Future of shipping

(Promotional content)

Sailing to a green-fueled future on next generation of ships

Japan's shipbuilding and maritime industries play a vital role in supporting the nation's economic security and society. In a recent interview with The Japan Times, Keita Arakaki, director-general of the Maritime Bureau at the transport ministry, discussed the strengths that can be leveraged and the challenges that must be addressed to ensure the sustainability of these industries.

He said: "Japan's shipbuilding industry is deeply rooted in local communities, especially in the Seto Inland Sea region. Many parts and materials are sourced from local component manufacturers. Furthermore, diverse industries such as regional financial institutions, insurance companies, and agencies have come together to form a maritime cluster, contributing significantly to job creation and supporting regional economies."

He also stated that Japan's economic security relies on the maritime shipping industry, emphasizing that as an island nation with limited resources, trade is a lifeline. "Shipping, which handles 99% of Japan's trade by weight, supports its people's livelihoods."

Shipbuilding supports maritime transport and contributes directly to ensuring the security of Japan by constructing vessels for the Japan Maritime Self-Defense Force, the Japan Coast Guard, the police and others, Arakaki said.

The shipbuilding and shipping industries are much more than a single sector of the economy, but they also face greater and more pressing challenges than many others.

Surrounded by the sea, a country like Japan faces persistent challenges regarding resilience. Arakaki stated that if a port were to be damaged in a disaster, decisions must be made to reroute ships to other ports to deliver supplies, and swift coordination

Keita Arakaki JAPAN TIMES AGENCY

is needed to gather accurate information about the condition of roads from ports to inland areas.

Concerns during emergencies aren't just about infrastructure. "After the Great East Japan Earthquake and the subsequent Fukushima nuclear power plant accident, some ships actually refused to come to certain Japanese ports," Arakaki said, emphasizing that mechanisms for delivering a stable supply of goods to Japan even in emergencies must be constantly updated.

Like many other industries, the shipbuilding industry has been affected by rising costs. The key to addressing this challenge lies in absorbing costs effectively or creating products that justify higher prices with superior quality.

What are Japan's strengths that can be leveraged here? Arakaki stated that Japanese shipbuilding companies lead those of other countries not only in traditional fields, such as precision in welding and meticulousness in finishing, but also in advanced technologies. These include autonomous navigation, remote engine monitoring systems, satellite data for route planning and zero-emission technologies in vessels powered by fuels such as ammonia and hydrogen.

The Sakigake is the world's first ammonia-fueled tugboat. NYK

The key challenge here is securing highly skilled personnel when the industry is already facing significant labor shortages. Arakaki pointed out that the development of next-generation vessels that run on new fuels requires knowledge and skills to build these ships and handle these fuels safely. For autonomous vessels, expertise in both hardware and software is essential. There is also a growing demand for personnel capable of coordinating the entire shipbuilding process and for personnel who can operate these ships.

Arakaki also believes it is essential to develop multiple technologies simultaneously and advance the practical application of these technologies. He stated that ships running on liquified natural gas and liquified petroleum gas are already in operation, and dual-fuel engines that run on both heavy oil and ammonia are being developed. These are examples of decarbonization efforts that are already underway.

However, he also pointed out that it is impossible to predict which of these new fuels will become mainstream, because there are many unknown factors such as the production volume, supply capacity and the advancement of fuel transport technology. On top of that, he said that it would be too dangerous to rely on a single solution in case supply issues arise. The entire global maritime shipping industry has a goal of achieving net-zero carbon emissions by 2050. To realize this, existing ships must be gradually replaced with vessels equipped with new technologies. A well-planned replacement strategy, accounting for the average useful service life of a ship (which is said to be about 20 years) will be necessary to balance economic viability and environmental consideration, Arakaki explained.

According to data from the transport ministry, the pace of reducing greenhouse gas emissions in Japan's maritime shipping industry is estimated to remain slow until around 2030, but Arakaki is confident that as older vessels are replaced with zero-emission ships and the switch to new fuels progresses, the transition toward net-zero will gain speed.

