

# Out of the Doldrums

By Takeo Fukushima

Japan's shipyards were once spoken of in the same breath as the country's sunset industries. But orders for new ships are now flooding in and the sun is shining again on Japan's shipbuilding industry. The prices of new ships have also recovered; during 1989, ship prices rose by more than 30%. One shipbuilding firm executive said he did not expect the shipbuilding industry to recover so quickly.

According to the Japan Ship Exporters' Association, world shipyards in 1989 had orders for 1,720 new ships totaling 19.31 million gross tons, based on Lloyd's Register of Shipping statistics. The tonnage was up 63% from that of 1988, and second only to the 19.4 million tons registered in 1983. Japanese shipyards secured orders for 741 ships aggregating 9.7 million gross tons. This tonnage, up 109% over the previous year, accounted for 50.2% of the world total, reaching the 50% level for the first time in four years (Table 1).

## Backlog of orders

World shipyards had 31.04 million gross tons of ships under construction or on order as of the end of 1989. The backlog of ships on order at Japanese yards was 10.28 million gross tons or one-third of the total. These unfilled orders are enough to keep Japanese yards busy for about two years at the current rate of production, which is considered an appropriate level.

The upturn of the shipbuilding industry is partly attributed to an improvement in the world economy and a new surge in seagoing cargo that have increased demand for ships. Takao Suzuki, a deputy general manager at the Nagasaki Shipyard and Machinery Works of Mitsubishi Heavy Industries, Ltd., which is the leading Japanese shipbuilder, cited several reasons for the turnaround.

"There is a demand for replacement ships, mainly large tankers built in and around 1973. Japan has mothballed a

Table 1 Shipbuilding Orders Won by Japan and South Korea



(million gross tons)

	Japan	South Korea	World total
1983	10.98	3.73	19.42
1984	8.84	2.28	15.58
1985	6.35	1.34	12.90
1986	5.51	3.05	12.66
1987	4.77	4.16	13.76
1988	4.63	2.75	11.84
1989	9.70	3.22	19.31

Note: Orders won by Japan and South Korea accounted for 66.9% of the world total in 1989.

Table 2 Ships Completed by Japan and South Korea

(million gross tons)

	Japan	South Korea	World total
1986	8.17	3.64	16.84
1987	5.70	2.09	12.25
1988	4.04	3.17	10.90
1989	5.36	3.08	12.85

Note: Ships completed by Japan and South Korea represented 65.7% of the world total in 1989.

large portion of its shipbuilding facilities in two stages to reduce capacity. As a result, ship prices have been recovering. This is also due partly to a decline in South Korea's export capabilities.

"South Korean shipyards have suffered from the won's rise against the U.S. dollar, increased labor costs and also a rise in the cost of purchasing parts. They find it difficult to estimate ship production costs two to three years ahead. The yards are now very cautious in ship price negotiations. They are in no position to accept shipbuilding orders at relatively low prices," said Suzuki.

"The shipping market has improved very little. Amid expanding international trade, there is speculation that there may be a shortage of ships in the near future. Due to the insufficient recovery of the shipping market, no one can predict how much ship prices will rise in the months

ahead. The industry is apparently entering a new phase," he added.

What were the actual conditions that led the South Korean shipbuilding industry to become a threat to its Japanese counterpart?

In the first oil crisis of 1973, South Korea's share of world shipbuilding orders was only 1.3%. By 1987, however, its share had expanded to 30.2%, close to Japan's 34.7% share. Behind the rapid growth of the Korean shipbuilding industry were low labor costs and government support such as subsidies. Korean shipyards won shipbuilding orders at prices 20%-30% lower than those tendered by Japanese yards.

Korean yards kept their operations at relatively high levels on the strength of below-cost ship orders, resulting in the deterioration of their financial position. In 1987, there were frequent labor disputes amid mounting democratization movements, resulting in much higher labor costs. The Korean government limited its aid to shipyards to a level sufficient to prevent shipyards from going bankrupt.

For instance, Korea Shipbuilding and Engineering Corp., one of South Korea's four major shipbuilding firms, went into de facto bankruptcy in 1987. Daewoo Shipbuilding and Heavy Machinery Ltd. was heavily in the red—with cumulative deficits of 300 billion won—at the end of 1988. At Hyundai Heavy Industries Co., a labor dispute in the spring of 1989 lasted for more than 100 days. This made it impossible for the company to deliver ships by the promised dates.

In addition, Korean yards suffered greatly from the Korean currency's rapid rise and the yen's appreciation. As a result, the cost competitiveness of Korean yards has declined. Some analysts say prospects are poor for an early recovery of the yards' competitive position. South Korean yards' share of world shipbuilding orders fell to 23.2% in 1988, and further dropped to 16.7% in 1989. The ship prices

offered by Korean yards in recent months are little different from those offered by Japanese yards.

