BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

O.A. NO. 199 of 2021 (SZ)

IN THE MATTER OF:

Sri. Shankar Narayanan Bala Krishnan,
Telangana and Ors ...Applicant(s)

Versus

State of Telangana and Ors ...Respondents(s)

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Place: Hyderabad

Date: 21.11.2023

COUNSEL FOR R 6

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REPORT FILED ON BEHALF OF RESPONDENT NO.6

I, D.Ronald Rose, IAS S/o. Dinakaran Bose, aged about 43 years, Occ: Commissioner, Greater Hyderabad Municipal Corporation, R/o. Hyderabad, do hereby solemnly swear and state on oath as follows:

1. It is respectfully submitted that, I am working as Commissioner of Greater Hyderabad Municipal Corporation (GHMC), Hyderabad. As such, I am well acquainted with the facts of the case. Further, I am deposing this report in view of the orders dated:25.09.2023 of the Hon'ble National Green Tribunal, South Zone in OA No. 199 of 2021 based on the records available with the Respondent Corporation.

2. Placing on record the details of all the earlier status reports filed by the 6th Respondent before the Hon'ble National Green Tribunal, Southern Zone, Chennai.

i. Report filed by the 6th Respondent, dated 07.10.2021
ii. Report filed by the 6th Respondent, dated 07.12.2021
iii. Report filed by the 6th Respondent, dated 05.03.2022

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iv. Report filed by the 6th Respondent, dated 29.03.2022

v. Additional Report filed by the 6th Respondent, dated 25.08.2022

vi. Reply memo filed by the 6th Respondent, dated 25.08.2022

vii. Status report filed by the 6th Respondent, dated 23.11.2022

viii. Report filed by the 6th respondent, dated 17.12.2022

ix. Report filed by the 6th respondent, dated 08.03.2023

x. Report filed by the 6th respondent, dated 04.08.2023

3. As per the directions of the Hon'ble Tribunal the following response is submitted on the Expert Committee Report of CPCB dated 25.09.2023 against certain particulars in the Report. The Report contains a total of 943 pages out of which 428 pages are in duplicate (pages 255 to 683) and pages related to "The map of Gas boreholes" (Annexure XIII) is missing and hence same enclosed as **Annexure A** with this response. The detailed response is filed on the report as well as the Inspection Report of Jawahar Nagar dumpsite done by CPCB RD Chennai on November 17, 2020 along with TSPCB & GHMC officials, report submitted by Telangana State Pollution Control Board as below

4. In respect of the facts related to constitution of above Expert Committee it is respectfully submitted that after the Hon'ble NGT, New Delhi has rejected the appeal made by GHMC on capping of Jawahar Nagar legacy dumpsite, the Chief Secretary, Telangana has submitted a presentation on the status of Solid Waste & Sewage management in the State before Hon'ble NGT on 28.09.2022 and requested the Tribunal to reconsider the matter and pass directions for retaining the already executed capping in respect of Jawahar Nagar dumpsite considering all the necessary measures taken for leachate legacy treatment for reducing the ground water pollution as well as landfill gas extraction for containing air pollution. Having considered said request, the Hon'ble NGT, New Delhi

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was kind enough to pass a direction vide Paragraph 31 of the orders dated 29.09.2022 in OA 606/2018 directing the CPCB to examine in consultation with the concerned Experts and determine whether capping can be retained and if not what further course of action is to be taken for protection of environment.

5. It is respectfully submitted that contrary to the intention of the Hon'ble NGT, New Delhi in issuing above direction considering the special conditions under which the capping works were proposed to Jawahar Nagar dumpsite way back in 2012 as per the condition precedent in the Concession Agreement dated 21.02.2009 and in accordance with the then existing Rules i.e., Municipal Solid Waste (Management & Handling) Rules 2000 and the Environmental Clearance granted by the Government of India in 2012 and also there were no specific guidelines issued by the CPCB on legacy waste remediation (such as those issued in 2019), the CPCB has prepared the above report with preoccupied notion to oppose the capping works already completed and tried not to reflect the true opinion expressed by the Expert Committee. This is evident from the very fact that there are many contradictions in contents of the Report at page 1-17 when compared to the contents in the draft report at page 458-477 but the reason for said changes made were not disclosed. It came to known that when the CPCB has prepared the draft report and circulated to the Expert members on the late evening of 10.09.2023 with a request to offer remarks/ comments by 11 am on the next day, only 5 out of 10 members have responded with certain remarks/ objections whereas the others have requested for additional time and not submitted any remarks. As such, it is not clear whether the report filed by the CPCB has incorporated in it the remarks offered by the 5 members or not, for the reason that the mail communication between the CPCB and the Expert members was not enclosed to the report.

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6. It is respectfully submitted that a detailed response of the GHMC is herewith submitted on the Report filed by the CPCB along with various enclosures thereon, as below.