The International Maritime Organization is the stage for creating international rules such as the 2050 carbon neutrality goal. Arakaki explained that proposals for new rules are first submitted by member countries to theme-specific committees. "Japan not only actively makes proposals for new rules, but also participates in the next step — the working groups — leading discussions and contributing to the establishment of international rules," he said.

"Globally speaking, I believe the logistics sector still has significant room for growth. For Japan to secure its position and lead the world within this field, we must focus on developing new technologies, building strong relationships and communicating closely with other nations to gain influence in shaping international rules. To achieve these goals, we need to nurture the next generation of talent," Arakaki said.

Creating conditions for success with effective policies

JUN KOHNO
SENIOR DEPUTY DIRECTOR-GENERAL, MARITIME BUREAU, TRANSPORT MINISTRY

Five years ago, I was the director of the Shipbuilding and Ship Machinery Division of the Maritime Bureau at the transport ministry, which oversees shipbuilding.

At the time, Japan's shipbuilding industry was in a crisis, affected by a global shipbuilding slump and a stronger yen. The volume of ship construction orders, which should have kept the industry busy for at least two years, shrank to just enough for about one year. Some shipyards stopped building new vessels and some shipbuilders closed docks. In response, the government formulated the Act on Strengthening Maritime Industries to bolster the nation's shipbuilding and shipping, and introduced a system to create a virtuous cycle between the shipbuilding and shipping industries by supporting shipbuilders who make capital investments to strengthen their business and shipping companies that procure ships from such builders.

Over the last five years, Japan's shipbuilding industry has made a significant recovery as companies worked to strengthen their foundations under the act, aided by a recent rise in ship prices and a depreciation of the yen. Many major shipyards now have enough orders to keep them busy for four to five years.

Going forward, demand for new ships is expected to increase for years to come, driven by the need to replace many vessels constructed around 2010 and an increase in orders for green-fuel ships with decarbonizing impact.

At the same time, the environment surrounding Japan's shipbuilding industry is undergoing significant changes.

For example, in late June, the Liberal Democratic Party's Special Committee on Marine Transportation and Shipbuilding and Headquarters for the Promotion of Economic Security handed an "Emergency Proposal for the Revitalisation of Japan's Shipbuilding Industry" to then-Prime Minister Shigeru Ishiba. The document calls for the government to draft a road map that incorporates goals and specific measures for the industry by this fall, and government ministries and agencies are considering this proposal.

Japan and the United States also agreed to closely cooperate in shipbuilding and other areas at bilateral tariff talks in July. Going forward, the bureau plans to identify specific areas of cooperation, taking into consideration the intentions of the United States, and aims to design effective measures.

I have been involved in maritime administration for over 30 years, but Japan's shipbuilding industry has never been covered more extensively by the media or attracted more public attention than it does now. This presents a rare opportunity for the shipbuilding industry. I believe that the government should seize this opportunity to bring all its measures to full operation, and shipbuilders should not fail to make effective investments to achieve a leap forward.

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Future of shipping

(Promotional content)

Crafting policies to navigate Japan's most critical sector

MASATOSHI ISHIDA
CHAIRPERSON OF THE LDP SPECIAL COMMITTEE ON MARINE TRANSPORTATION AND SHIPBUILDING

Japan's maritime industry is now at a critical juncture.

Shipping and shipbuilding are more than just one industry. They form the foundation for people's lives and livelihoods, and they are the cornerstone of Japan's economic security. For Japan, which relies on maritime transport for 99% of its trade volume by tonnage — including energy, food and raw materials — stable maritime transportation and the domestic shipbuilding capacity that supports it are of vital importance, directly linked to the nation's survival.

However, Japan's maritime industry is being hit directly by the tough challenge presented by Chinese and South Korean rivals that are supported by their respective governments, increasingly uncertain international situations, soaring fuel and steel product prices and a serious labor shortage. Japan's shipbuilders once held the top position in the global shipbuilding market, but now Chinese and South Korean rivals together hold an overwhelming share.

If Japan's domestic shipbuilding capacity continues to shrink, it could throw the country's security and economic independence into a crisis.