## Race to rationalize

At any rate, Japanese yards took the opportunity to narrow the gap in competitiveness between themselves and Korean yards and expand their share of world orders. In this connection, it should be noted that Japanese shipyards have carried out drastic rationalization measures to cope with the deterioration in their financial position resulting from the yen's steep rise against the U.S. dollar since the fall of 1985.

Japanese shipbuilding companies drastically cut their shipbuilding capacities and their labor force to cope with the slump. In 1988, capacities were reduced by an average 23% to 4.6 million CGT (compensated gross tonnage in terms of standard freighters). This capacity is less than half the 9.8 million CGT peak of 1974. The shipbuilding work force has been trimmed to about 28,000 in terms

of the member companies of the Shipbuilders' Association of Japan (SAJ), or one-fifth of the peak.

When I visited Mitsubishi's Nagasaki Shipyard last fall, Koyagi plant officials explained they had concentrated on rationalization investments during the recession period. At the Koyagi plant, a giant shipbuilding dock was completed in October 1972. In May of the following year a repair dock was also completed. The attraction of the works is that it can build various types of ships, ranging from giant ships to medium-sized and small ships.

In the depth of the recent recession, too, preference was given to work at Koyagi's building dock rather than at the Nagasaki Shipyard's main plant facilities. The Koyagi plant made every effort to improve its productivity, to introduce high technology and to win many more orders.

Entering the workshop, I immediately noticed that mechanization and the use of new electronic aids had reduced the work processes. Automatic welders and cutters are used and there are few, if any, men

working at the plant. Manual marking work on steel plates is a thing of the past. Such work is now done by digitally controlled machine tools. At the block plant, the emphasis is on minimizing raw material stocks.

The production manager said that the work force is now one-third of what it was during the peak period, while the volume of work is about 70%, and the production efficiency is up 50%. The Koyagi plant's monthly steel products consumption was about 11,000 metric tons last fall, well below the 23,000 tons in the peak period. But the steel plate currently being used is mainly 25 mm thick, compared with the 33 mm thick plate used previously. Plate that is lighter yet higher in tensile strength is being used in larger quantities. Such changes are taken into account in calculating the volume of work done.

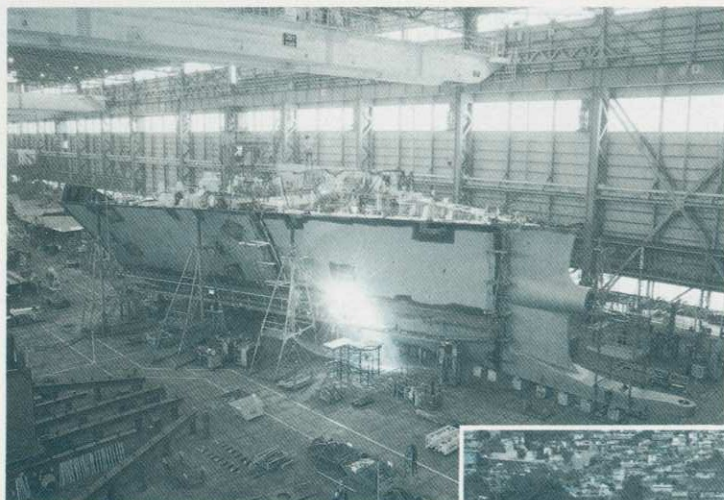
I saw a 240,000-deadweight-ton tanker under construction at the Koyagi plant. This kind of crude oil tanker should be now priced at more than ¥10 billion, but the price was lower when the order was accepted. In recent years more sophisticated high-tech machinery has been used in building ships, resulting in much higher costs.

The Koyagi plant's product lines include VLCCs (very large crude carriers), LPG (liquefied petroleum gas) carriers and LNG (liquefied natural gas) tanker center blocks. The plant is also building steel bridges, general tanks, and aluminum alloy spherical tanks for LNG and boiler modules. The works are fully booked for shipbuilding as far ahead as the end of fiscal 1991. The problem is how to improve its financial position.

## Effects of higher prices

Other major Japanese shipbuilding firms such as Ishikawajima-Harima Heavy Industries Co. (IHI) and Kawasaki Heavy Industries Ltd. also have enough orders to keep their yards busy for more than two years. The problem now is how the shipbuilding work that they have on hand is to be undertaken.

Shipyards are also suffering from labor shortages. Some Japanese shipbuilding companies are preparing to reopen moth-



The Nagasaki Shipyard of Mitsubishi Heavy Industries is working at full stretch, reflecting the recovery in Japan's shipbuilding industry.



