SHIP BREAKING INDUSTRY IN PAKISTAN – PROBLEMS AND PROSPECTS

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ABSTRACT

The industrial boom in twenty first century is very much related with the usage and production of metals in production and construction. With increasing cost of fuel and increased international demand has led the cost of metals upwards. Worldwide the demand of iron has increased tremendously. Demand is further pushed by mushroom growth of constructions in India and China which has ultimately increased the prices of iron related products. With the increasing prices of iron the search for alternative sources of iron has increased. Dependency on iron scrape as an alternative iron source has increased in past few years. Aging of huge ships has allowed creation of a new industry called ship breaking industry.

KEYWORDS

Ship Breaking, Scrap, Pakistan

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INTRODUCTION

The objective of the study is to provide basic information about ship breaking industry in Pakistan and to analyze role of banking industry in supporting ship breaking. The study assesses the productivity, competitiveness and growth potential of the industry in Pakistan. It provides analysis of plan of action to enable Pakistan give a high priority to ship breaking industry and regain its past glory when Pakistan was the only hub of ship breaking industry in the world.

INTERNATIONAL SCENARIO

Ship-breaking is the process of dismantling an obsolete vessel for scrapping or disposal. Conducted at a pier, dry-dock or dismantling slip, it includes a wide range of activities, from removing all gear and equipment to cutting down and recycling the ship's infrastructure.

Ships have a normal lifespan of about 30 to 40 years after which renovation becomes uneconomical. These obsolete ships are then retired and sold for scrap to ship breakers. Until 20th century, ship breaking used to be carried out in industrialized ports including USA and UK. After than the major centers of the ship breaking and recycling industry first moved from Europe and North America to East Asia and, since the 1980s, to South Asia. Since ship breaking involves highly labor intensive work, the SBRI has gravitated to countries with availability of low wage labor. Weak occupational health and environment regulations and non enforcement also have been a contributory factor for the emergence of a large SBRI sector in South Asia.

Currently the global hub of the ship breaking and recycling industry is in South Asia, concentrated in Bangladesh, India, and Pakistan. These three countries account for 70–80 percent of the international recycling market for ocean-going vessels, with China and Turkey covering most of the remaining market. Only about 5 percent of global volume is scrapped outside these five countries.

When the repairable cost is higher than the cost of vessel, the best way is to sale the ship rather than to repair it. Vessels intended for scraping normally reach Al-Fujairah port where different brokers bid for vessel. After bidding the ship, the owner sends the ship to the related port. Due to stringent environmental regulations only few countries carry out ship breaking now days these include China, Bangladesh, India and Pakistan.

All vessels are required to maintain their own "Trim and Stability book" which is prepared from the making of the ship till its sale. It includes all the details of the ship from a screw to a huge

engine, how much steel in it, what type of wood and each and every thing which is relating to vessel. Information relating to "Trim and Stability book" of vessel on sale is normally available on internet through which potential buyers determine the purchasing offer.

After reaching on port first the custom officers checks the ship, custom officer is the first person who enters the vessel to check all the items for tax purpose after reaching to Gadani.

After that there are about 100 to maximum 200 workers, according to the demand of the iron in re-rolling mills, they start first cleaning then cutting with gas welding. On average a vessel is completely dismantled in 2 to 4 months depending upon the size and nature of vessels.

SHIP BREAKING PROESS:

Ship breaking process starts from the time when the ship is rendered to be unfit for usage; it is then enlisted for sale for scrapping and sent to Al Furijah where buyers from various parts of the world gather for a bid. Sale is done usually through a bidding process and the sale agreement is finalized after a formal process.