The heightened risks to ships navigating through the Red Sea due to military conflicts and supply chain disruptions during the pandemic are fresh reminders of the vulnerabilities of maritime transportation. When energy and grain supplies to Japan are disrupted, people's lives and industrial activities are instantly thrown into confusion. For this reason, maintaining Japan's shipping and shipbuilding capabilities is not just an economic issue, but the most critical issue for the nation's security.

With this strong sense of crisis, I, as the chairperson of the Liberal Democratic Party Policy Research Council's special committee on marine transportation and shipbuilding, finalized the committee's "resolution on enhancing and strengthening measures to realize a resilient maritime cluster in a new era" on May 14 and strongly urged the government to implement our recommendations.

Furthermore, realizing the need to clearly define the position of the shipbuilding industry for Japan's economy and security, the Policy Research Council, the special committee on marine transportation and shipbuilding and the headquarters for the promotion of economic security under the Policy Research Council jointly compiled "emergency recommendations for revitalizing Japan's shipbuilding industry" and handed them to the prime minister on June 19.

These recommendations suggested specific policies based on the ideas in the resolution and urged the government to implement effective measures. They proposed multifaceted and concrete measures to utilize GX (Strategy for Promoting Transition to a Decarbonized Growth-Oriented Economic Structure) transition bonds to promote next-generation-fuel vessels, expand the construction of government ships, increase support through tax measures, develop human resources and improve working environments.

These recommendations place the highest priority on maintaining and strengthening the shipbuilding industry from the viewpoint of economic security.

To secure and develop human resources, the recommendations emphasize a comprehensive approach that would enhance mariner education, train shipbuilding personnel through industry-academia-government collaboration, promote participation by women and young people and accept foreign workers. There is no future for the shipbuilding industry without human resources.

At the same time, the shipbuilding industry is at the forefront of technological innovation. Whether Japan can regain its international competitiveness hinges on its ability to lead in fields such as autonomous navigation technology, digital design, digital transformation of production processes and the development of zero-emission ships. Japan is able to lead the rule-making process at the International Maritime Organization and has both the responsibility and the opportunity to achieve carbon neutrality for the world.

I believe that, through these efforts, we must clearly show that Japan's shipbuilding industry plays the important role of "creating local communities, protecting the country and leading the world," and firmly establish a national strategy to "construct Japanese ships in Japan and possess them in Japan." This is not just a slogan for industrial promotion, but a specific policy aimed at protecting national autonomy and supporting local economies and employment.

In my home prefecture of Wakayama, small and midsize shipbuilding and repair businesses have long supported the local economy by constructing and maintaining fishing boats and other small vessels.

They may not be large, but these efforts and technologies on the local level support the shipbuilding industry of the nation. Ship construction and repair work undertaken by local shipyards support the foundations of fishing and logistics and are indispensable to local communities.

Many of my fellow party Diet members contributed to the process of compiling the resolution and recommendations. They included Itsunori Onodera, chairperson of party Policy Research Council; Takayuki Kobayashi, chairperson of party headquarters for the promotion of economic security; and Tatsunori Ibayashi, chief secretary of the special committee on marine transportation and shipbuilding. I would like to emphasize once again our party's commitment to revitalize the maritime industry.

If our shipbuilding industry declines, it will destabilize the nation. On the other hand, if the shipbuilding industry is revitalized, it will reinvigorate our local communities and strengthen the nation. Japan will be able to reassert its presence in the oceans around the world.

We now have the chance turn a once-in-decades turning point into an opportunity. The era of zero-emission ships is also a terrific opportunity for Japan to regain a leadership position.

As a Diet member and the chairperson of the LDP Policy Research Council's special committee on marine transportation and shipbuilding, I will do my utmost to revitalize the nation's maritime industry, joining forces with the government, industry and local communities.

Masatoshi Ishida (fifth from left) and other members of the LDP marine transportation and shipbuilding committee submit their emergency recommendations to then-Prime Minister Shigeru Ishiba (fifth from right) on June 20.