6.1 On first consultation meet of Expert Committee dated 30.12.2022

6.1.1 Consultation Meet

CPCB has conducted a Consultation meet with the Expert Committee members through virtual mode on 30.12.2022 in which GHMC has presented all details such as period during which the legacy dumpsite was formed, how the Treatment and Disposal facility was planned in the same dumpsite as part of development of Integrated MSW Management project through a private agency on PPP mode duly reclaiming the land, how the Environmental Clearance granted by the State Level Environmental Impact Assessment Agency(SEIAA) for Andhra Pradesh, MoE&F, GOI in 2012 **(Copy of extract is enclosed as Annexure B)** wherein it was stipulated at sub point a) i. of A. Specific Conditions that "The operator and the management shall strictly enforce and implement the Municipal Solid Waste (Management and Handling) Rules 2000 and further stipulated at c) viii that "The existing dump shall be capped and greenery shall be developed on the same to reduce soil erosion." Further presented on the progress of capping works as on the advent of new Rules, i.e., Solid Waste Management Rules 2016 and how the capping design was relooked after SWM Rules 2016 come into force so as to provide additional safety measures to the cover system. Also elaborated on the facts of how Greater Hyderabad Municipal Corporation has no other option but to go ahead with capping works after the operator of the facility (Concessionaire) has already spent huge amount of money on capping works viz., shifting, profiling and partial soil cover as per

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the conditions precedent in the form of contractual obligation with the Concessionaire in the form of CA dated 21.02.2009 for capping the old dumpsite. Further, it was also presented that Capping as a method of dumpsite remediation is permitted under the SWM Rules 2016 and the technical methodology was clearly elaborated at Chapter 4.5.7 of Page 414 of Part 2 of SWM Manual 2016**(Copy of extract is enclosed as Annexure C)**.

It is humbly submitted that all the reason why Hon'ble NGT has taken a view, in it's order dated 14.02.2020, that capping is not *advisable* was based on certain hypothetical reasoning given by the CPCB in it's report dated 31.05.2019 in OA No 519/2019 with OA no. 386/2019 in consultation with GK Pandey of IIT Delhi that *"... it would lead to generation of more leachates and methane/landfill gas generation which would further contaminate the already heavily contaminated Groundwater"* **(Copy of extract is enclosed as Annexure D).** In fact, when capping is done generation of leachates reduces gradually as incursion of rain water is contained due to geosynthetic clay liners and HDPE liners are placed above the Municipal Solid Waste which does not allow rain water to enter into the waste mass. As such, the report reflected the illogical and hypothetical perceptions of the Committee instead of the real and technical reasoning.

Further, it is respectfully submitted that other hypothetical reasoning relied upon by the Hon'ble NGT from the CPCB report dated 31.05.2019 were that (i) *"... as per CPCB Guidelines, gas extraction is very difficult and inefficient when attempts are made to insert suction pipes into dumped waste instead of before dumping begins. Poor success at Gorai capping led to the forced refund by Mumbai city of Rs.15 crore advance carbon credits. Taking into*

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consideration the present height (65 m) of the landfill, extraction of leachate & gas will be even more difficult and (ii) Similarly, in the present tender documents, there is no provision for on site treatment of leachates and utilization of gas generated as also decontamination of ground water/bio-remediation have not been envisaged in spite of the fact that ground and surface water are heavily polluted as reflected by analysis of ground water and surface water reports given in the DPR."

While in the above two cases they failed to make provisions for leachate and gas collection, GHMC has not only made provisions for leachate and gas collection but also successfully drilled 152 gas wells and started harnessing Compressed Biogas and treating the leachate through 500 kLD leachate Treatment Plant and also operating the state of the art treatment methodology with Rs.251 Cr for comprehensive treatment and disposal of the legacy leachate impounded within the site.

It is respectfully submitted that when the Greater Hyderabad Municipal Corporation has appealed before Hon'ble NGT, New Delhi on *the view taken by it that capping cannot be permitted based on the facts related to Mumbai and Delhi capping projects* wherein gas extraction was not successful in Gorai landfill capping and *in the tender documents of proposed Delhi capping project there is no provision for onsite treatment of leachates and utilization of gas generated cannot be applied to Jawahar Nagar capping as* Greater Hyderabad Municipal Corporation has successfully overcome the above problems in respect of leachate and gas collection by drilling 152 gas wells by exploring various options and finally succeeded by experimenting with augur attachment to piling rig through augur bucket attachment and started harnessing compressed Biogas for

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its effective utilisation. As such, the conclusion that capping is not advisable was taken based on the hypothetical views submitted by the GK Pandey committee as well as the CPCB who ignored the very fact that **SWM Manual 2016 stated at Chapter 4.5.7 Existing Dumpsite Closure or Reclamation (at Page 414)** that "Many open solid waste dumpsites in India do not have an engineered liner system, leachate collection system (LCS), or an appropriately designed cover system, thus posing a threat to the environment and human health. Such dumpsites should be immediately closed to minimise their impact on land, groundwater, and surface water quality and on air quality in the vicinity of the dumpsite. Repeated burning of wastes on dumpsites cause deleterious environmental impacts."

Further, the CPCB has published "The National Action Plan for Municipal Solid Waste Management" **(enclosed as Annexure E)** in compliance with Hon'ble National Green Tribunal, New Delhi Order dated 5th February, 2015 in the Matter of OA No. 199 of 2014 wherein in the "Indicative Guidelines for formulation of Action Plan" it clearly stipulated in respect of Old Dumpsites that "Rehabilitation or reclamation of old dumpsite followed by capping & plantation" shall be prepared by 18 months but never insisted for biomining and bioremediation as preferred methodology for legacy waste remediation than capping. It was only in 2019 that the CPCB has come up with Guidelines for legacy waste remediation that too after the Hon'ble NGT, New Delhi issued directions in OA No 519/2019 with OA no. 386/2019 for framing of said guidelines.

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As such, the question of whether the CPCB guidelines have been looked into before capping in the present case or not does not arise for the reason that said CPCB guidelines were issued in 2019, by which time the capping works were completed by about 80% and there is no violation on part of GHMC since the concept of biomining and bioremediation has not fully evolved even by the year 2016, although Rule 15 (zk) or Clause J of Schedule I stipulated for exploring the potential of biomining and bioremediation. The efforts made by GHMC to take up capping for containing further deleterious effects on the environment cannot be held in violation of Rules/ Guidelines as stipulated in the Environmental Clearance issued to the project vide Order No. SEIAA/AP/RRD-111/2009 dated 20.06.2012 **(Copy enclosed as Annexure B)** that "...the existing dump shall be capped and greenery shall be developed" which was aimed at preventing further deleterious effects on the environment by closing and capping the existing open dumpsite as stipulated by the then prevailing environmental legislation.