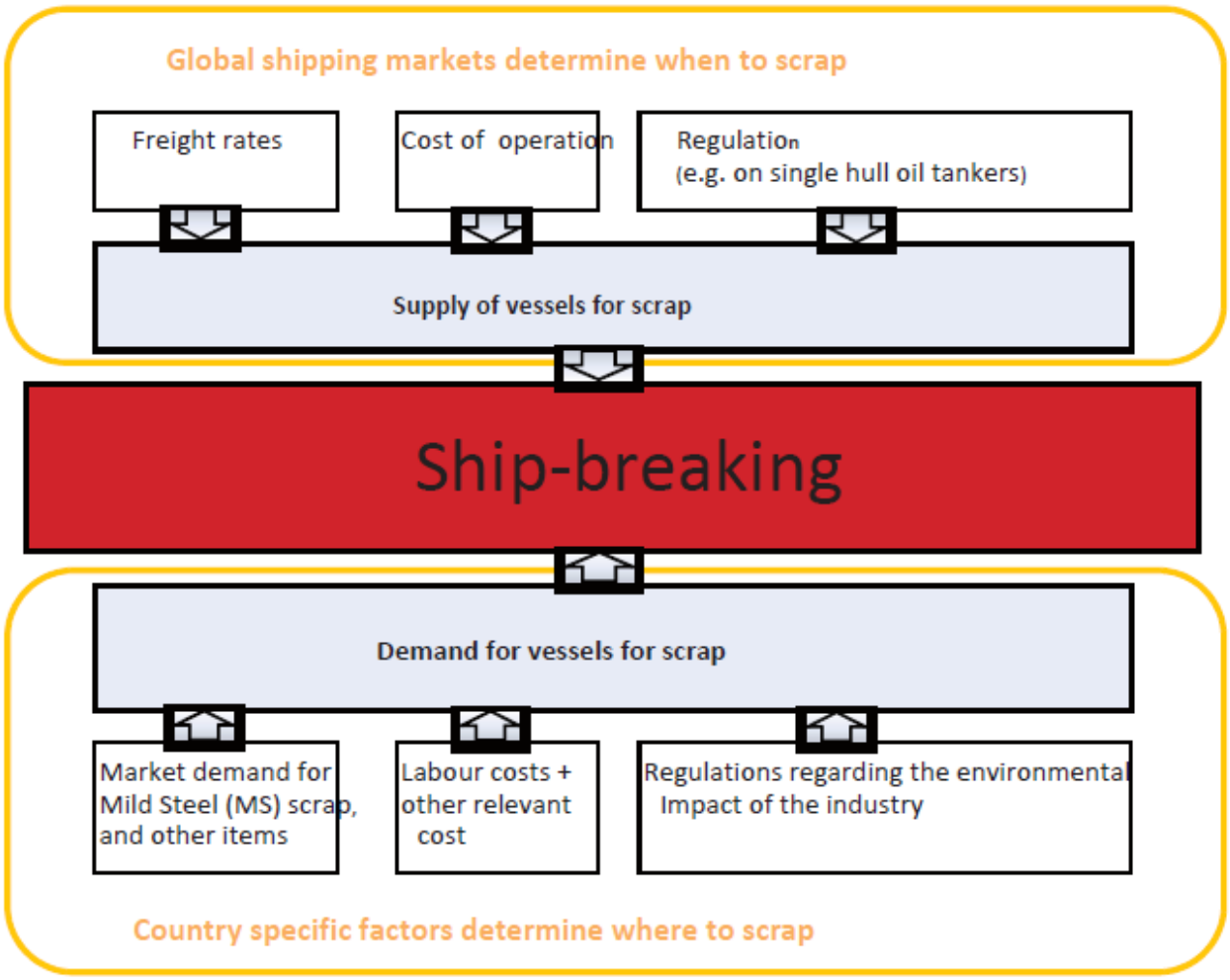
After removal from the fleet site, the vessel is towed or self-propelled (mostly) to the site where scrapping will occur. The vessel is then scrapped while being berthed to a pier, anchored, beached, or dry-docked. Most scrapping is performed bit by bit in slips, which are typically openings that are closer to a shipping channel. The iron slips are approximately 400 to 1,000 feet long and with a width of 100 to 140 feet. Ship-breaking is generally performed by cutting away large sections, which are then moved to shore for further dismantling. A large pulley at the head of the slip is used to drag the hull farther out of the water as work progresses. Throughout the scrapping process, it is important for the appropriate safety precautions to be determined and followed to effectively protect personnel. The scrapping process usually occurs in a series of steps:

a) Survey and Planning:

Diagrams of all compartments, tanks and storage areas are used to identify areas that may contain hazardous materials such as fuels, oils, asbestos, PCBs, lead and other hazardous wastes. Sampling is conducted using a systematic approach, usually starting in the compartment that will be cut first. In many cases, a facility will presume that certain items contain hazardous materials and dispose of them as such, in lieu of sampling. In such cases, the employer must use proper

engineering controls and work practices to ensure that workers, involved with and in the vicinity of the removal, are properly protected from exposure (e.g., through the use of wet methods, or

Figure 1



Removal of Oils and other Liquids: Most of the time ships contain fuels, oils and other combustible materials. Removal of the fuels, oils and other liquids from the ship generally occurs throughout the ship-breaking process. During the vessel scrapping process, water may accumulate due to rain, firefighting activity, or use of hot work cooling water, and will have to be properly removed.