Yura Port in Wakayama Prefecture supports the region's shipbuilding industry. WAKAYAMA PREFECTURAL GOVERNMENT

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Future of shipping

(Promotional content)

Sea change necessary to adapt to new global market

Japan's shipping and shipbuilding industries have long been the bedrock of the nation's economy. Now they stand at a major crossroads.

These industries achieved a miraculous recovery from the catastrophic damage of World War II, becoming world leaders in the process. However, amid intensifying international competition and labor shortages, Hitoshi Nagasawa, president of the Japanese Shipowners' Association, warned in a recent interview with The Japan Times, that without immediate action, the security of Japan's maritime logistics — the nation's lifeline — could be jeopardized. He also spoke about industrywide initiatives now underway to revitalize the sector.

Defeat in World War II dealt a devastating blow to Japan's maritime and shipbuilding industries. The country lost a massive number of ships, and reportedly more than 30,000 merchant marine sailors were killed in action. Nippon Yusen Kaisha, a logistics giant founded in 1885 that Nagasawa serves as chairman and director of, alone lost 5,000 seamen in the war.

After the war, the industries experienced remarkable growth alongside the nation's economic recovery. Nagasawa said that this growth was driven primarily by the rapidly increasing export power of Japan's manufacturing sector, which benefited significantly from a weak yen from the mid-1960s to the mid-1980s.

However, the Plaza Accord of 1985 pushed these industries into crisis once again. This joint agreement, signed by France, West Germany, Japan, the United Kingdom and the U.S. at the Plaza Hotel in New York City, aimed to devalue the U.S. dollar against the currencies of the other signatory countries.

"In international shipping, though, nearly all revenue was dollar-denominated, while almost all costs were in yen. Due to the yen's sharp rise after the Plaza Accord, revenue was cut by about half," Nagasawa said.

Hitoshi Nagasawa ARC COMMUNICATIONS CO.

As a result, the entire industry underwent a massive restructuring, and the number of Japanese seafarers on oceangoing vessels plummeted from over 57,000 in 1974 to just above 2,600 in 2005.

Nagasawa explained that shipping companies began hiring foreign crews to shift expenses from yen to dollars, thereby addressing labor shortages on Japanese vessels while keeping costs down. Some of the major shipping companies either established their own training institutions for sailors or partnered with existing ones in the Philippines.

However, this led to a dramatic decrease in the proportion of Japanese seafarers compared to foreign crew. Of the nearly 60,000 crew members estimated to work on vessels operated by the Japanese merchant fleet, Japanese sailors account for a mere 1.5%, as of May 2024. Nagasawa considers this an alarming figure for a country that relies on maritime transport for 99.6% of its trade volume (as of 2023).

Against this backdrop of crisis, three major shipping companies — NYK, Mitsui O.S.K. Lines and Kawasaki Kisen Kaisha — along with the Japanese Shipowners' Association, announced in July that they had initiated discussions on donating a large training vessel to the Japan Agency of Maritime Education and Training for Seafarers, the nation's largest provider of seafarer education.

The shipbuilding industry is also facing a crisis. During the period of high economic growth, shipbuilding was Japan's flagship industry, attracting top talent and dominating the global market.

However, it gradually lost its international competitiveness due to rising labor costs after the Plaza Accord strengthened the yen, while South Korea and China grew their shipbuilding industries as part of their national policies. As a result, Japan's share of new contracts in the global shipbuilding market in 2024 stood at a mere 8%.

In 2023, 57% of all shipbuilding orders by Japanese owners were placed in shipyards outside Japan. In 2024 the figure had dropped to 37%, but that's still too high, according to Nagasawa.

"At the very least, we must ensure we can build our own ships needed to transport what Japan requires. Given the current international situation, we can't predict how any country might act," Nagasawa warned.

He then emphasized that strengthening the "maritime cluster," which joins Japan's shipping, shipbuilding and marine equipment manufacturers, is an urgent priority for the nation's economic security. Collaborations are already underway within and among the related industries, focusing on moving beyond competition to build a solid foundation that will protect the nation's future.

