India-Japan Environmental Business Promotion Seminar: Exploring Collaboration Opportunities toward Decarbonized and Sustainable Society in India

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The Ministry of the Environment, Government of Japan (MOEJ) held an Environmental Business Promotion Seminar titled 'Exploring Collaboration Opportunities toward Decarbonized and Sustainable Society in India' in New Delhi on 4th March 2025 in partnership with Federation of Indian Chambers of Commerce and Industry (FICCI); Japanese Chamber of Commerce and Industry of India (JCCII); Kansai Research Centre, Institute for Global Environmental Strategies (IGES); and Overseas Environmental Cooperation Center, Japan (OECC).

The seminar was held to provide information on technologies and initiatives that contribute to solving India's environmental problems and building a sustainable society. In particular, the seminar focused on sharing information on the Joint Crediting Mechanism (JCM) program, the project development process, good practices and promising Japanese technologies. The panel discussion focused on the potential for cooperation between Japan and India in realizing a decarbonized and sustainable society, and the role of technical cooperation in India's transition to a net-zero society. Furthermore, business negotiations between Japanese and Indian companies were held during the business networking session to explore new business opportunities.

Morning session: Outline of the Joint Crediting Mechanism and its case studies

In his opening remarks, **Mr. IINO Satoru, Director, Office of International Carbon Market, Global Environment Bureau, Ministry of the Environment, Government of Japan (MOEJ)** began by thanking all the organisers and partners. Then, he outlined the programme by highlighting the significance of the day as an opportunity to learn and exchange opinions to utilise the JCM framework across sectors in India. Lastly, he emphasised the importance of starting preparation to implement the JCM at the business level without waiting for the signing of the agreement by both governments.

Mr. R. R. Rashmi, Distinguished Fellow of the Energy and Resources Institute of India (TERI), delivered a keynote speech titled "India's energy and decarbonization policies and potential fields for decarbonizing projects". Firstly, he discussed India's current state of GHG emissions and indicated that the projection is to hit 8 billion tons by 2050, along with increasing energy demand, calling for possible

collaboration in order to achieve a net zero target of 2070. Secondly, he proudly highlighted India's remarkable progress in achieving the short-term target of NDC (Nationally Determined Goals). He also introduced various policy decarbonisation measures implemented across the sectors, including the carbon market development in India. He urged both governments to voice to include renewable energy and energy efficiency in the global carbon market. Lastly, he highlighted the possible areas of collaboration in cleaner technologies, hydrogen, carbon capture, utilization capacity building in terms of Article 6 etc.

Four presentations were made in the session of **Introduction of Joint Crediting Mechanism (JCM) Scheme and JCM Project Development**. **Mr. Kohei Kiname, MOEJ** explained the basic concept, mechanism, process, financial programme, and new policy development (introducing one focal point) of the JCM and introduced some potential projects that could be implemented in India and fit into the 14 eligibility list under Article 6. He also highlighted the importance of JCM for achieving Japan's NDC and implementing GX ETS. **Mr. Takahiro Murayama, ADB**, briefed the ADB's work on the carbon market, followed by giving an overview of the Japan Fund for the Joint Crediting Mechanisms (JFJCM) as a financing mechanism for advanced low carbon technology dissemination. He explained the eligibility criteria (member countries, type of project and technology), and introduced the existing projects in Mongolia and Maldives. **Mr. Daiki Nose, Pacific Consultants**, as a secretariat, introduced the **JCM Feasibility Studies**, including its aim, eligibility, budget, application process, and duration. While a Japanese company is only eligible to apply for the feasibility study, he also briefed that 4 projects have been implemented in India. **Ms. Nene Fukizawa, Overseas Environmental Cooperation Centre (OECC)**, gave two examples of the existing project development with the local partners in the Philippines and Vietnam, and highlighted how it benefitted the reduction of GHG emission, electricity cost, production cost, and localisation.

The last session in the morning was **Introduction of JCM's Best Practices in JCM Partner Countries**. **Mr. Gen Takahashi** showcased **JFE Engineering**'s unique and successful *Waste to Energy* project in Vietnam. JCM contributed as one of the innovative financing schemes that they adopted to allow them to embark on a project that involved high initial cost investment and advanced environmental technology. He also pitched to the Indian audience by introducing that the current technological innovation by JFE Engineering through the JCM well aligns with India's focus on CCUS technology. In his response to an audience query, he explained that the combination with the closure of methane gas-producing open dumping/land fill sites benefits greatly for the reduction in pollution. **Mr. Francisco Carlo L. Santos, Energy Development Corporation**, began by introducing the company and geothermal value chain to highlight the exploration and operational challenges for geothermal plants such as cost, duration and technology in the Philippines. He emphasised how an international consortium with Japanese companies through the JCM enabled them to implement the project to develop plants. **Mr. Osamu Iwamoto, Mitsubishi Corporation India**, discussed their application of the JCM Feasibility study of compressed biogas technology The JCM is shown to provide benefits on additional revenue streams through the carbon market in Japan. The so-called private JCM scheme by joining a project will permit to gain higher returns as the Japanese government will introduce the

compliance market next year. The Indian company who have a JV with a Japanese company can also be involved in such a scheme. There was a question regarding the quoted number of the potential savings of the GHG emission, and he responded by referring to the JCM methodology is yet to be approved.