Furthermore, the reason for rejection of capping proposals of Delhi Corporations citing the failure for not making provision for leachate collection or Mumbai's failure to drill gas collection wells cannot be taken as the basis for rejecting the capping option altogether.

It is respectfully submitted that the members of the Experts Committee constituted by the CPCB for examining the case of Jawaharnagar Capping have concurred with the above submission made by Greater Hyderabad Municipal Corporation. The same may be read from the Minutes of the meeting dated 30.12.2022 (at Page No.22) which reads as "The Solid Waste Management Rules was notified in the year 2016 and the Guidelines for Disposal of Legacy Waste were notified in the year 2019. However, capping was taken

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up as per the proposal in the DPR of 2009. Environmental Clearance accorded to the project in 2012 also stipulated capping of the existing dumpsite. **As such the Expert Members agreed that the project had been initiated prior to the notification of concerning environmental legislation".**

Accordingly, having perused the facts presented by the GHMC, the Expert Members made following recommendations:

(a) Field visit of the site under consideration be conducted by CPCB, Telangana SPCB and Experts. The report of the visit will be shared for further discussion by the panel.

(b) Monitoring of surface and ground water will also be done with the objective of identifying the trend of pollution of surface and ground water.

(c) Telangana SPCB shall make arrangements to provide copies of all relevant reports and monitoring results available with them to the CPCB/Experts

6.1.2 Joint inspection of the Jawaharnagar Dumpsite (November 17, 2020)

In respect of observations made during the joint inspection of the Jawaharnagar Dumpsite by CPCB RD, Chennai along with TSPCB it is respectfully submitted that the complaint of Hon'ble MP Shri Anumula Revanth Reddy, Malkajigiri was regarding certain environmental issues at Jawahar Nagar dumpsite was related to odor problems due to accumulated unprocessed fresh waste at the site (due to operational issues during monsoon season) and already accumulated legacy leachate but not related to capping of the legacy dumpsite. In fact, the residents were happy about the capping done to the legacy dumpsite as promised by the GHMC

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during public hearing for the project as they got immediate relief from smell and smoke problems from the legacy dumpsite due to frequent fires and uncontrolled flow of leachate polluting their lakes down stream being contained within the site and efforts made by GHMC for its treatment by establishing Reverse Osmosis plants.

It is further submitted that, the report has also acknowledged that "During inspection, it was observed that around 80% of the capping of dumpsite had been completed." It has also acknowledged the efforts made by GHMC for avoiding further pollution of downstream lakes by disconnecting the link between Malkaram lake and others lakes for which purpose Rs.4.3 Cr were spent for executing the work of diversion channel.

GHMC has complied all the certain instructions issued by the TSPCB in its notices based on the above report as well as in other instances.

6.1.3 Field Inspection (01.9.23 - 02.09.2023)

It is respectfully submitted that contrary to the opinion of the majority of the members of the Expert committee as recorded in the minutes of the meeting dated 30.12.2022, the CPCB in its report dated 25.09.2023 made a deliberate attempt to establish that capping was done in violation of SWM Rules 2016 and CPCB guidelines of 2019. The extract of the CPCB report from Page 6 reads as "It is observed that the first phase of soil cover was completed in 2014. Remaining capping activities (Phase 2 Soil cover, Leachate collection system, gas collection system etc) were done by GHMC during 2018- 2021 despite the Hon'ble NGT and Hon'ble Supreme Court Orders issued during this period", but it failed to take into cognizance of the fact that the directions of the Hon'ble NGT, New Delhi dated 14.02.2020 in OA 606/2018 have not

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specifically directed to stop capping works at JN dumpsite but however, the Greater Hyderabad Municipal Corporation has filed an appeal with a view to complete the pending ancillary works without attracting any contempt of court in view of the above orders of the Hon'ble NGT.

Further, it is respectfully submitted that, irrespective of the extent of works done prior to notification of the CPCB Guidelines for Disposal of Legacy Waste 2019/ Hon'ble NGT orders dated 14.02.2020 and Hon'ble Supreme Court Orders dated 15.06.2020 in Dairy no 11490/2020 & 31.01.2022 in Dairy No 8943/2021, the fact remains that the Jawahar Nagar dumpsite remediation has been assigned to the Concessionaire (9th Respondent) as per the agreement dated 21.02.2009 as part of the Integrated MSW Management Project by Greater Hyderabad Municipal Corporation wherein the scope includes development of Treatment and Disposal facility for the fresh waste in the same existing legacy dumpsite duly reclaiming the land and to take up capping of the rehabilitated legacy waste. Accordingly, it was submitted that 214 acres of land was reclaimed by shifting the waste from less concentrated areas to one corner of the site containing high concentration of waste and then capping was taken up as per the Environmental Clearance issued to the project vide Order No. SEIAA/AP/RRD-111/2009 dated 20.06.2012 as per the then prevailing environmental legislation stipulating that the existing dump shall be capped and greenery shall be developed. As such, the scope of dumpsite remediation work cannot be changed to any method other than that the Concessionaire started already and executed major components of work as per the condition precedent in the Concession Agreement and/ or the EC granted.

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Therefore, it is humbly submitted that the CPCB Guidelines for remediation of legacy dumpsites issued in 2019 cannot be applied retrospectively to a capping project which was conceived much before said guidelines were issued.

