

Wrap-up of workshop series: Transboundary supply chain development in Asia from the perspectives of ports in Japan, Taiwan and Vietnam

- Date and time: October 13, 2023 12:00-14:15 (JST)
- Host: Institute for Future Initiatives (IFI), University of Tokyo
- Venue: Global Offshore Wind Summit Japan (GOWS-J) mini-session in AIM building, Kitakyushu, and Microsoft Teams

<Speaker and participants>

Guest Speaker

- Mr. KAZAMA Toshio, Japan Desk, Ba Ria - Vung Tau, Vietnam
- Mr. KAWASAKI Takayuki, Port and Harbor Bureau, Kitakyushu City, Japan

Presentation

- Lessons learned from the past workshops
- Possibilities of transboundary supply chain development

Participants

- Japan
 - Port authorities
 - Researchers
- Taiwan
 - Developers
 - Researchers
- Vietnam
 - Japanese representatives for cooperation in port development
- And other participants of the GOWS-J



<Highlights of keynote presentation>

Mr. KAZAMA Toshio

“Ba Ria - Vung Tau Province in Vietnam - the best place for offshore wind power component supply chain”

- Introduction of Ba Ria - Vung Tau (BRVT)
 - Located in the center of the ASEAN region, which has a larger population than Europe or the U.S.
 - A central port of the Southern Key Economic Zone in Vietnam, which has a 40% share of both FDI and import/export volume within Vietnam, and double the average GDP per capita of the nation (7611 USD excl. oil, and 13,989 USD incl. oil)
 - Has many industrial strengths, such as extensive port services in Cai Mep Thi Vai Deep-sea Port, stable water and power supply, and abundant energy resources as well as experience in offshore oil and gas
 - Deep-sea port has container terminals, liquid jetty, bulk/general terminals, and LNG terminal
 - Has more than a 70% share of Vietnam’s electric furnace steel production
 - Many large scale petrochemical plants currently/to be operated
 - LNG terminal in operation from 2023, aiming for 3 million t/yr import capacity
 - Southern Key Economic Zone includes Ho Chi Minh and other provinces which have many downstream industries such as electronic component processing
- Offshore wind supply chain
 - Is large, consisting of roughly 20,000 components to each windmill
 - Vietnam’s SRE Co. Ltd. has onshore and offshore wind tower construction and related capacities
 - In Vietnam, the PDP8 aims for 18.0 GW by 2030 and 60.6 GW by 2045
 - Several areas in the inland of BRVT can be considered for manufacturing and assembly
 - PTSC, a member of Petrovietnam, signed a MOU in 2022 and a Joint Development Agreement (JDA) in 2023 with Sembcorp Utilities Pte. Ltd. of Singapore to invest in offshore wind in Vietnam and export it to Singapore via subsea HVAC cables.

Mr. KAWASAKI Takayuki, Port and Harbor Bureau, Kitakyushu City, Japan

“Green Energy Port Hibiki” Project Past Twelve-Year Foot Print and Future

- Introduction of Kitakyushu
 - Located as a gateway of Japan to East Asia
 - Industrialization started in 1889, including steel, petro-chemical, robotics, etc.
 - Port capacity includes RoRo/PCC, Multi-purpose terminals (container and conventional), air cargo terminals, and container terminals
 - Industrial pollution escalated in the 1950s, but the city has since recovered and was nationally selected as a Eco-model City in 2008
 - Also listed in OECD’s “Green Cities Program” and the “SDG’s Future Cities” of Japan
- National government policy