Afternoon session: Introduction of decarbonised technology, Panel Discussion, and High Level Speech

Introduction of Technology

In the session of **Potential Projects Stimulating Green Economy Investment in India**, seven companies made presentation on environmental technologies that can contribute to solving India's environmental challenges and building a sustainable society.

After **Mr. Sambit Mohanty, Kanadevia India Private Limited**, briefly introduced the company profile, he mentioned 3 waste to energy projects implemented in India. Kanadevia holds the carbon capture technology and has the first carbon capturing plant in the world from waste to energy in Japan, transforming carbon dioxide to methane, and to generate green hydrogen. Further, he introduced 3 decarbonisation products of catalysts, hydro spring electrolyser, and zeolite membrane.

Mr. Takashi Sakano, IHI Corporation, introduced two new technologies related to the green ammonia value chain and hydrocarbon production from CO_2 and hydrogen. IHI owns the coal fire plant, turning the ammonia directly into power at a commercial scale with the low cost. He also referred to the development of a heavy-duty gas turbine jointly developed with GE that runs on liquid ammonia by successful NOX control. He also introduced other technologies that IHI is working on, including a large ammonia storage tank and a product of catalyst, etc. to produce e-methane. The commercialisation of the methanation system with JFE steel would contribute to the decarbonisation of the hard-to-abate sector and entering into the new market.

Mr. Rei Kimura, Mitsubishi Heavy Industries Ltd., talked about their decarbonising product line, such as hydrogen and ammonia firing gas turbines and hydrogen direct deduction furnaces. Regarding the main focus of carbon dioxide recovery (CDR) technology, he explained the mechanism of their core technology of post-combustion flue gas capture that permits one-stop CCUS solution service in detail. In India, it is used in the fertiliser plants.

Mr. Vikash Sharma, Indiahub E-Governance Private Limited (Farmdo Group) discussed their current work, plans and needs to introduce community solar agrivoltaics and storage system in India. He highlighted that JCM would aid the project through financing, the Japanese battery technology, and integration of renewable energy and grid stability. He further specified the needs of business model for selling energy and introducing smart/AI meters.

Mr. Kunal Soni, Horiba India Private Ltd., introduced the company's presence in India for the past 2 decades, and latest developments in three major areas and respective progress and products: bio and healthcare (diagnostic reagent, instalment manufacturing, medical facility), materials and semiconductor, and energy and environment (water, air pollution monitoring). He also highlighted that Horiba is innovative to keep introducing new product lines and solutions, and their entry into hydrogen and available integrated solutions for contributing to the realization of carbon neutrality through energy management by providing combustion control monitors, amine solution measurement analyzers, etc.

Mr. Ravi Mishra, TLV India India Private Limited, introduced their flagship product, the steam management system (SSOP) that optimises the steam use to achieve energy efficiency. He also gave an elaborate explanation of the Trap Management System (TMS) Survey that is used for condensate discharge location management and explained that steam energy management is often overlooked, but continuous detailed energy conservation efforts is important for energy conservation..

Mr. Hiroki Nakajima, Nippon Steel Corporation, referred to the localised production based on over 100 years of presence in India. He introduced their advanced decarbonisation initiatives related to the blast furnace process, utilising hydrogen, which is yet to be applied in India, while their existing Coke Dry Quenching (CDQ) for waste to heat (steaming) has been the world largest operation in the world and 12 units of order came from India. He further shared the technologies customised list (TLC) for 79 technologies developed by Japan Iron and Steel Federation.

Panel Discussion

Dr. Satoshi Kojima, IGES, opened the panel discussion with 6 panelists, referring to the collaborative work of JITMAP with TERI.

Mr. Milind Deore, Bureau of Energy Efficiency, Ministry of Power, Government of India, referred to the long-term collaborative work between Japan and India on energy efficiency and its immense benefits, particularly Perform, Achieve and Trade (PAT) scheme. The Bureau of Energy Efficiency attracted large-scale investment (10 billion USD) and reduced CO_2 emissions (100 million tons). To achieve short-term 2030 goals, Japan helps the low carbon technology path of India (Nippon Steel was mentioned), and the development of energy conservation guidelines for large industries and MSMEs

(with the Energy Conservation Center, Japan). He also referred to the launching of the domestic carbon market in 6 months in phased manner.