Removal of Equipment: Fixtures, anchors, chains and small equipment are removed first. Large reusable components (e.g., engine parts) are removed as they become accessible. Propellers also may have to be removed so that the hull can be pulled into shallow water.

Disposition of asbestos and PCBs: Both asbestos-containing materials are usually removed in two stages. Before cutting away a section of the vessel, the asbestos material is removed from areas that are to be cut and are removed from areas that are readily accessible. Remaining materials are removed on the shore. The engine rooms usually contain the most asbestos and, therefore, take the longest for asbestos removal to be conducted.

Surface Cleaning: After the removal of combustible materials, asbestos and PCBs and paints the preservative coatings must be stripped from surfaces to be cut.

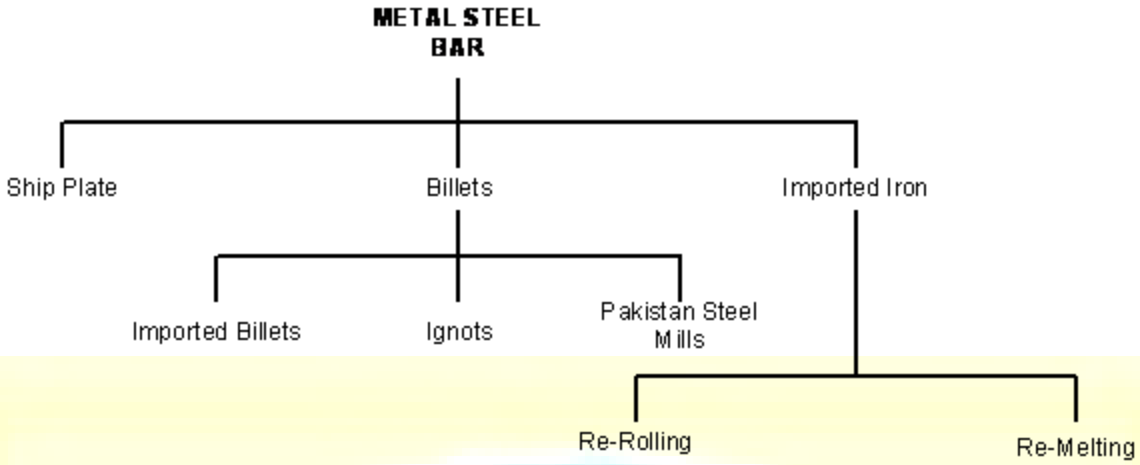
Hard to remove materials on surfaces require specific preparation, such as grit blasting or flame removal of paint.

Cutting of Metal: After a thorough preparatory phase the final cutting phase starts. During the cutting phase, upper decks, superstructure and systems are cut first, followed by the main deck and lower decks. Metal cutting is usually done manually in Pakistan, using cutting torches, but may be done with shears or saws for nonferrous metals. As large parts of the vessel are cut away, they are lifted by crane to the ground where they are then cut into specific shapes and sizes required by the foundry or smelter to which the scrap is shipped. As cutting continues and the weight of the structure is reduced, the remaining hull floats higher, exposing lower regions of the hull. Ultimately, the remaining portion of the hull is pulled ashore and cut.

Recycle of Materials: When the structure is cut the scrap metals, including steel, aluminum, copper, copper nickel alloy and lesser amounts of other metals are sorted by grade and sold to re-melting firms or to scrap metal-brokers. Valuable metals such as copper in electric cable that are mixed with nonmetal materials may be recovered using shredders and separators.

Products: These ship plates are then sent to different cities such as Karachi and few cities of Punjab. They are sent to re-rolling mills that how they converted into steel bars, graders and TR. Steel bar is made from three raw materials.

Figure 2



The picture above provides a general view of making steel bars.