- Targets: set 10 GW of clear targets by 2030, 30-45 GW by 2040 (includes floating)
- Base port (=installation port) construction underway at four locations, and a review of the necessary functions and specifications of ports in the future is ongoing
 - Kitakyushu is the only port in West Japan
 - Financing of:
 - Quays and pre-assembly yard: State and City
 - Storage yard: City
 - Industrial land: City
- Green Energy Port Hibiki: started in 2011, aiming to create new green energy industries leveraging the port
 - Numerous renewable energy projects including onshore wind (commissioned in 2003), hybrid power station with 2.5 MW PV and 5 MW wind (multiple components incl. turbine components supplied within Kitakyushu)
 - Local companies have good track record of handling large/heavy components
 - Offshore wind
 - Largest offshore wind project (total capacity 220,000 kW, marine area 2,700 ha), developed by Hibiki Wind Energy Co., Ltd.
 - Development initiated by City Government, holding public tender in 2016
 - Full commercial operation from 2025
 - Aiming to create a wind industry hub with manufacturing, construction, and logistics services, supported by existing wind industry cluster
 - More than 50 ha of land reclaimed for commercial and demonstration use of offshore wind, with base port construction ongoing
- Challenges and further goals
 - Increasing the size of offshore turbines at an accelerating pace
 - More collaboration between public-private actors may be necessary to overcome this challenge
 - Developing next-generation floating offshore wind turbines
 - “Hibiki” floating demonstration project developed in cooperation with the national govt, in operation since 2019
 - To be a value increasing port, Kitakyushu will leverage its strengths as an industrial hub and port to become a center for sustainable offshore wind development

Note) For details of the presentation, see the uploaded slides.

<Discussion points for the development of leading ports>

Q: In BRVT, are there already concrete plans for developing ports for offshore wind services? Who is the developer? What is the funding source?

- Cai Mep Ha is a 800 ha area being considered for development in the form of a free trade zone. Areas further upstream are already developed, and there is no space for large development.
- The department of transport and the department of trade and industry at the provincial government is jointly leading this development.
- They are currently conducting a feasibility study, and they aim to propose this plan to the central government within this year.

Q: What do you think will be the biggest challenge in BRVT?

- The biggest challenge: we are convincing the national government that we need to find the manufacturers and investors to realize the offshore wind farms planned to export to Singapore. It will require over a hundred units of turbines, and will be a big project of roughly 10 billion USD. Concrete discussions are not being done yet, and will be one of the key challenges.
- We are still at a very initial stage, both for power development and component manufacturing.
- Additionally, there is the difficulty of the absence of a big player in Vietnam. There is only GE, assembling small nacelles in Hai Phong, by importing small components from China. It will be necessary to attract such key players to BRVT.

Q: Regarding industrial development policies in Japan, what do you think is the most important thing to be discussed at the national level, from Kitakyushu's perspective? Especially considering that the second industrial vision is being formulated now, what do you think should be incorporated into such policies?

- As a personal opinion, the first would be a strategy against the upsizing of turbines, and the second would be floating systems, third would be the efficiency of turbine manufacturing and installations.
- In this regard, as a port developer, we need to think much more about the dimension of the yard and the location of berths, as these are crucial to the points just raised.

Q: In BRVT, who owns the port area?

- It is owned by the government. Presently, the developing rights are owned by the local government, and will be sold to developers in the future.

Q: Is BRVT the only case where port development for offshore wind is being considered? Or are there plans for other ports at the national level?

- It is a case by case issue. For example, in relation to the PTSC-Sembcorp agreement, there are plans to develop a 10,000 ha area close to BRVT.

Q: Is offshore wind regarded positively in general in Vietnam?

- Maybe it is not very popular in Vietnam. Maybe it is not known very well, because it has just started, and there is only one small demonstration project, just on the other side of BRVT.

- Even so, the government has very ambitious figures of power development targets, and offshore wind is a good solution for renewable development, so the government may accelerate efforts for promotion.

Q: Who is most active in promoting offshore wind in Vietnam?

- It is the national government.
- Also, PTSC has a lot of experience in offshore oil and gas rigs, so it is very easy for them to move on to offshore wind. Hence, this company has a very strong concern.

Q: Is there a high awareness of the green transitioning at the provincial level in BRVT?

