding to the increasing cargo and passenger demand.

Aside, Indonesia and Philippines are promoting to build export ship with governmental support in its policy and Brazil is encouraging to reinforce the shipbuilding capacity exclusively for the offshore market with the concessional financial support. In both case, the all target countries are expecting foreign direct investment in the shipbuilding field.

Furthermore, lately, technical support is increasingly requisite to build new-technology ship, such as i)Double Hull Tanker which is the compulsory requirement on the ocean going tanker but to be applied to domestic tanker with its jurisdiction, and ii)Highly Economical & Less CO₂ Ship. Shipbuilders in these five countries, however, cannot afford to build such high-ended ships since they are heavily dependent on the imported designs and products.

As a result of the survey, the issues on building and repairing ships with its fringe industries are classified into Shipbuilding Facility/Equipment, Human Capability, Logistic System, Financial, and Others.

Common Issues		Current Situation				
		Indonesia	Thailand	Philippines	India	Brazil
Inadequate Shipbuilding /Repairing Capacity	Incapable to build variety of ships due to limited building/ repairing capacity	○	○	○	○	○
	Lack of building/repairing capacity due to obsolete facility & equipment	○	△	○	○	○
	No critical works can be performed in repairing.	○	△	○	○	○
Lack of Technical Staff& Skilled workers	Lack of Engineers such as Naval Architect, Production Manager	○	○CV	○	○	○
	Design is imported. Incapable to make own design	○	○	○	○	○
	Lack of experience	○	○CV	○	○	○
Incapable to Manage Logistics	Most of equipments & materials are imported. Domestic fringe industries are not fostered.	○ 7-80%	○ 80%	○	○ 90%	○ LC
	Long period for import (import duty)	○	—	△	△	△
Weak Financial status	Worsen financial state due to Late delivery, low quality	○	—	○	○	○
	Limited credit line for SME	○	—	○	—	—
Others	Levied import tax/duty on shipbuilding parts	○	—	—	○	—
	Ineffective policy to eliminated old ship	—	—	○	—	○
	No new order due to bad financial status of ship owners	○	—	○	○	○

Remarks: ○ applicable, △ partially applicable, - not applicable

CV: Commercial vessel, LC: Local Contents

In order to solve the above issues, introduction or adoption of Japanese technologies in the field of shipbuilding/repairing, ship, or investment from Japanese shipbuilders are expected.

II. Analysis on the products and technologies developed by the Japanese SMEs

Knowledge, Techniques, and Know-how of the Japanese small & medium scale shipbuilders, which have been accumulated through the long operation experiences with its Maritime cluster, can be introduced or applied to these countries in order to resolve the development issues.

1. Variety of Building Techniques corresponding the Demand

Japanese small and medium scale shipbuilders are mainly built export ships which have satisfied the International regulatory requirements with well established technologies. On top, since they are capable to build the various types of ships, such as Cement Carrier, LPG Carrier, Work Boat, Ferry Boat, RoRo Vessel, etc., Japanese shipyards can respond to built most types of ships.

2. Production Facilities and Efficient Production Technology

Shipbuilding process is required to achieve the building period and costs as little as possible. Japanese shipbuilders has been exerting their efforts to reduce the assembling time by increasing block handling capacity and outfitting process before assembling to become higher productivity of their factory. In their organization, Design and Production Teams are also improving productivity as a one team.

3. Schedule and Quality Management

A shipyard plans the detailed work schedules including the delivery date of a ship considering the back order log and its available capacity of the facilities. Further breakdown of the work schedules by each step, such as steel cutting, block fabrication, and launching is made for the improvement of work efficiency. These procedures, information, drawings and management process on the production and schedule control are standardized by the shipyard and applied to any other types of ships. These management techniques provide their clients the precise delivery time and the qualified performance of the ship.

4. Higher Technologies

Japanese shipbuilding technologies have high standing on their functions, accurate production, and quality, etc., especially for the technology reducing GHG, CO₂, and fuel consumption, and the ships installing the technologies are Super Eco-Ship (SES) as a next generation model. These technologies are expected to be in widespread use in the world for the improving the transportation efficiency and environmental impact.

5. Supporting Industries

Japanese Ship Machineries' Industry roles the marine equipment and materials supplier as a foundation of the Maritime Cluster. Main Engines (Diesel Engine, Turbine), Boiler, Auxiliary Machines, Shafting, Propeller, Mooring/Cargo equipment, Navigation Equipment and steel out fittings can totally be procured domestically for Japan's shipbuilding industry.