Ship plate comes from yards at Gadani, and it is a type of a plate with specific size but some holes are present in it means basically a rough plate with specific size depending upon the breadth of steel bars prepare from it.

Billets are specific type of rods that is define by re-rolling mills to the yards which depends upon the size of the steel bars which starts from 2 mm to 7 inches. We have generally three types of billets.

Pakistan steel mills has never been able to meet the demands of steel in Pakistan throughout its history that's why re-rolling mills are also involved to make billets from ingots. Now days there are no production of billets in steel mills of Pakistan.

Imported billets are more risky because most of the time shipped material is far lower grade product than promised in the Performa invoice.

Ingots are basically raw of tins, containers and thin steel compressed with machine and they are passed through the furnace to make the specific size of billets. These billets help in making steel bars.

Imported iron comes from Russia, Uzbekistan and Kazakhstan etc. because they have got iron in surplus so Pakistani re-rolling mills import the iron from neighboring countries. The imports from these countries are routed if there is no ship present at Gadani or when the rates differ substantially.

SHIP BREAKING IN PAKISTAN:

Like every business, Ship breaking also depends on demand and supply function.

Pakistan needs more than 40 million tonnes of steel in the next fiscal year while it has installed capacity of steel production at Pakistan Steel Mills of around 1 million tones. In addition, further expansion in production capacity in Pak Steel would increase it to 1.5 million. Installation of a new mini steel mill at Port Qasim by Al- Tawarki Group would enable the steel production industry to reach 2 to 2.5 million tonnes. Still there would be gap in demand and supply of steel which could be bridged by traditional ship breaking industry.

Ship breaking industry depends on availability of scrap ships. Every year around 600 to 700 larger ships are taken out of service and brought to Asia for scrap. In the 1990s they had an aggregate tonnage of around 15 million dwt (dead weight tonnage) a year.

The scrap market increases and will increase substantially the following years. In 2001 the total number of vessels sold for scrap already totaled a figure of 28 million dwt. This marks a year on year growth of nearly 25% for Asian Countries like Pakistan, China, India and Bangladesh.

The fact that some ships must be scrapped after 20-25 years for safety reasons, the supply side for these vessels is easy to calculate since the age of the existing fleet is known. The average age of the 88,000-strong fleet has reached 19 years at the end of year 2000. To maintain this average would require the annual scrapping of almost 1900 vessels a year with an average age of 25 years, which would be three times 1998 ship scrapping rate.

Above statistics present a good investment potential in the ship breaking business. However, reduction in the current duty structure (which is 24%) and tax relaxation would be necessary to compete in the international market since the scrap ship prices are increasing (around $400-$450 per tonne).

While we are moving towards new budget for 2011-2012 the shipping industry of Pakistan is expecting additional taxes thus we have seen an up surge in import of ships before the budget. Currently more than 12 ships are ready for break down at Gaddani. Government will have to ensure prudent planning for the proper development of this industry. Imposition of duties and taxes has been of major concern for ship importers.

PERFORMANCE OF THE INDUSTRY IN PAKISTAN

Ship breaking in Gadani has been ongoing since pre-partition days. Realizing its importance, the Government of Pakistan took practical measures to strengthen the industry in 1978, including classifying Gadani as a port, reducing import duties, and establishing a task force for infrastructure and logistical issues.

In its early years, Gadani was the epitome of the ship breaking globally; it produced around 1 million tons of scrap during the 1980s. At the climax seasons during those times the ship breaking industry of Gadani employed more than 30,000 people.

Table 1

	Pakistan
Steel Consumption	4–5 m tons
Steel Production	3 m tons (target 2015: 10 m tons)
Scrap Steel from Ship Breaking	Up to 0.8 tons (2009)
Ship-breaking-steel Contribution to Production	15%
Ship-breaking-steel Contribution to Consumption	10%
Re-rolling mills	330

m = million

Gradually many groups from India and Bangladesh also jumped into the industry, Governments attention also diverted from this sector and changing tax and regulatory regimes saw its decline. Consequently ship scrap output dropped to less than one-fifth of the level in the1980s.

Downfall and retraction in shipping industry started in the early 1990s, when more than 45 percent customs duty was imposed on ships imported for dismantling. This adversely affected ship breaking activities at Gadani almost halting the industry by the early 2000s. In recent years, ship breakers and local authorities have successfully lobbied for reducing duties and taxes. The industry has thus recovered considerably recently, although volumes are still far below those of Bangladesh and India.