Mr. Satoru Iino, MOEJ, reiterated some of the existing collaborative actions such as the JITMAP and energy conservation guidelines. He is confident that the future collaboration will serve not only technological development but also improvement of people's lives and economic development. The areas of collaboration he mentioned include; green energy, ammonia, solar with storage, carbon dioxide removal, and waste and water management. He emphasised that the technologies introduced by the corporations in the morning align with the 14 items of the Indian positive list, and carbon credits will be a catalyst for the Indo-Japan collaboration as it is beneficial for GHG emission reduction as well as improving operation and quality of material/energy. The Ministry is committed to the smooth coordination with multi-stakeholders and administrative dealings.

Mr. Naveen Ahlawat, Jindal Steel and Power Limited, introduced 3 approaches of the company for decarbonisation and accompanying commissioned projects. The first is to reduce and avoid CO2 emissions by focusing on the operational excellence of waste to energy, energy efficiency, and management. He emphasised that the small capex with short payback would be sufficient to materialise this. The second is to reduce the carbon intensity through deployment of renewables by 30% at least. These two are the short and medium-term low-hanging targets, and the third is for the long-term, to operationalise CCUS and increase blue/green hydrogen. They will commission the projects; to increase carbon intensity in synthesis gas, to increase the deployment of electrolysers, and to inject synthesis gas into the blast furnaces. He called for the Japanese partners for valorised CO_2 to reduce the carbon intensity and to make chemicals, also to reduce the imports.

Ms. Sugandha Jayaswal, Tata Steel, began by endorsing the points made by the former speakers on technologies in the steel sector, PAT, and the carbon trading scheme. For Tata Steel, she introduced the plans of short-term by 2025 as a shift in business model focusing on electrical arc furnace (EAF), medium-term as maximising exhaust gas recovery, and long-term as switching to hydrogen-based deal making from blast furnaces. She also explained renewable energy development in the sector, regardless of their circularity in the production process for captive power generation. She expressed that the bottlenecks for Japanese businesses are to look into the technologies that are needed in the Indian environment and the intense competition with Chinese and South Korean industries.

Since **Dr. Rambabu Paravastu is co-chair of FICCI/Greenko Group**, he briefly introduced his business on renewable energy and green ammonia manufacturing. Then, he discussed the FICCI's thoughts on decarbonisation, putting it forward to the government before COP26, focusing on Article 6, while highlighting a challenge on the viability gap on international transfer for mitigation outcomes. He further suggested that Japan preferentially offtake India's green ammonia, apart from cooperation in finance and technology. He is of the view that the JCM would help compensate for the high carbon price for some sectors, along with the Indian government's subsidies and incentives. For that, he suggested a collaborate work on carbon induced portfolio.

Mr. Akito Takahashi, JICA, gave overview of the JICA's extended support for environmentally sustainable economic activities, mainly focusing on infrastructure development in the areas of renewable energy generation, EVs, and water sectors. JICA also attempts to mainstream investment in clean and energy efficient technologies. He also introduced a Public Private Partnership scheme to support Japanese companies in availing the information on the Indian market through the SDGs Business Supporting Survey.

Finally, Dr. Kojima wrapped up by referring the insightful input by the panelists, and closed the session.

High-level Speech

The last session was the high level speech.

The first was by **Mr. Manish Sharma, Panasonic Life Solutions**. At the beginning, he introduced Panasonic's business philosophy and recently announced "Green Impact" to achieve sustainability goals by 2030 and 2050. Then, he delved into the *Resource Efficiency and Circular Economy Industry Coalition* (RECEIC[1]) that he leads, from inceptions (backdrop of G20), ideas, to actions. Realising the knowledge/action gap among large corporations and MSMEs, the coalition has been working on sharing insights, case studies, and benchmarks to enhance participation by small businesses in the decarbonisation process, which is led by companies like Hindustan Petroleum. He also mentioned that the coalition is also working on finding out challenges, looks at policy recommendation, and measures progress. He also extended an invitation to the Japanese companies to join the coalition. For enhancing the private-public partnership, he is of the view that what is required is a very strong objective collaboration and a time bound action plan. By giving an example of energy security, he indicated that supply chain de-risking is essential and energy transition per se is not sufficient. Here, he indicated that Japan's understanding of the supply chain would benefit in pushing forward the common agenda of sustainability.

After the speech, Mr. Manish Sharma handed over the Green certificate to **Mr. Yutaka Matsuzawa, MOEJ**. Mr. Matsuzawa began his speech by thanking all the organisers and highlighted the active participations by all the stakeholders that exhibits strong interest and partnership. He then referred to the Japan's recent update on NDC and its importance of private-public partnership through credit

[1] https://receic.com/

mechanisms. While he recognises the great potentials in India for energy efficiency in the industrial sector, green hydrogen, waste management and biogas, he continued to summarise briefly each presentation by all the speakers. He concluded his speech by reiterating that the establishment of the JCM framework between Japan and India is crucial to catalyse the investment from Japan to India.

To view further details on the event including presentations and videos, please visit **http://carbon-markets.env.go.jp/en_info-2/en_info_event/y-2025/20250304/**