

**Minutes of the meeting with the team members of the delegation from
Japan for setting up a waste held on 12.08.2024**

List of Participants

Ms.Mihoko Nagai, First Secretary, Embassy of Japan in India.

Prof.Minoru Fujii, Section Head, National Institute for Environmental Studies, Japan.

Mr.Kazushi Hiraoka,Senior Engineer,Hitachi Zosen,Japan

Dr.Seiya Maki,Senior Researcher,Social Systems Division,NIES,Japan

Dr.Makiko Doi,Chief Researcher,EX Research Institute Ltd

Dr.Remi Chandran, Visiting Researcher, NIES and Senior Expert, Remote Sensing Technology Center of Japan.

Sri.Seeram Sambasiva Rao IAS, Principal Director, LSGD

Sri.Suraj Shaji IAS, Director of Urban Affairs.

Dr.Divya S. Iyer IAS, Project Director, KSWMP.

Sri. U.V.Jose IAS (Rtd.), Executive Director, Suchitwa Mission.

Sri.George Thomas, CGM, BPCL

Sri.S.K.Varshney, DGM, BPCL

Smt.Sheela A.M., Member Secretary, Kerala State Pollution Control Board.

Smt.Bincy B.S., EE, Kerala State Pollution Control Board.

Sri.Krishna Kumar S., GM, Smart City Thiruvananthapuram Limited.

Sri.G.K.Suresh Kumar, MD, Clean Kerala Company Limited.

Meeting commenced at 10.30 AM with the Additional Chief Secretary, LSGD in Chair to discuss the proposal submitted by the Japanese delegation to set up a 300 TPD Waste to Steam (W2S) plant at Brahmapuram.

After the welcome address, the following details were presented by a team member of the Japan delegation.

- Waste to Energy plants use dry waste fraction of municipal solid waste and produce renewable power with maximum reduction of waste volume utilizing least space in execution in compliance with SWM Rules 2016 and fulfil all the statutory norms of environment protection. Waste to Energy and bio-methanation projects will integrate the concept of circularity in waste management by producing green energy from both dry and wet waste components of municipal solid waste. The by-products such as electricity and bio-CNG will also help in achieving sustainability of waste management operations. The Waste to Energy initiative is important for managing dry waste and complements another initiative of producing CBG from wet waste.
- It was Japan which started to advocate the concept of '3R' internationally. At the same time, Japan has an edge in treating solid wastes with the process of 'Segregation, incineration and final disposal'. Environmental Quality Standard in the ambient air for dioxins is 0.6 pg-TEQ/m³, and all the tested points nationwide (584 points) cleared the standard in 2021.
- In South Eastern Asian Countries' case, WtE construction often takes international finance such as from World Bank Group etc. Sometimes the Joint Crediting Mechanism (JCM) is additionally applied. Operation and management poses a financial challenge, too. Maintenance of furnace, sorting out non-combustible wastes etc. takes operation cost. Activities finalised to be considered for trading of carbon credits under Article 6.2 mechanism to facilitate transfer of emerging technologies

and mobilise international finance in India', announced on February 2023. Japan Chamber of Commerce and Industry of India (JCCII) submitted the opinion to the Indian Government to expand the applicable business area.

- For Zero carbon future, currently collecting 300 TPD the minimum required amount of waste poses a challenge. In addition, 300 TPD is to replace only the limited amount of heavy oil with waste as a fuel in refinery at BPCL. Increasing the amount of wastes is the key. In future, if wastes are transported from Kerala's various cities in a vessel powered by green hydrogen, it further advances the profile of Kerala and BPCL.
- Waste to Steam and BPCL CBG Projects are two independent projects. In Waste to Steam project, both bio and non-bio waste can be processed.

CGM, BPCL informed that they have had discussion with Japan Delegates about the project, and the steam generated from the project can be used in the refinery of BPCL subject to the quality as required by the BPCL.

ACS, LSGD inquired about the quantity of waste needed and the area of land needed for the project. In response, they informed that a minimum of 300 TPD waste and an area of 10 acres of land is required for the project.

Thereafter ACS explained that the current system for waste collection places the responsibility of bio waste management on the waste generator and for NBD, both individuals and institutions. Waste that cannot be segregated is either sent to cement kilns for incineration or to scientific land fills.

ED, Suchitwa Mission enquired whether all the inert waste and RDF can be absorbed by the plant, that are currently being transported out of the State. If these two components are absorbed, the targeted quantity of waste can be assured. Second question is related to the tipping fee and the financial model being proposed. ACS informed that in the documents provided by

them mentioned the tipping fee as Rs 500 per ton.

ED reminded that as per SWM Rules, bio and non- bio waste cannot be mixed. Therefore focusing on NBD fraction is enough for meeting the demand. The suggestion made by him is that approximately 5% of the total waste generated -around 10,000 TPD- is classified as inert waste. This would mean that about 500 TPD of the total waste in the State is inert that can be used in the plant.

The team also explained the the feasibility study for W2S project and the suggested waste transport system to the refinery from the nearby districts via sea route to increase the capacity of the plant. PD, KSWMP informed that they are planning for a maritime plan in consultation with the Kerala Maritime Board which will cover this aspect also and will be shared once it is finalised.

Joint Credit Mechanism of Japan Government was also discussed. Presently, it is to be signed between the two Governments. Discussions are ongoing. It can be availed only by the Japanese company after signing the Agreement by the two Governments.

Before concluding the discussion, ACS informed that there are five stakeholders involved in the project

- Japan industry with this W2S project
- BPCL
- Kochi Municipal Corporation and other LSGIs
- State Govt:
- Companies that are collecting, transporting and managing the waste and their contractual service providers

Understanding the roles, responsibilities, costs and benefits for each stakeholder would have to be looked at for which a little bit of home work on the part of the State has to be done to understand the business model and its suitability. Before that the team will have to submit a concept note along with the categories of waste acceptable to them, as it is seen that in order to ensure regular supply of waste, bio waste and/or sanitary waste may also have to be provided. The feasibility of bringing all reject waste to this point

would also need to be assessed.

After detailed discussion the following decisions were taken.

- 1.BPCL and Japan team shall work out the modalities and submit a concept note on the way forward.
- 2.The team will submit the waste characterization along with type of waste required for the plant to Government. Based on this, the quantitative analysis from each of the municipalities will be done.KSWMP will share the data of the waste generated by the Urban Local Bodies to BPCL for working out the waste quantification and nature of waste generated that could be potentially addressed if such a system were to come in place.

Meeting ended at 12.00 PM