The following submissions may also be taken into cognizance in respect of the directions of Hon'ble NGT, New Delhi at Para 34 of the order dated 14.02.2020 in OA No.606 of 2018:

"it is imperative to do bio-mining and bioremediation in the interest of environment and to save valuable scarce public resource in the form of land. The land can be used for setting up integrated waste processing facilities and developing green belt or bio-diversity park. If the State/Corporation does not have funds, the State may consider monetizing a part of the land to raise revenue for the purpose, after following due process of law. In any case, capping cannot be permitted."

That the preference given by the NGT, New Delhi for biomining and bioremediation over capping shall be viewed as a prospective order intended to be implemented in all legacy waste remediation projects now being proposed (after above said orders by the Hon'ble NGT) but cannot be interpreted retrospectively to a project which has commenced long back and reached to the final stage of completion as on the date of above said orders.

That the three broader perspectives in the above order of NGT, New Delhi were already complied by Greater Hyderabad Municipal Corporation as below -

1. Capping cannot be considered as an option for legacy waste remediation without exploring the potential of biomining in the *interest of environment* - Greater Hyderabad

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Municipal Corporation has proposed to take up biomining in remaining legacy dumpsites such as Auto Nagar, Gandhamguda and Shamshiguda since *these works are to commence after the CPCB has issued Guidelines for* Disposal of Legacy Waste *in 2019.*

2. *save valuable scarce public resource in the form of land which can be used for setting up integrated waste processing facilities and developing green belt or bio-diversity park - This aspect was already complied in JN site where* 214 acres of land was reclaimed by shifting the waste from less concentrated areas to more concentrated area, That is one corner of the site which was not worthy of reclaiming for utilization for developing the T&D facility as it contained boulders and was part of the quarried area and hence there was no potential of reclaiming said pocket of land.

3. *monetizing a part of the land to raise revenue for the purpose - it may be noted that said land parcel cannot be monetized as the same* contained boulders and was part of the quarried area and *also T&D facility was proposed in the same site.*

It is respectfully submitted that in the order dated 14.02.2020 in OA 606 of 2018 *the NGT has* not specifically directed to undo the capping works already completed at Jawahar Nagar dumpsite (by about 80% except ancillary works) and to take up biomining. Subsequently, the NGT issued directions on 29.09.2022 to CPCB to examine in consultation with the concerned Experts and determine whether capping can be retained and if not what further course of action is to be taken for protection of environment.

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It is further submitted that Hon'ble NGT while imposing environmental compensation on the State of Maharashtra NGT said "Moreover, without fixing quantified liability necessary for restoration, mere passing of orders has not shown any tangible results in the last eight years (for solid waste management) and five years (for liquid waste management), even after expiry of statutory/laid down timelines. Continuing damage is required to be prevented in future and past damage is to be restored." As such, the intention behind the stipulation made in the Environmental Clearance issued to the project vide Order No. SEIAA/AP/RRD-111/2009 dated 20.06.2012 that "...the existing dump shall be capped and greenery shall be developed" was to prevent further deleterious effects on the environment by closing and capping the existing open dumpsite as per the then prevailing environmental legislation. Hence, it is humbly submitted that the CPCB shall have more consultation with the Expert Committee and consideration of their opinion and to conclude duly considering the site specific conditions of Jawaharnagar as the treatment and disposal facility for the entire Municipal Solid Waste generated in the Greater Hyderabad Municipal Corporation and 12 other surrounding ULBs is operating from the same site and shall see the Jawaharnagar site as special case in view of the above submissions.

6.1.4 Minutes of the meeting held with the Consultants for the matter of Municipal solid waste management Rules 2016 and other environmental issues represented under Original Application No.606 of 2018 as Annexure-II (page 19 to 22)

It is respectfully submitted that , the original reference of Hon'ble NGT to CPCB was to determine in consultation with the concerned experts if the capping can be retained and if not, what further

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course of action is to be taken for protection of environment, whereas the very title given by CPCB to the minutes of the meeting i.e. title to Annexure II "Consultation with Experts regarding uncapping of Jawaharnagar dump site" speaks about the intention of the CPCB trying to lead the Hon'ble NGT towards uncapping of the already capped legacy dumpsite at Jawahar Nagar and not reflecting the actual opinion of the majority of Experts during the deliberations.

6.1.5 Inspection Report of Jawahar Nagar dumpsite done by CPCB RD Chennai dated November 17, 2020 along with TSPCB and GHMC as Annexure-VI (Page 98 to 123)

It is respectfully submitted that, in respect of the observation (a) that "the reclaimed land of 214 acres is utilized for installation and operation of integrated solid waste management of fresh solid waste generated in Greater Hyderabad Municipal Corporation area. However, the 125 acres of land to which the waste has been shifted is unlined, as a result of which the ground water /surface water bodies in and around the area are exposed to hazard of contamination with the leachate generated from the dumpsite" , it is submitted that since this was a pre-existing dumpsite formed ever since 1997 for which capping was proposed as per MSW (M&H) Rules 2000/ MSW Manual of CPHEEO which preferred immediate closure of legacy dumpsites to avoid further deleterious effects on environment due to frequent fires and uncontrolled flow of leachate (subsequent SWM Rules 2016 also insisted the same). As such, the Greater Hyderabad Municipal Corporation has chosen capping as the immediate remedy to contain further deleterious effects on the environment and also to bring relief to the local inhabitants who were suffering from air pollution due to smoke from frequent fires

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and uncontrolled flow of leachate polluting their surface water bodies. In fact, with this promise of Greater Hyderabad Municipal Corporation only the local inhabitants have consented in the public hearing for the project. A study report titled "Environmental impact of municipal dumpsite leachate on groundwater quality in Jawaharnagar, Rangareddy, Telangana, India" conducted by a research scholar named B. Soujanya Kamble in 2015 and other such past reports have demonstrated that pollution of the ground water has already been caused due to uncontrolled flow of leachate from the open dumpsite exists since Capping project initiated by Greater Hyderabad Municipal Corporation in 2012.