An illustration depicts the Luna Pathfinder, a large liquefied petroleum gas carrier equipped with a dual-fuel LPG-ammonia engine, which is scheduled to set sail in 2026. NYK

One such initiative is the joint study started by seven leading shipping and shipbuilding companies to establish standard specifications and designs for liquefied carbon dioxide carriers. Nagasawa hopes to use this partnership as a starting point to attract talent for developing new technologies and next-generation vessels.

The companies hope to collectively create an appealing environment for research, development and manufacturing that will attract highly skilled professionals more efficiently than each company could individually.

Nagasawa also pointed out that in addition to these large corporations, there are shipbuilding companies of various sizes — including family-run businesses. Rather than all of them competing on price by producing the same products to meet the needs of every client, Nagasawa believes it is crucial for these companies to specialize in their areas of expertise and divide roles.

He said, "This is a necessary shift to strengthen the entire industry so that we can gain cost competitiveness against overseas companies." He believes it is possible to create such a system not by imposing it, but by establishing a self-governing "order" within the industry — something Japan excels at.

The shipping and shipbuilding industries are also facing a new challenge: responding to climate change. In October, the International Maritime Organization aims to formally adopt measures, including a new fuel standard for ships and a global pricing mechanism for emissions, in line with its goal of reducing greenhouse gas emissions from ships to net zero by or around 2050.

Nagasawa explained that the industry is accelerating its shift toward using liquefied natural gas and methanol as fuels instead of conventional heavy oil, while also pursuing research on technologies utilizing ammonia, biofuel, hydrogen and wind power. Earlier this year, NYK successfully conducted demonstration tests of an ammonia-fueled tugboat, and the company is participating in a coalition of several companies currently building an ammonia-fueled vessel to transport ammonia, scheduled for completion in 2026.

"Research is also underway within the industry on methods to capture and store carbon dioxide aboard ships," he said, emphasizing the need to research and develop a wide range of technologies, since there is no single solution to achieving net-zero carbon emissions.

Nagasawa believes that achieving outstanding results in these fields is the best way for Japan's maritime industry to regain a strong global presence.

"We should make it a national policy to use green technology to secure the top share of the market for new-generation vessels, as well as 20% of the global share in shipbuilding overall," he said.

Seizing the moment to build our industry's green future

YUKITO HIGAKI
CHAIRMAN OF THE SHIPBUILDERS' ASSOCIATION OF JAPAN

Japan, a maritime nation surrounded by the sea on all sides, relies heavily on marine transportation for much of its trade. The shipbuilding industry, which constructs vessels for marine transportation, is especially key for the nation's economic security.

Furthermore, Japan's shipbuilders collaborate with companies in many related industries, such as marine engine manufacturers, and procure 90% of components from domestic suppliers. Most shipyards are in rural regions, supporting local economies and employment. The shipbuilding industry is therefore indispensable for Japan.

Globally, the future remains uncertain due to ongoing tensions in Ukraine and the Middle East, and a series of tariff hikes by the U.S. administration of President Donald Trump. However, from a medium- to long-term perspective, maritime cargo volume has been constantly increasing, and we expect this growth will continue.

The International Maritime Organization is discussing implementing a legally binding framework to reduce greenhouse gas emissions from ships globally, with a target of achieving net-zero emissions by or around 2050. We expect this will further stimulate construction orders for ships, especially those using next-generation alternative fuels. We think Japan's shipbuilding industry will be able to grow by steadily capturing this demand increase.

Given the IMO's greenhouse gas emission targets, it is urgent to introduce alternative fuel measures now. Japanese shipbuilders must bring all our efforts together for research and development, speed up construction of zero-emission ships and promote their adoption. The government has set a target for Japan's shipbuilders to achieve the top share in the global market for next-generation vessels in the 2030s.

On the other hand, there is increasing uncertainty in the international shipbuilding market. Last year, as more ships were built globally, China's shipbuilders, which received generous support from Beijing, accounted for over 70% of the global total shipbuilding order volume and over 50% of the global total ship construction volume, while South Korean counterparts accounted for nearly 30% of the global total construction volume. By contrast, the combined market share for Japan's shipbuilders decreased.

