

**F.No.1/3/2023-PIU**  
**Government of India**  
**Ministry of Finance**  
**Department of Economic Affairs**  
**Infrastructure Finance Secretariat**  
**ISD Division**  
**(PIU)**  
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**STC Building, Janpath, New Delhi**  
**Dated: 7<sup>th</sup> April 2025**

**Record of Discussion**

**Subject: Record of Discussion of the 47<sup>th</sup> meeting of the Empowered Committee (EC) for Setting up of Integrated Solid Waste Management Project for Patna Cluster under PPP mode.**

**Reference: 47<sup>th</sup> Meeting of the EC held on 26<sup>th</sup> March 2025**

**Sir/Madam,**

The undersigned is directed to forward the Record of Discussion of the 47<sup>th</sup> meeting of the EC held on 26<sup>th</sup> March 2025, under the Chairmanship of Secretary (EA), for information and necessary action.

**2. This issues with the approval of the Competent Authority.**

  
**Rahul Singh**  
(Director)

**To,**

- 1. Secretary, Department of Expenditure, North Block, New Delhi-01**
- 2. CEO, NITI Aayog, Yojana Bhawan, New Delhi-01**
- 3. Secretary, Ministry of Housing and Urban Affairs, Nirman Bhavan, New Delhi**
- 4. Secretary, Urban Department & Housing Department, Government of Bihar**

**Copy to:**

- 1. Sr. PPS to Secretary (EA)**
- 2. Sr. PPS to JS (ISD)**

**Subject: Record of Discussion of the 47<sup>th</sup> meeting of the Empowered Committee (EC) for Setting up of Integrated Solid Waste Management Project for Patna Cluster under PPP mode.**

1. The 47<sup>th</sup> meeting of the EC was held on 26<sup>th</sup> March 2025 at 17:15 hrs to consider the proposal of the Urban Department & Housing Department (UD&HD), Government of Bihar, for the Setting up of Integrated Solid Waste Management (ISWM) Project for Patna Cluster under PPP mode.
2. List of attendees is placed at **Annexure-I**.
3. The basic details of the project are given in the table below:

**Table 1: Details of the project**

|  |  |
|--|--|
| <b>Project Description</b>             | Setting up of Integrated Solid Waste Management Project (Processing including Compost, Bio-methanation, MRF cum RDF, Waste to Energy and Disposal Facility) for Patna Cluster  |
| <b>PPP Model</b>                       | Design Build Finance Operate Transfer  |
| <b>Sponsoring Authority</b>            | Urban Department & Housing Department, Government of Bihar   |
| <b>Implementing Agency</b>             | Patna Municipal Corporation (PMC)  |
| <b>Location</b>                        | Bihar, Patna   |
| <b>Project Components and Capacity</b> | <ul style="list-style-type: none"><li>• Waste to Energy- 15-Megawatt Plant</li><li>• 01 Plant 100 TPD for Bio-Methanation</li><li>• 03 MRF cum RDF centers - 250 TPD each</li><li>• 01 MRF of 50 TPD</li><li>• 01 MSW Processing Facility (Compost Plant of 700 TPD)</li><li>• 01 Sanitary Landfill (SLF)- 325 TPD</li></ul> |
| <b>Concession Period</b>               | 22 years and 6 months (including 2 years and 6 months of construction period and 20 years of O&M)  |
| <b>Total Project Cost</b>              | INR 514.59 crore   |