It is further submitted that, the subsequent rules (SWM Rules 2016) which replaced the MSW (M&H) Rules 2000 have also insisted that the open dumpsites should be immediately closed to minimise their impact on land, groundwater and surface water quality and on air quality in the vicinity of the dumpsite. This is clear from SWM Manual 2016 (Book 2) wherein it was mentioned at Chapter 4.5.7 "Existing Dumpsite Closure or Reclamation" **(Copy of extract enclosed as Annexure C)** that "Many open solid waste dumpsites in India do not have an engineered liner system, leachate collection system (LCS), or an appropriately designed cover system, thus posing a threat to the environment and human health. Such dumpsites should be immediately closed to minimise their impact on land, groundwater, and surface water quality and on air quality in the vicinity of the dumpsite. Repeated burning of wastes on dumpsites cause deleterious environmental impacts".

It is respectfully submitted that, as the above manual brought in by the "Central Public Health and Environmental Engineering Organisation" (CPHEEO) of the Ministry of Housing and Urban

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Administration, GoI clearly indicated that "This manual on Municipal Solid Waste Management provides guidance to urban local bodies on the planning, design, implementation and monitoring of municipal solid waste management systems" it ought to be considered as a guiding manual elaborating the provisions in the SWM Rules 2016. As such, Chapter 4.5.7.1 "Dumpsite Closure" mentioned the options (i) to (iv) as given in Clause J of Schedule I of SWM Rules, 2016 as below:

Clause J: Closure and Rehabilitation of Old Dumps

Solid waste dumps which have reached their full capacity or those which will not receive additional waste after setting up of new and properly designed landfills should be closed and rehabilitated by examining the following options:

(i) Reduction of waste by bio mining and waste processing followed by placement of residues in new landfills or capping as in (ii) below.

(ii) Capping with solid waste cover or solid waste cover enhanced with geomembrane to enable collection and flaring / utilisation of greenhouse gases.

(iii) Capping as in (ii) above with additional measures (in alluvial and other coarse grained soils) such as cut-off walls and extraction wells for pumping and treating contaminated ground water.

(iv) Any other method suitable for reducing environmental impact to acceptable level.

It is further submitted that, in subsequent para it was clearly stated that "Dumpsite closure may be carried out through any of the following means, as may be feasible at the site:

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"....Attempts are being made towards adopting appropriate process for dumpsite closure, however, this area need definite guidelines"

From the above, it is clear that the guidelines for legacy waste remediation have not evolved by the time capping was proposed as per EC in 2012 and therefore the priority was given for closure of the dumpsites by adopting Capping and completed with an expenditure of Rs144.00 Cr successfully duly extracting the Gas and Leachates.

It is respectfully submitted that, although the directions of the Hon'ble NGT, New Delhi dated 14.02.2020 in OA 606/2018 have not specifically directed to undo capping of capped dumpsite of JN and take up biomining, Greater Hyderabad Municipal Corporation has filed an appeal with a view not to attract any contempt post above orders as certain ancillary works were pending although majority of capping works were completed. However, as the Hon'ble NGT rejected Delhi capping DPRs in OA 519/2019 on 17.7.2019 with OA No. 386/2019 citing there is no provision for leachate and gas collection, the same interpretation was applied to JN capping without properly examining the merits of JN capping design as well as the leachate and landfill gas collection mechanism successfully executed. Failure of gas vents drilling in Gorai landfill and failure of Delhi capping proposal to include leachate collection and treatment system should not have been taken as the basis for rejecting GHMC's appeal. The fact that GHMC had made provisions for leachate and gas collection and also successfully drilled 152 gas wells and started harnessing CBG should have been taken into cognizance **(Photographs enclosed as Annexure F).**

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Further, it was stated in Chapter 4.5.7.1 of MSW Manual 2016 that

- Closure by other means should be with approval from the concerned State Pollution Control Board (SPCB) and Committee.
- Leachate generation from old and existing dumpsites is the biggest environmental hazard. However, it is not possible to lay a bottom liner below an existing dumpsite. One effective way is to stop ingress of rainwater from the top
- Provide top cover to prevent rainwater infiltration. Over time, leachate generation from such covered dumps will be reduced. Ensure the presence of a HDPE liner in the top cover of the landfill, above the drainage layer.
- Gas wells have to be sunk into the waste dump, equivalent to the average height of the landfill from ground level.
- There should be grading of the existing dumpsite to ensure slope stability. Dumpsite closure should ideally be planned after incoming waste is no longer accepted. In case fresh waste is allowed at the dumpsite, the waste should be placed only in select zones.
- Like for other sanitary landfill, post-closure care should be 15 years with monitoring of leachate (to be treated or sent to a sewage treatment plant [STP]), gas generation, and groundwater quality (in monitoring wells).
- There should be inspection for subsidence, cracks, and fissures in the top cover to ensure their prompt repair.
- If vegetation is planned in the top cover, adequate provision for irrigating the plants should be made.

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Therefore, since all above conditions were followed in Jawahar Nagar dumpsite capping, it cannot be said that such capping is against SWM Rules 2016. However, in case of any such capping proposed in future, providing bottom liners will be examined (subject to feasibility/ constraints in relocating the dump for said purpose).