Nonetheless, ship breaking is the largest industry in Baluchistan province providing local employment to 20 to 25 percent of the total Gadani workforce. It is reported that the federal

government proposed additional taxes on ship breaking activities recently but that these were dropped after the intervention of the Chief Minister of Baluchistan.

Gadani has 132 ship breaking plots, out of which two-thirds are under private ownership; the rest are owned by the BDA. At present about 30 active ship breakers operate on land leased either from these local landlords or from the BDA. On average each ship breaker uses three plots, while the five largest breakers use four or more plots each. There is a measure of forward integration into both steel and construction. About 75 percent of the ship breakers hail from the Gujarati-speaking community, 20 percent are from the Punjab, and the remaining 5 percent are of Pathan descent.

In ship breaking industry main entry barrier for new entrants is the availability of ship breaking yards and plots. It was primarily for this reason that ship breakers continued paying lease payments to landlords or the BDA to avoid losing their yards during the industry downturn. There is no real exit barrier, and plot owners can leave at will.

Pakistan Ship Breakers Association formed in 1979 is the main organization in the SBRI in Pakistan. In the present political conditions in Pakistan, it is difficult to get a clear picture of current market conditions for ship scrap steel. Ship plate and melting scrap from Gadani are used as an input to the 50–60 re-rolling mills in Sindh and Baluchistan, but the degree to which these products are used in the Punjab, which dominates the re-rolling segment, is unclear. The research primarily indicated that some 70–75 percent of Gadani's production is destined for Karachi's re-rolling mills and 25 percent for the Punjab. The industry is thus significantly localized, with small re-rolling mills in particular dependent on ship breaking for their inputs. Some 95 percent of overall revenue is said to come from the sale of scrap steel, with the remainder coming from other recyclable items sold in the Sher Shah Market in Karachi.

CURRENT SCENARIO

Ship breaking activity has remained quite active during 2010 and early 2011. The ship-breaking yard at Gadani broke all previous records where 107 ships having a total light displacement tonnage (LDT) of 852,022 tons were docked for scrap during the fiscal year 2010. The activities however have witnessed a slowdown lately, owing to decline in local construction activities.

Such a large number of vessels were never brought for dismantling at the yard and even last year when the ship-breaking activity hiked at record level only 86 ships with 778,598 LDT were turned into scrap.

Due to high activity at the Gadani ship-breaking Yard a large workforce is engaged in dismantling of ships ensuring smooth supply of scrap and steel plates to re-rolling mills mostly located in Karachi, and Punjab.

Major factor for reviving ship-breaking at Gadani has been as follows:

- Slightly liberal government policy with lesser taxes and duty on import of ships for scrap.
- A major slump in shipping industry which resulted in grounding of more vessels by shipping lines and decreased prices also worked as driving force for the ship breakers.
- Closure of Steel mills of Pakistan due to various reasons.

It has been noted during Our visit that 128 plots out of132 plots of the Gadani yard are rented out for breaking of ships. Though most of the plots belong to private parties but 30 are owned by the Baluchistan Development Authority (BDA).

Though Gadani presently stands third in term of volume after India and Bangladesh, but in terms of logistic support and performance it excels by far.

Better equipped with breaking facilities the Gadani shipyard is more efficient than all regional countries' yards. This could be verified from the fact that a ship with 5000 LDT is broken within 30 to 45 days, whereas in India and Bangladesh it takes them more than six months for breaking this size of vessel.

The ship-breaking creates diverse economic activity. If it engages around 200 to 300 workers of different categories on each ship around 200 trucks are deployed for delivery of scrap to different cities.

The ship-breaking industry has helped to contain smuggling of scrap, which used to come from Iran through Baluchistan and Afghanistan as most of the foundries and re-rolling mills in the Punjab used it as raw material.

Recently Government has assured to extend Gas Pipeline to Gadani and improvement of infra structure to better facilitate the ship breaking industry. This will further improve the efficiency of the ship yard in future.

HYPOTHESIS:

Purpose of this study is to analyze impact of ship breaking industry on Pakistani EconoOur and on the communities involved, we have also incorporated impact of different factors like taxes, labor costs in neighboring countries and other regulations.