Furthermore, there have been a series of developments with significant implications for the shipping and shipbuilding industries, including bilateral tariff talks and the planned port fees on China-related vessels under the second Trump administration. In addition, Trump's administration aims to revive the U.S. shipbuilding industry.

In this time of major changes in Japan, the shipbuilding industry is attracting greater attention than in previous years. This can be seen in the Basic Policy on Economic and Fiscal Management and Reform that was recently adopted by the Japanese Cabinet, and the Liberal Democratic Party's emergency proposals to revitalize Japan's shipbuilding industry.

Using the government's support, we in the shipbuilding industry are working closely with shipping companies, marine equipment manufacturers and other parties to achieve the global top share of next generation vessels. At the same time, we aim to work to increase the presence of Japan's shipbuilding industry so it can achieve a 20% share in the global market.

Specifically, we in the Japanese shipbuilding industry, with the government's support, continue the efforts to develop next-generation ships, including zero-emission and autonomous ships. We also promote a shift toward shipbuilding that puts digital technology to greater use with capital expenditure support for shipbuilders and marine equipment manufacturers through GX (Strategy for Promoting Transition to a Decarbonized Growth-Oriented Economic Structure) transition bonds.

In anticipation of introducing new fuels, we intend to promote collaborative projects within our industry to strengthen resilience in competing with rival nations, while working with the shipping and the marine machinery and equipment industries to bolster the supply chain.

Examples of projects that are already underway include a joint project by seven shipping and shipbuilding companies to establish standard specifications and designs for liquefied carbon dioxide carriers and another by three shipbuilders to establish a construction plan for liquefied hydrogen carriers.

In addition to updating equipment, expanding construction volume will require various measures to secure and develop a skilled workforce, which is a critical issue. Beginning in the second half of the 2010s, the number of employees at our association's member companies was falling as workload declined, but the figure turned upward a few years ago and has continued to increase to above 40,000. Demand is expected to remain resilient going forward, making it necessary to increase hiring.

Each of our member companies is actively working to improve work environments and raise wages. In addition, we aim to strengthen efforts to highlight the appeal of the maritime industry to the younger generation and actively hire personnel by collaborating with schools, municipalities and the central government.

We expect demand for new ships will increase, driven by expected moves to transition to zero-emission ships under the IMO 2050 target and future economic growth. I am certain that Japan's shipbuilding industry will seize this opportunity to reemerge as an attractive sector and grow as an important key industry for the nation.

The shipbuilding industry will contribute to the economy and security of Japan and the world and, together with many related industries, will support regional economies and employment as an industry closely tied with local communities.

A conceptual image of an ammonia-fueled medium gas carrier NYK

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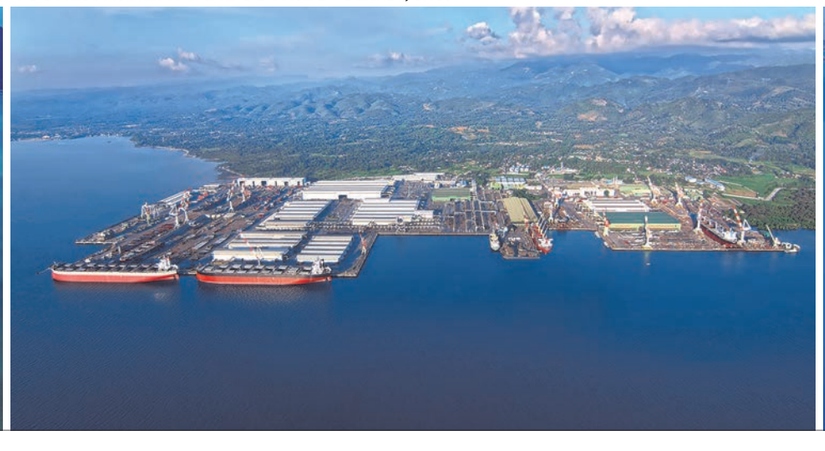

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