SHIP DISMANTLING AND MARINE ENVIRONMENT PROTECTION

Hajime INOUE
Former Director General of Ship Research Institute,
Ministry of Transport

1. From Ship Scrapping to Ship Recycling

Obsolete ships often suffer serious damages which threaten crews' lives and marine environment. For preventing those damages, the International Maritime Organization (IMO) has required enhanced inspection to the ships, and Port State Control of the ships to the port states, and others. However, many obsolete substandard ships are still in service.

In 1991, at the interim W/G meeting of the Marine Environment Protection Committee (MEPC) of IMO, the Japanese Delegation presented a paper titled "The Development of the Ship Scrapping Capacity on a World Wide Basis." That was the first paper which pointed out necessity of development of the ship scrapping for the safety at sea, for protection of the marine environment and for the development of the world shipping industry. The proposal in paper was supported by most or the members to resolution of the meeting.

In 1997, Prof. Wijnolst of the Netherlands planed to hold the First International Ship Scrap Conference in Rotterdam. At this time, people seemed to be interested in other aspects of ship scrapping; environmental hazard of the ship scrapping and disaster of labor in the process of the dismantling.

In the United States, the Sun stuff, Will Englund and Gary Cohn were awarded the Puritzer Prize for their article "Scrapping ships, sacrificing men" in The Baltimore Sun, December 7-9, 1997[1]. They reported how the ship scrapping industry in the United States destroyed marine environment and how miserable workers in the ship scrapping yards were, and also that ship scrapping yards in India were far more miserable than that in the United States. The article seems to have led to a series of activities in the U.S. Congress.

June 23rd 1999, First International Ship Scrap Conference was held in Rotterdam in conjunction with MARE FORUM '99. The Conference was coordinated by Netherlands government organization, and about 160 participants were representatives of governments of EU, European countries, the United States, Japan, and Asian countries, shipping companies, shipbuilders, classification societies, and other NGO's. In the course of conference, name of the conference was changed to Global Ship Recycle Summit.

Almost all the aspects of ship scrapping were discussed at the meeting. It was agreed that some countermeasure must be taken in world wide scale. Application of Basel Convention to the obsolete ships is to be discussed at MEPC meeting. Shipbuilders should take part in the scheme of ship scrapping, for example, issue of the document of "Ready for Scrapping."
Scraping must be taken into consideration at the design stage of newly built ships. Etc.

No agreement is reached as to the problem of application of the Basel Convention to the obsolete ships. Indian delegation complained that miserable condition of Indian scraping yards were referred to many times.

In Japan, Nov. 1999, Ministry of International Trade and Industry published their view that Basel Convention is applied to export of obsolete ships. This means that obsolete Japanese ships must be scrapped in Japan.

In March 2000, MEPC44 was held in London, and ship scrapping was discussed under item 16 of the agenda. A correspondence group was settled and was entrusted with matters such as information of ship scrapping technology, labour and environmental risks, technology to reduce the danger, etc.

In June 2001, a meeting to discuss dismantling problems was held in Geneva under the auspice of United Nations Environment Program. Recognizing that "the decommissioning of a large vessel may involve the removal of many tonnes of hazardous waste," they proposed a guidelines to "minimize or eliminate the risks by introducing universally applied principles for the environmentally sound management of the ship dismantling." They not only detail procedures and good practices for dismantling obsolete ships, also address the design, construction and operation of ship dismantling facilities. They are planning to finalize the guideline by the 19th Session October this year for adoption by the Sixth Meeting of the Conference of the Basel Convention in 2002.

Also in June 2001, just after the UNEP meeting, the second Global Ship Recycling Summit was held in Rotterdam, the Netherlands. Participants are representatives of the international organisation such as IMO, International Labour Organization (ILO), the Basel Convention, International Chamber of Shipping (ICS), Intertanko, and other organization such as coast guards, ship owners, environment organization, ship breaking industry, and NGO (Greenpeace). More than 20 speakers presented diversity of opinions. Among them, ICS introduced their Industry Code of Practice on Ship Recycling which includes Inventory of Potentially Hazardous Materials on Board. The code was published in August.

2. Outline of Japanese Ship Scrapping Industry

Japanese ship scrapping industry started in Osaka in early 1910's. At that time Japanese steel industry did not have enough capacity to meet the needs of other industries such as ship building. Amount of ship scrapping increased year by year, and Japanese ship scrapping industry processed about 80% of the world market in 1933 and 1934. Then, Japanese share decreased as Japan-China war broke out. During the World War II, Japanese ship scrapping industry engaged ship salvage.