|  |   |   |                     |
|--|---|---|---------------------|
| <b>Estimated Capital Cost with Break-up under major heads of expenditure</b> | <b>S. N.</b>  | <b>Particulars</b>  | <b>INR in crore</b> |
|  | 1   | Compost Plant (TPD) 700 TPD                                 | 77                  |
|  | 2   | Bio-methanation Plant (TPD) 100 TPD                         | 18                  |
|  | 3   | MRF + RDF Plant (TPD) 800 TPD                               | 68                  |
|  | 4   | 1 SLF 325 TPD   | 21.13               |
|  | 5   | Waste to Energy 15-Megawatt Plant                           | 270                 |
|  | 6   | Environmental Cost  | 9.08                |
|  | 7   | Contingency Cost  | 23.16               |
|  | <b>A</b>  | <b>Total CAPEX (Without Soft Cost)</b>                      | <b>486.37</b>       |
|  | 8   | Finance Cost 2% of the Total Debt borrowed by the Developer | 1.59                |
|  | 9   | Interest During Construction                                | 26.62               |
|  | <b>B</b>  | <b>Total CAPEX</b>  | <b>514.59</b>       |
| <b>Estimated Revenue Streams of the Project</b>                              | <b>S.N.</b>   | <b>Particulars</b>  | <b>INR</b>          |
|  | 1   | Processing fee Per MT up to COD                             | 480                 |
|  | 2   | Processing fee Per MT after COD                             | 600                 |
|  | 3   | Plastic Per MT  | 6,000               |
|  | 4   | Metal Per MT  | 7,500               |
|  | 5   | Bio- CNG Per MT   | 65,000              |
|  | 6   | Power Tariff Per unit                                       | 6.38                |
|  | 7   | Slurry Per MT   | 1,500               |
| <b>Source of Financing</b>   | The proposal will be financed through a combination of debt, equity and VGF grant. Other than the VGF, project finance will be done by the concessionaire with the estimated debt-to-equity ratio considered of 70:30.  |   |                     |
| <b>VGF</b>   | <ul style="list-style-type: none"> <li>○ A VGF of INR 154.38 crore, which is 30% of the Total Project Cost, has been requested from the Government of India.</li> <li>○ If the VGF demand exceeds the Government of India contribution (i.e. 154.38 crore, which is 30% of the Total Project Cost), then the State Government will provide the remaining VGF subject to the maximum capping as per the VGF guidelines.</li> </ul> |   |                     |
| <b>Land Acquisition Status</b>   | 100% (86 acres) of land is available with PMC at Ramchak Bairiya, Patna   |   |                     |
| <b>Financial Viability</b>   | Project IRR: 14.01%<br>Equity IRR: 16.95%<br>Project NPV: INR 101 crore   |   |                     |
| <b>Bidding parameter</b>   | Lowest VGF  |   |                     |
| <b>Bidding process</b>   | Single Stage Two Envelope   |   |                     |



4. On behalf of the Chair, Joint Secretary (ISD) welcomed the attendees to the meeting and requested the UD&HD, Government of Bihar, to make a presentation to the EC. With the permission of the Chair, the Secretary, UD&HD made a detailed presentation on the project proposal submitted to the EC.
5. The primary purpose of the proposed project is to set up an ISWM facility of 1600 TPD in Patna. It aims to process and safely dispose of municipal solid waste through technologies, such as waste-to-energy, composting, bio-methanation, and material recovery, thereby enhancing environmental sustainability and compliance with Solid Waste Management regulations. The ISWM facility is to be implemented on a Design Build Finance Operate Transfer (DBFOT) basis. The concession period is 22 years and 6 months, including a two-and-a-half-year construction period. Apart from Patna Municipal Corporation, 11 smaller Urban Local Bodies (ULBs) in and around Patna shall be part of the Patna Cluster, providing waste to the plant. Patna ULB, be the Lead ULB, will supply ~80% of the total waste, and the remaining waste will be provided by other ULBs within the cluster.
6. Under this ISWM facility, the concessionaire will develop and operate facilities including a 15-Megawatt Waste to Energy (WtE) plant, a 100 TPD Bio-Methanation plant, three Material Recovery Facility (MRF) cum Refused Derived Fuel (RDF) centers of 250 TPD each, one MRF of 50 TPD, a 700 TPD Compost Plant, and a 325 TPD Sanitary Landfill (SLF). The Total Project Cost (TPC) is estimated at INR 514.59 crore. With a Tipping Fee of INR 600 per MT and a power tariff of INR 6.37 per Kwh, the mode of selection will be the least VGF demand. Based on the financial modelling, a VGF grant of INR 154.38 crore or 30% of the TPC is sought from the Government of India. However, the Secretary, UD&HD committed that if the VGF quoted by the selected bidder exceeds INR 154.38 crore or 30% of the TPC, the Government of Bihar will cover the remaining balance, subject to the maximum capping as per the VGF guidelines.
7. After the presentation, the Chair asked the EC members for their observations. Department of Expenditure supported the proposal and stated that they have no further comments to offer.
8. Director, Ministry of Housing and Urban Affairs (MoHUA) raised the following observations and suggestions:
  - a) While significant improvements are achieved by the Patna ULB for solid waste management, particularly in door-to-door collection, manpower deployment, and machinery utilization, an adequate solid waste processing facility is still not there. This integrated project will greatly benefit Patna and the adjoining region.

- b) The tender document has been examined by MoHUA. A revenue model based on power tariff only would require the power tariff to be around INR 12 per unit, which is not feasible for DISCOMs. The proposed model, which includes a combination of tipping fee, power tariff and VGF, is good for the project. MoHUA supports the project. Patna, as the lead ULB, has sufficient revenue sources to cover the tipping fee.