III. Applicability of the SME's products and technologies to the future ODA projects

Strength factors of Japanese Shipbuilding industry is the Maritime Cluster formed by the supporting industries and shipping industries and the products their clients have reputed as sophisticated. They, however, have been losing their global competitiveness because of the appreciated Japanese Yen and recession of the Japanese economy. They, therefore, is focusing on the overseas business deployment and further promotion of the export ship.

Under the current situation, possible application of the Japanese small and medium scale shipbuilders' products and technologies to the each target country is delivered through the matching analysis of strength and weakness of Japanese shipbuilders and needs of the shipbuilding industries in the five target countries. In this analysis, applicability of the Japanese technologies and products is defined as "Japan's seeds" and infrastructures or resources required by Japanese shipbuilders are defined as "Japan's needs".

The possible application of the Japanese shipbuilders' products and technologies is delineated as the expected business plan as follows. Future Japan's ODA projects are also proposed hereunder as the supporting measures to minimize the business risks and to improve the business environment for the sake of the shipbuilders in the recipient country and Japanese shipbuilders

Project Title	Building and Repairing of Ships for Indonesian Domestic Shipping
Site	Indonesia (Kalimantan, Java SEZ areas)
Outline	Domestic ships up to 20000DWT are the main targets of business. By Joint operation with Indonesian and Japanese firms, modern shipbuilding and repairing will be introduced with the latest facilities. FDI is expected.
Scope	100% FDI or Joint Operation with local private partner(s) for the new ship building and repairing business.
ODA Project 1	Support local shipbuilders by building domestic ships. Modernization of the domestic ships with low fuel consumption. Yen Loan: Two Steps Loan for shipbuilding and designing Project type Yen loan for shipbuilding and transferring technologies as Package Deal (PD)
ODA Project 2	Modernization of shipbuilding and repairing Yen Loan: Improving shipyard facilities and transferring technologies
ODA Project 3	Human Resource Development in Shipbuilding and Repairing Technology transfer and HR Development of engineers in Min. of Industry and Universities.

	Technology transfer by exchanging Japanese and Indonesian experts each other.
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Project Title	Improvement of Shipbuilding and Repairing
Site	Thailand
Outline	Small and Medium size ships are the main targets of business. By Joint operation with Indonesian and Japanese firms, modern shipbuilding and repairing will be introduced with latest facilities. FDI is expected.
Scope	100% FDI or Joint Operation with local private partner(s) for the new ship building and repairing business.
ODA Project	Modernization of Shipbuilding for Improving the Domestic Shipping Dispatch of experts utilizing Japanese private shipyard. Yen Loan or Two Step Loan for domestic shipbuilding, design, and technical cooperation.

Project Title	Domestic Shipbuilding and Repairing by constructing the Ship Building Park (Industrial Zone for Small and Medium Scale Shipyards)
Site	Philippines
Outline	Domestic ships are the main targets. Construction of the Shipbuilding Park exclusively for shipbuilding and repairing with Philippine and Japanese shipyards in a form of capital investment.
Scope	Shipbuilding park to be approved by the BOI. Investors from Japan and Philippine are eligible to receive the tax incentives in the zone.
ODA Project 1	Industrial Intensification and Modernization of Shipbuilders Study for intensifying Philippine shipbuilders. Intensification planning. Yen Loan for constructing the Shipbuilding Park
ODA Project 2	Modernization of Shipbuilding Industry for improvement of domestic shipping Yen Loan for the domestic ship building with design and technical cooperation.

Project Title	Reinforcement of Ship Repairing capacity in India
Site	India
Outline	Reinforcing the capacity of ship repairing for small ships (domestic PSVs). Introduction of modern repairing techniques and facilities by joint operation with Indian partners.
Scope	100% FDI or Equity share holding is expected
ODA Project	Study on Coastal shipping development M/P study under the technical cooperation scheme. Dispatch of Experts for domestic shipping development

Project Title	Reinforcement of repairing capacity for Offshore ships
Site	Rio de Janeiro
Outline	Introduction of modern ship repairing techniques and facilities by joint operation with local partners. Equity share hold will be expected
Contents	Installing a Floating dock and repairing facilities Environmental facilities for water treatment and hazardous materials will be introduced.
ODA Project	Improvement of Ship Repairing Techniques and Skills Technical cooperation for Logistic management system, ship repair techniques. Technical cooperation in Brazil and acceptance of Brazilian engineers for training

Project Title	Reinforcement of River Barge Transportation
Site	Manaus
Outline	Construction of river barges in order to satisfy the increasing demand of goods by introduction of Japanese techniques and equipment. Joint operation with local partners is expected.
Scope	Introduction of Japanese design and equipments for the barge construction. Modernization of river barges. Technical cooperation to promote local shipyards' business.