The 49,400-ton *Crystal Harmony*, which will be ready for delivery at the end of June. There are enough orders to keep virtually every major shipbuilder in Japan busy for the next two years.

alled building berths or docks so ships can be built more efficiently. IHI, for example, plans to start construction work in May 1990 on a 104,500 deadweight-ton tanker at its Aichi works.

Some shipyard executives are concerned that such a practice might lead to the return of the vicious cycle of overcapacity and slumps. Kosaku Inaba, president of IHI, said shipyards should not work to build up their order backlog steeply but rather should work to increase it gradually. What is most important is to try to create a new market, he said.

Inaba said shipyards should make positive suggestions to shipping firms and consigners and consignees, for example, on the construction of high-speed ships and luxury passenger ships. If such efforts lead to the creation of new demand for ships, the industry's future will be brighter, Inaba added. Mitsubishi Heavy Industries reportedly plans to win orders for high value-added ships, which tend not to be so affected by fluctuations in the shipping markets, such as LNG tankers and luxury passenger ships.

The recent recovery in the shipbuilding market will be reflected in the financial position of Japanese shipbuilding firms during the 1990 financial year ending March 31, 1991. The recovery of ship prices in the past couple of years is expected to have a palpable effect on the business performance of Japanese shipbuilding firms, starting with ships scheduled for completion in 1991. There is an interval of time between the receipt of an order for a ship, the ship's completion and the settlement of the account.

Japanese shipyards are assuming a posture of "moving forward while solidifying their foothold." All shipyards are suffering from a serious shortage of workers, and as a result they are limited in the number of orders they can accept. In this situation, many analysts feel there is no danger of the Japanese shipbuilding industry "overheating."

How then will the Japanese shipbuilding industry fare on a medium-term basis? In 1985 and 1986, when Japanese shipyards found it difficult to secure shipbuilding orders because of the yen's surge against the U.S. dollar, it was feared that

the Japanese shipbuilding industry would sooner or later decline amid the rise of newly industrializing economies (NIEs).

The situation has changed, however. Japan is still a "shipbuilding superpower," winning half of the world orders for new ships. In the mid-1990s there will probably be considerable demand for replacement ships, mainly VLCCs. Japanese yards expect to win orders for a considerable proportion of such demand. In that event, Japanese yards will face two problems—bringing ship prices back to appropriate levels, and securing the necessary number of workers. Simultaneously, Japanese shipyards will have to extend international cooperation more actively, and contribute to the stability and development of the worldwide shipbuilding industry.

### Attracting young workers

At a top-level meeting of representatives of the Japanese and U.S. shipbuilding industries in early February 1990, the U.S. side asked Japan to cooperate in merchant ship construction, hinting that they will ask Japanese yards to start shipbuilding activities in the U.S. The Japanese delegate declined the request, but it was taken to indicate a U.S. reappraisal of the capabilities of the Japanese shipbuilding industry.

Japanese shipyards are attempting to streamline their production processes and reduce their production costs. They are also tackling the problem of how to attract young workers.

The seven major Japanese shipbuilding companies started research and development in 1989 on a shipbuilding version of the computer-integrated manufacturing (CIM) system. The companies are expected to make a general outline of the CIM system by 1993, and then start developing the system. Their basic aim is to rationalize shipbuilding processes from the design of a large ship to the building and completion of the hull; that is, to cut the number of work processes, so that building costs will be reduced.

If the CIM system is introduced in most of the block construction processes, the processes could be further trimmed.

In reality, some processes are so complicated that it may be difficult to standardize them. Because the major shipbuilding firms won orders for many more ships shortly after drastically cutting their work forces, they are making desperate efforts in that direction.

The next problem is how to recruit workers, particularly young ones.

The average age of shipyard workers is now over 40, much older than in the past. Subcontract workers, who are essential in shipbuilding, have been lured away by other prospering industries. If Japanese shipyards are to continue building only tankers and dry cargo ships in the years ahead, they may be able to manage for some time, with a small number of naval architects safeguarding their accumulated technology.

Major shipbuilding firms are making tremendous efforts to make the industry attractive to young workers, shed the dark image which often accompanies an industry undergoing restructuring, and to transform shipbuilding into the type of industry that can fulfill the hopes, dreams and expectations of young people. The industry is presently too weak to take on the type of challenging new work that inspires the imagination of workers. How then can the industry secure a suitable work force?

Major shipbuilding companies are making plans to offer company housing and bachelor dormitories, and raising their wage level to that of other manufacturing industries. Some shipbuilding firms have seriously entered into research in the field of building offshore airports and other structures.

With business now picking up, this is a golden opportunity for shipbuilding firms to try and change their image. As the industry shifts gear and begins to conceive new ideas, the time may soon come when the Japanese shipbuilding industry shows its true worth in the world shipbuilding community. ■

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