- At the moment, I think the government does not have a very good understanding or awareness.
- Is it fair to say that the provincial government is attracted most to the economic growth that it will bring? -> yes.
- Last March, the Provincial Department of Trade and Industry was not particularly keen or aware of offshore wind. However, now that PTSC has actually signed a contract for exports, they are becoming aware of the benefits of power production and component manufacturing.

Q: In Vietnam, are there many initiatives for human resource development or R&D, especially in collaboration with universities or academia?

- No, actually your project is the only academic approach we have received.

Q: Kitakyushu is very special, because it has its own history of overcoming industrial pollution to a city of green development. Who led such movements toward green development? Is there much collaboration with academia?

- Our environmental policy has a very long history.
- Back when we started developing as an industrial city, there was much gray skies and coloured seas, due to pollution. And everyone was proud of such phenomena, calling it the “symbol of prosperity”.
- However, housewives stood up and appealed to the government to give them back their living environment for their children and husbands.
- Such efforts were undertaken with the cooperation of both public and private sectors and academia.
- This is why our environmental policy has a very broad agenda. Not only pollution control but also waste management, recycling, education, international cooperation, and many other fields are included in our environmental policy.
- This long history has become the citizens’ identity in Kitakyushu, and they think the green transition and sustainability are very important for the next generation. This is why many citizens support our offshore wind policies.

Q: Will tax incentives be introduced for offshore wind in Kitakyushu or BRVT?

- Tax incentives from the government would be very helpful for businesses at the start of their development. After the initial stage, continuous incentives are also desirable.

- Developers want a business that lasts 5, 10 years and more. It is important that the government, industries, and developers share this image.
- Tax incentives are good to encourage large investments. In Vietnam, corporate income tax is low if the development is large (over 270 million USD), or is a renewable energy project, etc. However, the global minimum tax rates will be applied in Vietnam from 2024, and maximum incentives allowed will be 15%. This may be a problem when we try to invite foreign investors.

Q: Do you talk with other regions in Japan that are developing offshore wind, such as Yurihonjo or Choshi?

- Yes, both formally and informally, we conduct much information sharing.
- In Japan and also with ports outside of Japan, the cooperation is still at the level of information exchange and communication.

Q: Ports in Kitakyushu are owned and managed by the City?

- Generally Japanese ports are developed, owned and managed by the public. This is the case in Kitakyushu as well.

Q: In Vietnam, is there a role of the party when communicating or coordinating political issues?

- To my knowledge, there is no special role. Of course, if the local government administration conducts the feasibility studies for the FTZ, the results will have to be approved by the local legislative body, that is the local communist party, before sending it to the central government, where ultimate decision making will again be the role of the communist party.

Q: What do you think is the biggest obstacle to port to port cooperation (either bilaterally or in the form of a “Ports Platform” like in Europe)?

- As a personal opinion, the biggest obstacle is the policy of countries. For example in Europe, the market, suppliers, developers, everything is shared, regardless of nationality. This is not the case in East Asia where each country is focused on their domestic market.

<Highlights of free discussion on transboundary supply chain cooperation>

(Note: Blue highlights added for readability)

Importance of East Asian market integration

- The Asian market is very fragmented, and this is impeding our offshore wind development. This is the most important topic for the industry right now.
 - For example, in Taiwan there is one heavy lift vessel, which has priority berthing in Taiwan due to domestic laws. However, this vessel has not signed a contract with any of the projects in Taiwan, because it has monopoly. No one can sign a contract with any international vessels as long as this vessel does not sign with somebody. This factor is further aggravating the present lack of vessels. Meanwhile, the laws of other nations also make it almost impossible for the vessel to compete internationally, meaning that this vessel is forced to use monopoly to reap the most out of its domestic market.