After the war, Japanese ship scrapping industry revived by importing T2 and T3 tankers and liberty ships for scrapping from the United States. Japanese share increased again, and in 1960 to 30% of the world market. At that time, Hong Kong shared 20% and Europe 50%.

As Japan showed a remarkable recovery in industry in 1960's, workers' wage increased
gradually. Being labour intensive industry, some of Japanese ship scrapping companies found their way into foreign countries for low wage. Some of them, and a few shipbuilding companies, constructed ship scrapping yards in Asian countries. Soon Taiwan got to hold the top share, and stayed at the top until 1988. It is note worthy that Korea and China held significant share during that time.

There were other reasons for the fall of Japanese ship scrapping industry. In general, dismantled products are used flat plates, strips for producing shapes, and scrap steel. Flat plates are sold at the highest price, and strips second. However, dismantled products are not to any of the Japan Industrial Standard, so they got to lose their market in Japan. Ship scrapping company's sales went down. The second reason is that expense for environment protection is high in Japan. Ship scrapping is carried out in the sea area next to fishing area. So that, for example, huge amount of compensation money may be required for oil spill. The third reason is that labour safety is strictly controlled by the Japanese Government. It is very difficult for the ship scrapping business to pay in Japan, as far as price of scrap ship is that high.

According to the statistics of about 20 years ago, there were 98 ship scrapping companies in Japan. At present, less than ten companies are still doing their business. They all have specific way of dismantling.

In Japan, no ship is scrapped by the beaching method except small ships. In many cases ships are scrapped at afloat condition with the aide of floating cranes or at pier by using cranes. A company has a wide scrapping yard where ships of a few thousands GT tonnes are landed by cranes. The yard has a trench to which spilt oil and other hazardous materials are led for control. Some companies have special docks for dismantling. They all invest money to installation to prevent environment hazard, to save labour cost, and to improve safety.

In the period from 1982 to 1988, Japanese Government politically promoted ship scrapping, and some of large ships including a VLCC were scrapped in a dock for shipbuilding. This was a very interesting experiment. Dismantling in a dry dock was efficient and safe, and oil spill control was very easy.

In 2000, a ship dismantling yard was constructed for Pipavav Ship Dismantling and Engineering Limited in Gujarat, India. The yard was designed by Overseas Shipbuilding Cooperation Centre in Yokohama, and was constructed supported by soft loan of the Japanese Government. In designing, Japanese experiences above were fully made use of. The yard has two docks for dismantling, and is well organized for environment friendliness, cost saving, labour safety.

3. What shipbuilders can do for promotion of ship scrapping?

Japanese shipbuilders has built many ships for the world shipping society. Shipbuilders can contribute to promotion of dismantling ships. Following are my proposal for shipbuilders.

1) Improvement of design

Shipbuilders should investigate ship design which recycle and reuse are taken into account, and should develop ship structure which is hard to be destroyed but easy to be
dismantled. For example, structure which must be cut at dismantling is designed to be simple one so that it can be cut easily. "To be cut easily" can mean "easy to introduce machinery."

2) Unified inventory list of hazardous materials

ICS proposed inventory of hazardous materials as stated above. Usually, hazardous materials are not applied to ship at building, repairing or remodelling. However, some materials such as chemical products are found to be hazardous as a result of reevaluation. Shipbuilders will be able to help to make accurate inventory list.

3) Improvement of dismantling technology

Japanese ship scrapping companies achieved high efficiency by applying various machines and instruments, but dismantling technology can be more improved. For example, by reducing work on the ship afloat and by increasing work on the land, higher efficiency may be achieved with the aid of machines, and safety will be more improved. For that purpose, highly developed shipbuilding technology will be applied.

4) Promotion of recycle and reuse of dismantled materials and instruments

It will be necessary to form a world wide market of dismantled steel and used machinery and instruments in cooperation with steel makers and manufacturers.

5) Pool system of dismantling fee

We may have an age where ship owners have to pay at least environment protection fee for dismantling. International transaction of the used ship is everyday affair. Owner of the obsolete ship can be in financially difficulties, and may not be able to pay the environment protection fee. Then, how about a system to pool the fee on building a new ship in order to ensure the fee.

Reference

2) Hajime INOUE: No Future for Shipping and Shipbuilding, without Promotion of Shipbreaking, Ship & Ocean Newsletter, No.24, 5 August 2001