Null Hypothesis Ho:- Ship breaking industry plays an important role in econoOur of Pakistan and growth of the industry is directly related to support from Financial sector.

Alternate Hypothesis H1:- Not null Hypothesis

SAMPLING

Our research paper includes the current situation of ship breaking and re-rolling mills. With a purpose to get primary and secondary data a meeting more than 40 plot managers was arranged at Gadani, visited all 132 plots and took information required for the report.

Visit and Rates from Three different re-rolling mills present at Karachi.

- Sarhad Re-Rolling mill
- Abdul Sattar Noor Wala Re-Rolling mill
- Dewan & Sons/Dewan steel mills

FACTORS FOR INVESTMENT

The ship breaking industry has not yet been declared as an industry in Pakistan. But it has been a well reputed sector and a major source of steel supply to the local re-rolling mills especially during eighties. However, the scenario has totally changed. Political instability, lack of Government attention and imposition of additional taxes and duties have diverted ship suppliers attention toward Bangladesh, India and China. Due to factors mentioned previously the ship vendors are given higher price offers from these countries which are around $300 to $450 per ton. The import duty on scrap ships in Pakistan is 25% whereas in the neighboring countries it is just 11%.

The two reasons have badly hindered the progress of ship breaking industry in Pakistan. The following critical key factors need to be considered before entering the ship breaking and scrapping market to minimize associated risks:

Demand for steel and other reusable items: When the demand for steel and other reusable items increases, the ship scrappers' earning potential increases hence, the ship scrappers

willingness to pay for a vessel for decommissioning increases (and vice versa with the weakening in the demand for steel and other reusable items)

Running costs: Running cost is determined by local conditions and plays a crucial role for the demand of vessels for decommissioning. An increase in running cost decreases profit margins of the ship breakers.

Labor costs: Although labor is cheap in Pakistan but not cheaper Play, and have played a crucial role for the ship breaking industry. Given the current practice used, ship breaking is a very labor-intensive industry.

Regulations: Regulation also influences demand as higher requirements regarding health, safety and environmental issues increase the costs of ship scrapping. Though in Pakistan and neighboring countries the environment and health safety regulations are not so strict or they may not be followed by the ship breakers.

Import duties, levies and taxes: Ship scrappers which are subject to high duties, levies and taxes are less competitive compared to countries with no or low taxes.

Capital costs: Play an insignificant role in present markets due to the basic nature of the industry. There is a potential of increasing productivity by using better technologies in the industry, but this will require large investments, which do not seem to be competitive to the current practice used.

Infrastructure: The better the infrastructure contributes to the lower the running costs. This infrastructure is available to some extent at Gaddani-the prime ship breaking site in Pakistan.

Exchange rates: Exchange rates naturally affect the competitiveness of the ship scrapping yards , as the costs of the ship scrapping yard are paid in local currency (except for the vessels for decommissioning).

ROLE OF BANKING IN INVESTMENT:

Ships are mostly imported on the basis of Letter of Credit on sight or against Acceptance basis; here comes the role of banking industry. All the LCs are routed through banks thus creation and routing of these LCs includes huge risks and rewards.

First of all the creation of LCs must be secured and before purchase of any Ship prudent financial analysis needs to be done to calculate the profitability from the transaction. Here the banks can provide technical support to the owners.

Profitability Analysis: Following table shows a cost break of normal ship break in Pakistan. As we can see the Taxes, Tariffs and duties account for more than 13% which is higher than other competitors in the region. Total costs account for 97% of the sales price that means only 3% of the profit for the ship breaker. Imposition of high taxes has severe effects on the profitability of the sector.

Table 2

	Pakistan
Costs	
Purchase of ship	70%
Labor costs	4%
Consumables	4%
Financial costs	5%
Taxes, tariffs and duties	13%
Other costs (incl. investment costs rents, and other costs)	1%
Total costs	**97%**
profit	3%

Currently metal steel bars are prepared from these raw materials and the cost of production of iron Bars from ship Plate, Billets, ingots, imported iron and scrap steel are given below:

Source	Rupees Per tonne
Ship Plate	54,000
Billets	57,000
Imported Iron	63,000
Scrap Steel (PAKODA)	60,000

Ships are imported either on LC-S and the LC is retired through FIM option of financing. First the imported requests the bank for creation of LC-S. The LC is transmitted to the ship owner's bank and the ship is sent to the importers cited place. After completion of formalities the ship is rendered to be ready for delivery. Final Exchange of documents and payment is executed to

exchange the ownership of the ship. Once the importer accepts the ownership of the bank he allows the payment to the ship seller.