6.1.6 Copy of report submitted by Telangana State Pollution Control Board as Annexure - XI (A)-(D)(Page 134 to 345)

It is respectfully submitted that, although, the report submitted by TSPCB has indicated that higher levels of COD, total dissolved solids has been reported in the bore well samples indicating groundwater contamination through the leachate and the report also mentioned about the seasonal and annual variations in the concentration level of various parameters is observed but not following a specific trend. From this it is clear that although there is a definite contribution of the capping done to the legacy dumpsite in reducing the leachate generated from the legacy dumpsite as further incursion of rain water has been stopped, however the reason for no specific trend could be due to the presence of large quantity of legacy leachate impounded in the Malkaram tank and other artificial ponds very adjacent to the dumpsite. This leachate was impounded with the purpose to protect the downstream lakes from getting polluted. It is submitted that Partial treatment of said impounded leachate was started in 2017 itself under short term plan until completion of the capping project and later in July 2022 the project for comprehensive treatment of legacy leachate was commissioned under long term plan and as of now 80% of Malkaram tank is cleared and by July 2024 all artificial ponds will be closed and the corresponding land is reclaimed and there after also the MVRE activity will continue until the Malkaram tank is fully rejuvenated and so this will also

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contribute to improvement in ground water quality. It is further submitted that the IIT Bombay has also suggested to explore the option to install an active leachate collection system (application of suction) at the site to remove the leachate from the dumpsite and treat it in a scientific manner.

Further, it is respectfully submitted in respect of the conclusion of CPCB that "It is also to be reported that apart from the capped dumpsite, there are no industries in the area. As such the quality of surface and ground water from the sampled locations are affected by discharges of leachate from the capped dumpsite only", it is submitted that the study report conducted during 2015 by a research scholar B. Soujanya Kamble titled "Characterization of Leachate and its Effects on Ground Water Quality Around Jawaharnagar Municipal Open Dumpsite, Rangareddy, Telangana" **(Copy of Extract is enclosed as Annexure G)** " has revealed that "...alarmingly, highest value was observed in GW8 (1580mg/l) collected in poultry farm present within the study area during post-monsoon which is a point source of pollution. About 50-80% of nitrogen is excreted by the livestock which can be easily leached to the ground water table posing threat to the groundwater resources. In general, other major sources for nitrate in ground-water include domestic sewage, runoff from agricultural fields, and leachate from landfill sites." From this, it is clear that, apart from small quantity of leachate generated from legacy waste spread in the entire dump site without any treatment accumulated before 2012, there could be other sources of pollution also contributing to the ground water pollution, for example, Dammaiguda tank which is just besides the JN site that receives entire sewage from Jawahar Nagar corporation and parts of Dammaiguda municipality as there is no Sewerage Treatment Plant.

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6.1.7 Copy of the report submitted by Telangana State Pollution Control Board as Annexure XIV (page 369 to 371)

It is respectfully submitted that the fluctuations in the ambient air quality being monitored by the Telangana State Pollution Control Board particularly the concentrations of PM10 and ammonia have nothing to do with the capped dumpsite for the reason that there is no emission of dust nor any gases from the dump as the entire dump is capped with impervious layers of synthetic liners and the landfill gases are collected through gas wells without any leakage etc. Increased road traffic could be the reason for fluctuations in said concentrations.

6.1.8 Copy of draft report prepared by CPCB along with comments of the expert committee as Annexure XVII (458 to 876).

It is respectfully submitted that, as GHMC has been a party to the deliberations that took place between the members of the Expert Committee and the CPCB, it has been noticed that the true opinions expressed by the Expert members during the deliberations were not presented in the report submitted by CPCB to the Hon'ble NGT. As per the Hon'ble NGT orders dated 29.09,2022, CPCB is expected to submit the true comments of the Expert Committee as per the deliberations so that the Hon'ble NGT will also know the Expert's opinion while the CPCB is free to submit it's own view, even if contrary to the recommendation of the Experts committee. Whereas, from the report of CPCB it appears that the CPCB has preferred to place its own version in the report without carrying the real opinion and recommendations of the expert members. Although, the CPCB has stated at Page 16 of its report that CPCB prepared a draft report (Annexure-XVII OF CPCB Report) and had sent to the 10 Experts for their comments and that comments have

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been received from five Experts and are awaited from the remaining, it has not enclosed those comments to the report.

It is respectfully submitted that contrary to the observations made by the CPCB at Page 19 of its report that "...substantial investment has been made (by GHMC) to cap or cover about 125 acres of open dumpsite to get the benefits of bio-gas capturing, containing leachate during rainy seasons, controlling odour and to improve aesthetics with green cover on top..." it tried to conclude in a haste that "...however the selected option does not yield the desired environmental benefits compared to bio-mining...." without considering the true opinion of the experts. In fact, the very reason behind the Hon'ble NGT, New Delhi which originally rejected capping on environmental benefits of bio-mining vis-a-vis capping but reconsidered the matter and directed CPCB to examine in consultation with the experts to see if the capping can be retained for the special reason that this capping was done before the publication of guidelines for legacy waste remediation by the CPCB. As such, the question of environmental benefits of bio-mining compared to capping does not arise at all. As such, the conclusion of CPCB that "...site is expected to contaminate the groundwater and area under landfill may remain an environmental liability for the future" need to be reviewed critically in terms of said contamination from leachate generated through residual moisture in the capped dump versus the higher amounts of leachate that will generate due to incursion of rain water when capped dump is opened up and kept exposed to rain water during long period of time required for biomining. CPCB is ignoring this aspect by simply quoting time and again that "....the elected option does not yield the desired environmental benefits compared to bio-mining as per CPCB