- This is all about the overly protective policies of East Asian nations. If we could reach an agreement that such laws can be exempted for each other in the case of offshore wind development, it would greatly improve the cost competitiveness and speed of development.
- It seems that people do not realize that we are actually not in a competition against each other, but against the European market. In the European market, components and services flow much more freely, and people can use the best of what the market can offer.
- Such market integration is necessary, and involves both private sector developments and national-level policy arrangements, such as the relaxation of cabotage restrictions.
- Governments of East Asian nations should work towards some kind of agreement to allow the creation of a regional value chain. Currently, such cooperation in the private sector is almost impossible.

Difficulty of private sector cooperation for new investments\developments

- International "cooperation" or international trade for existing products and services is very feasible and already being undertaken
- This is true for existing projects in Kitakyushu as well.
- However, "cooperation" for new development is entirely different and probably quite difficult. The norm of businesses is that those who have the capital will develop it - that is fundamentally an issue of competition, and cooperation strategies will not make immediate sense for such actors.
- At the same time, it is will probably be too late if we have this conversation in 5 years (or whenever the initial developments are already in progress within each nation)

Possibilities of cooperation in East Asia and strategic concessions

- If you want to form a collaboration including South Korea, you will have to give up floating systems, because they are very very keen on them. Cooperation in supply chain development would entail such kind of strategic concessions.
- South Korea has multiple demonstration projects in collaboration with global manufacturers off the Port of Ulsan, aiming for commercialization with a concrete roadmap. They are much more determined than in Japan.
- At the same time, offshore wind has a much higher BOP rate than onshore. There are many components of a floating offshore wind farm, such as cables, mooring lines, etc. other than the jacket component that South Korea is currently pursuing. This means there is still room for regional optimization/coordination of the supply chain.

Importance of market development

- Market development is crucial for industry development. There is much more that has to be done for market development.

Domestic policy influences

- In East Asia, there is often a large political influence on offshore wind development, with policies flipping from pro-renewables/offshore-wind to pro-nuclear or pro-fossil fuels and vice versa, since the political polarization of the energy agenda is still much stronger than in Europe or other regions.

- Developers, including ports, need to be aware of such political risks

Future changes in turbine/operation models

- While upsizing turbines is presently the most obvious solution to increasing profitability of offshore wind farms, I believe that this trend will eventually come to an end. There already are discussions in the EU about **limiting the maximum size of turbines**.
- While the wind energy obtained from turbines theoretically increases by the square of blade size, larger blades and taller towers also means the system will have to bear even larger increases in structural load and is more susceptible to failures. It also means that taking one turbine out of operation will have more impact on the total profitability compared to a system comprised of many smaller turbines.
- Solar PVs have established a market by stabilizing the panel size and decreasing costs through scaled production.
- While such points are fairly apparent, global OEMs are still continuing the race to larger turbines.
- One idea may be to initiate **R&D of smaller, shorter turbines with increased operational efficiency**, for example by decreased wake interference or the optimal configuration of turbines. This could be done for example by Kitakyushu lending land to manufacturers/developers and encouraging R&D.
- There is some university-level research on wake models in Kitakyushu. This could be a possibility.

Objectives and strategy of international supply chain participation

- Japanese government and industry should think hard about how to set the aim and strategy of international offshore wind supply chain participation.
 - For example, is it really necessary to participate in the offshore wind supply chain as soon as possible? The technology is large and heavy but not alien. What do we risk by waiting?
 - One thing we risk by relying on foreign suppliers is the stability of operations and national security. Geopolitical situations may arise where we cannot receive spare parts or other necessary services to fix broken turbines, which could be a threat to stable production. Developers and OEMs around the world are more aware of this risk recently.
 - Smaller turbines (which break less and are easier to fix) may also be more attractive from this viewpoint of energy security.
 - **A comprehensive, risk-informed strategy is crucial but lacking** in Japan.
 - It is important to remember that many of the smaller suppliers do not have incentive to “increase domestic procurement rates”. The interest in offshore wind supply chains is not that high (yet), and there is a good reason for this.