**9. Consultant, NITI Aayog raised the following observations:**

- a) If the Bihar government is offering VGF over and above the Government of India VGF, the combined VGF amount should be clearly mentioned as the ceiling in the bid documents.
- b) The VGF grant disbursement schedule shall be as per the VGF guidelines, and it should be clearly mentioned in the bid documents.
- c) The concession agreement is signed between the lead ULB and the concessionaire, therefore, the payment obligation should rest solely with the lead ULB. It should be clearly mentioned in the bid documents.
- d) The DCA contains two sets of conditions for termination payments: one is pre-CoD and the other during the construction period. However, the pre-CoD and construction period are the same thing. This duplication may be removed accordingly.
- e) Currently, the concessionaire is responsible for obtaining environmental clearance. Based on previous PPP experiences, this responsibility should be better placed under the authority. The Project Sponsoring Authority (PSA) is requested to review and address this issue.

**10. PD, NITI Aayog raised the following observations:**

- a) The State government may consider that for future projects, the concessionaire collects the fee directly from the actual users rather than the ULB.
- b) In the proposal, components such as Bio-methanation and other elements are included, but the technical eligibility is restricted to only WtE plant experience. Since this is not a highly specialized technology requiring specific experience, it is recommended to extend technical eligibility to experience in the infrastructure sector as well. This could increase the number of participants and competition and could lead to better bids.



11.JS(ISD) highlighted the following points:

- a) The financial modeling of the project indicates project viability with VGF at 30% of the TPC. However, market assessments may not align with this assessment of the authority. Therefore, the Government of Bihar should decide the State component of the VGF support, and the combined VGF amount should be clearly mentioned as the ceiling in the bid documents.

12.The Chair raised the following observations:

- a) What is the rationale for fixing the power tariff at INR 6.37 Kwh, and is it fixed during the concession period or supported by an escalation mechanism? Who will be responsible for arranging a 20-year Power Purchase Agreement (PPA)?
- b) What is the expectation for equity? How much equity needs to be brought in by the concessionaire, presuming that 30% VGF will come from the Government of India?
- c) What are the ULB obligations regarding the segregation and delivery of a minimum quantity of waste to the concessionaire, and how will waste delivery be measured, monitored, and billed?
- d) What are the current household user charges for solid waste management in Patna? Is Patna ULB's financial health good enough to support the tipping fee liability, which would approximately INR 36 - 40 crore per annum?
- e) Are the bidding eligibility criteria restrictive? Will it attract sufficient competition?
- f) Is a Joint Venture (JV) envisaged in the proposal, and can the JV partner bring in the technical and financial capacity required as per the criteria?
- g) By what time, the Government of Bihar will bid out the project?

13.UD&HD, Government of Bihar submitted the following to the queries raised by the EC Members: -

- a) **VGF Ceiling:** The state component of VGF to be given over and above the Government of India approved VGF shall be fixed by the Government of Bihar, and the combined VGF amount will be clearly mentioned as the ceiling in the bid documents.

- b) **VGF Disbursement** - Payment for the mobilization advance shall be removed. It will be mentioned in the bid documents that the VGF grant disbursement schedule shall be as per the VGF guidelines.
- c) **Payment Mechanism:** The payment to the concessionaire is the responsibility of the lead ULB only. Further, the Government of Bihar is the guarantor for payments to the concessionaire.
- d) **Termination clause:** The duplication shall be reviewed and removed.
- e) **Environment Clearance:** Currently, the responsibility of obtaining environment clearance is within the scope of the concessionaire. It will be reviewed, and if required, this responsibility may be shifted to the authority.
- f) **Tipping Fee:** The tipping fee in similar projects (which includes collection, transportation, processing, and disposal) across the country ranges between INR 1400 to 2400. As per the thumb rule, 30% is spent on the processing and disposal, whereas 70% is spent on the collection and transportation. Applying this to the average benchmarked value of INR 2000, a tipping fee of INR 600 has been considered.
- g) **Power tariff:** The power tariff is proposed after taking rates from the electricity regulation authority and discussion with DISCOMs. In 2022-23, the rate came out as INR 6.37 Kwh, which has been used for the calculation of the proposed project. While any future change in this may be determined by regulatory authority, significant variations are not anticipated. Bihar is currently facing a shortage of renewable energy and is purchasing it from Rajasthan and other states. Therefore, DISCOMs are eager to purchase this power at this rate. Discussions with DISCOMs have been done, and written communication from them to maintain this rate has been received.
- h) **Equity Contribution:** As per the model, the VGF grant is deducted from the TPC of the project, and the rest amount is to be arranged by the concessionaire in the expected debt-to-equity ratio of 70:30.
- i) **Segregated Waste:** Out of the 1600 TPD of waste generated, 1000 TPD will come from Patna which has a robust mechanism of collecting more than 80% of waste as source-segregated waste. The challenge is the lack of facilities to process the segregated waste. For other ULBs, there are some issues, but the feedback mechanism will improve their segregated waste collection once the proposed facility is available. A penalty clause of INR 750 per ton will be imposed on ULBs if they fail to provide the requisite segregated waste.