ODA Project	Development of Inland water transportation
	M/P study to develop inland water transportation. Financial support plan for the priority project proposed by the M/P

In Brazil, needs on Human Resource Development in the shipbuilding field is prominent. It is expected that the program or curriculum required by the Japanese shipyards in Brazil will be incorporated with the training program currently offered by SENAI. Besides, the training program to be supported by Japan's technical cooperation scheme is proposed as follows.

- In order to improve competency of instructors/teachers from the target countries, TOT program accepts them at Japanese shipyards or JICA training program and dispatches the senior experts to Brazil,
- Installing or introducing the Japanese ship machineries in SENAI along with the training program, in order to let them familiar with Japanese technologies and products.
- Introducing the practical curriculum through the Internship with SENAI and Shipyards to train the management personnel in the logistic system.
- Providing the new training courses for repairing ships and maintaining machines, electrics, and automatic controls.

IV. Possibility of business development by utilizing the SME's products and technologies in the target country(ies)

As a result of the study, intent of the three Japanese shipyards to deploy overseas is confirmed. Current status of the procedural steps is varied by the shipyards. The outline of the deployment plans of the Japanese shipyards is summarized as follows.

	T Shipyard	T Trading	N Shipyard
Candidate Site	Indonesia	Indonesia	Indonesia, Thailand
Main Business line	Shipbuilding & repairing	Shipbuilding & repairing	Shipbuilding & repairing
Target Market	New building of Domestic Commercial Ships	Repair of Domestic specialized ship (river barge)	New building and repair of small ships. Export will be considered later
Investment Plan	100%FDI, Establish new yard Investment will be finalized depending on the market.	100%FDI, Establish new yard for repair Start from small invest	Joint Operation with local partner Trans of FD to site
Needs for ODA	Market demand survey	Training program for engineers	Selection of partner. Training program for engineers Financial support

There is no specific shipyard nominated in other target countries.

Attachment: Outline of the survey

“Needs Survey” under the Governmental Commission on the Projects for ODA Overseas Economic Cooperation in FY2012
Indonesia, Thailand, Philippines, India, Brazil
Development of Shipbuilding/Repairing with its supporting industries in developing economies

SMEs and Counterpart Organization

- Name of SME: Japanese Small and Medium scale Shipbuilders and Ship Machines manufacturers
- Location of SME: All areas of Japan centered in Chugoku, Shikoku areas
- Survey Site - Counterpart Organization: Shipyards and/or Ministries concerned in the five target countries

Concerned Development Issues

- Inadequate Shipbuilding/Repairing Capacity
Incapable to build variety of ships due to obsolete facilities.
- Lack of Technical Staff & Skilled workers
Design is imported. Incapable to make own design
- Incapable to Manage Logistics
Most of equipments & materials are imported
- Weak Financial status
- Lack of supporting policy for Shipbuilding/Repairing

Products and Technologies of SMEs

- Variety of Building Techniques responding Demand
- Efficient Production Technologies and Facilities
- Good Schedule and Quality Management System
- Higher Technologies (Eco-ship, Higher end ships)
- Highly qualified Engineers and Technicians
- Cost competitiveness (rationalized operation)
- Established Support Industry (Maritime Cluster)

Proposed ODA Projects and Expected Impact

- Development of Shipbuilding by building domestic ships (Indonesia, Thai, Philippines, India). Modernization of the domestic shipping with improvement of its safety, promotion of shipbuilding and ship repair is expected.
- Development of Ship Machineries Industry (Brazil). Needs on Japanese ship machineries will be increased in the offshore and inland water sector, thus deployment of Japanese manufacturers is expected.

Future Business Development of SMEs

- Japanese Shipbuilders will expand into Indonesian market (FDI to local shipbuilding/repair)
- Building river barges in Brazil. Expansion of sales of marine engines and other equipment.