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guidelines and the Orders passed by Hon'ble NGT" which are although true cannot be interpreted to the instant case in the same sense as applicable to an unattended open dumpsite for the reason that the JN capping was already completed and the possible threat of ground water and air pollution was already brought under control due to measures taken such as reduction in leachate generation due to stoppage of rain water incursion by synthetic liners provided in dump capping and extraction of landfill gases which include methane which has the global warming potential of 14 times when compared to carbon dioxide. As such, the recommendation/ opinion of CPCB that "...options of gradual conversion of capped area and the stabilized waste underneath may be bio-mined gradually, without effecting the functions of capped area immediately" has no relevance both in terms of environmental impact both positive as well as negative since all necessary environment protection measures in terms of landfill gas management as well as leachate management has been successfully taken up by GHMC, unlike the failure at Gorai landfill as mentioned in NGT order dated 14.02.2020 in OA 606/2018 and also the risk of hampering of the ongoing fresh waste management facility running in the same site (very adjacent to the capped dumpsite) need to be taken into cognizance (due to increased nuisance such as dust and sound pollution expected due to biomining, apart from increased leachate and odour nuisance) in case if the capped dump is to opened up for biomining as being insisted by CPCB, contrary to the opinion of the Expert Committee. Further more, it is humbly submit that the odour problem shall increase during Bio-mining on which issue the the complaint has filed the case before Hon'ble NGT SZ and due to which it is a treat to the present operations of the Treatment and Disposal activities for the fresh waste in terms of local agitations and protests.

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The CPCB has published "The National Action Plan for Municipal Solid Waste Management" **(enclosed as Annexure E)** in compliance with Hon'ble National Green Tribunal, New Delhi Order dated 5th February, 2015 in the Matter of OA No. 199 of 2014 wherein in the "Indicative Guidelines for formulation of Action Plan" it clearly stipulated in respect of Old Dumpsites that "Rehabilitation or reclamation of old dumpsite followed by capping & plantation" shall be prepared by 18 months but never insisted for biomining and bioremediation as preferred methodology for legacy waste remediation than capping. It was only in 2019 the CPCB has come up with Guidelines for legacy waste remediation that too after the Hon'ble NGT, New Delhi issued directions in OA No 519/2019 with OA no. 386/2019 for framing of said guidelines.

As such, from the very fact that said CPCB guidelines were issued in 2019, by which time the capping works were completed by about 80%, the question of whether the CPCB guidelines have been looked into before capping in the present case or not does not arise.

During the deliberations in the first consultation meet of Experts dated 30.12.2022, this aspect as submitted by GHMC was accepted by the majority of Experts for the reason that having completed 80% of works, that too as per the condition precedent in the Concession Agreement dated 21.02.2009 and in accordance with the condition in the Environmental Clearance stipulating for capping and greenery development over the legacy dumpsite, they cannot go back after the publication of Guidelines for legacy waste remediation by the CPCB in 2019.

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6.1.9 Detailed response of GHMC on Legal & Technical Aspects raised by CPCB in its report:

6.1.9.1. Legal Aspects:

A. It is observed that the first phase of soil cover was completed in 2014. Remaining capping activities (Phase 2 Soil cover, Leachate collection system, gas collection system etc.) were done by GHMC during 2018- 2021, during the same period the guidelines of CPCB recommending bio mining as preferred option was issued and Hon'ble NGT has passed general orders in the year 2019 making bio mining as compulsory for remediating legacy solid waste dumpsites.

GHMC Comment:

In respect of the above remarks it is submitted that majority of capping works were completed in 2014 itself **(Copy of Running Account Bills certified by the Independent Engineer are enclosed as Annexure H)** and only ancillary works were completed after the Hon'ble NGT orders dated 14.02.2020 for the reason that if ancillary works are not completed the lecahate and landfill gas management cannot be done and the same will lead to continued environmental pollution. Moreover, the Concessionaire has initiated the project in 2012 as part of its obligation to close the legacy dumpsite as per the condition precedent in the Concession Agreement dated 21.02.2009 and also as per the condition stipulated in the EC granted in 2012, more particularly as per the commitment given by GHMC to the local public during the public hearing for obtaining EC that it will close and cap the legacy dumpsite so as to reduce further deleterious effects on environment due to frequent fires and uncontrolled flow of leachate. CPCB quoting the guidelines issued by it in 2019 has no relevancy for the reason that GHMC cannot stop capping works already in

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active progress without any direction for stoppage from the CPCB or in anticipation of the guidelines from CPCB but continued the works with an intention to contain further deleterious effects on environment as enunciated in the MSW (M&H) Rules 2000.

B. *Further, Hon'ble NGT in its order dated 14.2.2020 had directed GHMC for bio-mining of the dumpsite. Another Order of Hon'ble NGT dated 18.2.21 has observed that it is not shown to be factually correct that when capping was done, it was legally permissible and had dismissed the review petition. The matter has been twice reviewed and dismissed by the Hon'ble Supreme Court.*

GHMC Comment:

It is not factually correct to say that Hon'ble NGT, New Delhi *in its order dated 14.2.2020 had directed GHMC for bio-mining of the dumpsite. Although it was stated that* the stand of the State for capping of the old dump site at Jawahar Nagar in Hyderabad is not legally and environmentally tenable, but no specific direction was given for undoing the already done Capping *and take up biomining. However, when* Greater Hyderabad Municipal Corporation has filed an appeal with a view to complete the pending ancillary works without attracting contempt of court post above orders *Hon'ble NGT the directions dated 18.2.21* ***(Copy enclosed as Annexure I)*** *were issued.* However, same Hon'ble NGT has re-considered the matter and directed the CPCB vide orders dated 29.09.2022 (in OA No.606 of 2018) to examine in consultation with the concerned Experts whether capping can be retained and if not what further course of action is to be taken for protection of environment and therefore this point has no relevance. In a way Hon'ble NGT is reconsidering/ reviewing its own orders dated 14.02.2020 & 18.02.2021 particularly in respect of Jawahar Nagar capped

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dumpsite since the work was completed and any decision for undoing of capping will also have further deleterious effects on the environment due to release of Land Fill Gas & excess leachates generation during longer period of time (of about 3 years) needed for biomining of 12 million metric tons.