In most of the cases ship breakers do not have such capacities to retire the LC-S documents. Rather they get financing from a financial institution. Following are the two most famous ways of financing a ship break, we have calculated the profitability on the basis of a 10,000 MT ship for both cases.

Cost of Ship Plate Imported Through L/C: When the ship is ready for delivery, the ship seller needs the payment on the spot, such conditions are met by LC-S, ship breaker gives the ownership to financing bank and in return he takes Finance against Imported Merchandise (FIM) to retire the LC-S documents. Bank appoints a muccadam to guard the ship and allow gradual release of iron as payments are received. So the ship material remains in the ownership of Bank and the customer releases the merchandise through bit by bit payments.

In the sample case of 10,000 metric tone ship, we have calculated profitability (Annexure II) of the Ship breaker. Results show that ship breaker makes a profit of Rs. 2725 per metric tonne that means a total of Rs. 27.3 M profit on the whole ship.

COST OF SHIP PLATE IMPORTED THROUGH LC USANCE:

In a second mode of financing ship breakers develop a good understanding with banks and based on trust and value of collateral the customers are given a time period to payoff the total liability. We have calculated the profitability of ship breakers who have used this type of financing. Results (Annexure I) show that customers earn Rs 7586 per metric tonne, a total of Rs. 75.9M on a ship of 10,000 MT.

ROLE OF BANKING IN SHIP BREAKING

The role of banks in boosting and supporting ship breaking industry can of immense importance because banks have the ability to provide necessary financing and to some extent regularization capacity. Nearly all the ships are imported on financing from Banks. With the immense growth in financial sector the scope of financial support has also enhanced. Currently import of ships is imported on the same footings as the import of other items.

Banking should be committed to promoting the recycling of ships and work with clients towards the implementation of best practices so that ship breaking can deliver economic benefits to

Pakistan, while avoiding, reducing and mitigating the environmental and social impacts of the industry.

For environment protection banking sector policies must be guided by the rules and regulations of international conventions, and banks should prevent ship breaking that:

- Violate Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes
- Involve ships with prevalent asbestos use and without documentation of its utilization
- Significantly convert or degrade critical natural habitats

CONCLUSIONS

According to data analysis

- Ship breaking industry has played important role in providing necessary iron to cater to needs of different sectors and its importance has increased in current situation where Pakistan Steel Mills is not able to operate at its maximum capacity. So the facts and figures provided in the study conclude the fact that ship-breaking industry adds to the economic wellbeing of the country and banks have great potential to support this industry through various modes of financing.
- Ship breaking activity has remained quite active during 2009 & 2010. The activities however have witnessed a slowdown lately, owing to decline in local construction activities. However, ship plates are still cheaper than imported billets hence making it more feasible.
- Prices of vessels have shown movement on both sides they keep lingering around $ 450 Per LDT.
- From bank's perspective, the current market scenario requires extreme caution while inducting any fresh clientele. While any fresh buying by existing buyers should encourage provided pricing of vessel is attractive.
- This industry seems to fulfill the Steel supply & demand in the country and it is expected that sooner or later it will become the need of the industry for the procurement of cheap construction material.

RECOMMENDATIONS

More investments are needed in Pakistan to achieve an adequate institutional capacity, to provide ground-level protection for SBRI workers, and to enforce environmental regulations. Although the SBRI industry is situated in a relatively unpopulated area, infrastructure improvements are needed in the capacity and safety of the main road for transport of all waste and reusable materials generated in the ship recycling yards. Significant infrastructure and capacity development in the hazardous waste management sector is required in particular in the long term in order to achieve proper storage and disposal levels leading to compliance with national regulations, the Hong Kong Convention, and other relevant international agreements. Investments in hazardous waste management and waste disposal may present opportunities for engaging in public-private partnerships to the benefit of the local urban area of Hub, the greater urban zone of Karachi, the Port of Karachi, and the ship breaking and recycling industry.

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