- j) **Measurement of Waste:** There will be computerized weight bridges for measuring the delivered waste to the plant. In addition, an independent engineer will also monitor the quantity of delivered waste.
- k) **User Fee and Financial Health of Patna ULB:** Currently, in Patna, households are charged INR 30 per month as a user fee. The number of households in the Patna cluster is approximately 7,00,000, with user fee collection of approximately INR 25 crore per annum.
- l) **Eligibility Condition:** Stakeholder consultation on this project was held in August 2024 with 25 participants, including some from Japan. The proposed technical eligibility conditions will generate enough competition, but in light of suggestions, we will further review and make changes as required.
- m) **Bidding timeline:** Within two months after EC approval, the Authority will bid out the project.
- n) **JV:** The provision for JV is included in the DCA, with a maximum participation of three members.

14. The EC unanimously granted 'In-Principle Approval' for VGF support under the Sub Scheme - 1 of the VGF Scheme to the setting up of the Integrated Solid Waste Management Project for Patna Cluster with the following conditions:

- a) The VGF support to be provided by the Government of India shall be following:

| Project   | TPC<br>(INR crore) | Maximum Gov<br>VGF<br>(INR crore) |
|---|--------------------|-----------------------------------|
| Setting up of Integrated Solid Waste Management Project for Patna Cluster | 514.59             | 154.38                            |

- b) The Government of Bihar should decide the state component of the VGF support, and the combined VGF amount should be clearly mentioned in the bid documents, subject to the maximum capping as per the VGF guidelines.
- c) Environment clearance obligation shall be with the PSA and should not be left to the concessionaire. This may also be included as part of the Condition Precedence.
- d) Before bidding out the project, the Government of Bihar should satisfy itself regarding the eligibility criteria in order to get enough competition for the project.



- e) The VGF disbursal shall be done as per the VGF Scheme and Guidelines. This shall clearly be indicated in the bidding documents.
- f) Revalidation of the recommendation of the project proposal by the EC is not required for the following post-recommendation changes in the project cost/bid documents:
  - i. Any change in the date/time period for any time-bound actions like appointed date, financial close, construction period, etc.
  - ii. Non-substantial change in risk allocation.
  - iii. Any other changes/modifications (except as stated above) in the project proposals with the overall objective of making the projects successful.
  - iv. Further, the UD&HD, Bihar will decide whether the changes proposed post recommendations of the project proposals by the EC fall within the threshold criteria as stated above. All such changes with the threshold criteria as stated above shall be appraised at the level of Secretary (UD&HD), Bihar without any further need for revalidation by the EC and UD&HD, Bihar shall proceed with the process accordingly.
- g) However, the following changes shall warrant revalidation of recommendation of project proposal by the EC:
  - i. Any change in the formulation of pre-determined user charges/tariffs.
  - ii. Any change in the concession period by more than 20%.
  - iii. Any changes having an impact on the In-principle approved amount of VGF for Gol on the higher side.
- h) Necessary amendments to the bid documents to incorporate the decision of the EC shall be undertaken by UD&HD, Bihar. Further, UD&HD, Bihar, to ensure that legal vetting of documents is undertaken to ensure that there are no discrepancies in the contract documents and to circulate to the members of the EC for the record.
- i) 'Final Approval' for VGF support is contingent upon the compliance of all conditions of the VGF Scheme.

**15.** The meeting ended with a Vote of thanks to the Chair.

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**List of the attendees of the 47<sup>th</sup> meeting of the Empowered Committee (EC) for setting up of Integrated Solid Waste Management Project for Patna Cluster under PPP mode.**

**a. Department of Economic Affairs, Ministry of Finance**

1. Shri Ajay Seth, Secretary, EA- In Chair
2. Shri Baldeo Purushartha, JS (ISD)
3. Shri. Rahul Singh, Director
4. Shri Rajender Singh, Section Officer

**b. Department of Expenditure**

1. Ms. Preeti Balyan, Joint Director

**c. NITI Aayog**

1. Shri. Partha Reddy, Programme Director
2. Ms. Nidhi Arora, Consultant

**d. Urban Department & Housing Department, Government of Bihar**

1. Shri. Abhay Kumar Singh, Secretary
2. Shri. Vijay Prakash Meena, Additional Secretary

**e. Ministry of Housing and Urban Affairs, Government of India**

1. Shri. Binay Kumar Jha, Director