C. The site was jointly inspected by CPCB & Telangana SPCB officials in November 2020 and it was observed that 80% of the capping was complete. During the field visit conducted in September 2023, CPCB's team has observed that the capping of the dumpsite has been completed, and the activity was continued till December 2021.

GHMC Comment:

Although major components of capping works were completed as on February 2020 itself but only ancillary works such as landfill gas collection system, CBG gas plant, garland drains etc were completed subsequently. When it was already acknowledged in the CPCB, RD Chennai report dated November 17, 2020 that 80% of the capping was completed by then, now stating that the activity was continued till December 2021 is misleading for the reason that certain ancillary works and greenery development works are mandatory and continuous which does not mean that capping works were not completed by 2020 as submitted by GHMC.

D. TSPCB issued directions to GHMC dated 13.12.2017, 23.01.2018, 23.05.2020 and 06.06.2020 to take necessary measures to control odour nuisance and pollution due to leachate generation from the legacy waste dumpsite. In this regard, CPCB issued a letter to TSPCB on 02.05.2021 to ensure that GHMC takes measures for odour control and remediation of ground & surface water.

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GHMC Comment:

All the above directions were complied and adequate measures were taken to control odor. After the establishment of the land fill gas flaring system and Compressed Bio Gas unit absolutely there are no complaints of odor from capped dumpsite. However, some of the odor complaints were related to fresh waste management which were subsequently addressed by engaging drones for spraying odor neutralising enzymes on the tipping floor and windrow area ***(Copy of photographs enclosed as Annexure J)***

E. CPCB had issued directions under Section 5 of the Environment (Protection) Act, 1986 to Chairman of all State Pollution Control Boards/ Pollution Control Committees regarding the bio-mining of legacy waste. The direction was issued on 27/01/2021 (Annexure XVI of CPCB Report)

GHMC Comment: This has no relevance since the capping works were completed by this time and the appeal of GHMC was under the consideration of the Supreme Court/ NGT.

6.1.9.2 Technical Aspects:

It is respectfully submitted that, although, the IIT Bombay has clearly recommended that "...based on the present state of the decomposed Municipal Solid Waste and foam observed during borehole drilling, it can be concluded that the waste is yet to decompose and hence, the JLH is not ready for bio-mining" CPCB has interpreted the report in a different way so as to draw conclusions that the capped dumpsite can be opened and biomining can be taken up.

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The detailed response on technical aspects of CPCB is submitted as below:

A. During the aforementioned inspection by CPCB and Telangana SPCB in November 2020, it was observed that the Ground water and the surface water bodies, in and around the Jawahar Nagar dumpsite were contaminated with leachate generated from the dumpsite. High TDS, Chlorides, Sulphates & Nitrates was reported in these water bodies.

GHMC comment:

Higher levels of COD, TDS, etc are due to leachate generated from legacy waste accumulation since 1990s. However, there is no increase in said concentrations after the capping was completed and also it was noted that as almost 80% of legacy Leachate in Malkaram was cleared by now, it is expected that the ground water parameters will improve hereafter.

B. The maximum depth of gas collection wells is 35m and considering the fact that the average height of the dumpsite is 65m, around 40% of the dumpsite volume is not covered through this gas collection system

GHMC comment:

Depth of gas vents were limited by the boulders contained in the legacy dumpsite as the same was in a quarried area. However, depth of gas vents has no bearing on the potential of gas collection for the reason that due to impermeable synthetic liners above the waste mass all the gas will pass only through the vents in gas wells.

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C. The solid waste 12 Million Tonnes was accumulated in an area of 339 acres of land has been relocated to 125 acres and capped. Around 214 acres of land was reclaimed and has been utilized for installation and operation of integrated solid waste management of fresh solid waste generated in GHMC area. It is to be noted that the 125 acres of land to which the waste has been relocated and capped is unlined.

GHMC comment:

This point has no relevance for the reason that having considered this fact only that the SWM Manual published by CPHEEO, MoUD, GoI recommended for immediate closure of legacy dumpsites to avoid further deleterious effects on environment due to frequent fires and uncontrolled flow of leachate. Following the same recommendation, the GHMC has chosen capping as the immediate remedy to contain further deleterious effects on the environment and also to bring relief to the local inhabitants who were suffering from air pollution due to smoke from frequent fires and uncontrolled flow of leachate polluting their surface water bodies. In fact, with this promise of Greater Hyderabad Municipal Corporation only the local inhabitants have consented in the public hearing for the project.

D. Leachate generation from the dumpsite has been observed along the periphery of capped dumpsite during the recent inspection of the Experts /CPCB/SPCB officials during September 2023. It is observed that perforated HDPE pipes laid for collection of leachate is only on the periphery of the total dumpsite area. As the capped waste area does not have a bottom liner, only the peripheral leachate is being treated.

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GHMC comment:

The question of installation of bottom liners is not relevant in the instant case since this was a pre-existing dumpsite for which capping was proposed prior to SWM Rules 2016. Moreover, in SWM Manual 2016 also it was recognized that as liner cannot be provided under a pre-existing dumpsite it should be closed by capping at the earliest to avoid further deleterious effects on the environment.

E. High levels of COD has been reported in the bore well samples. COD is significantly high in Borewell No. 1, 5, 6, 7, 10 and 11. In some cases the concentrations are in excess of 5,000 mg/l. The concentration of total dissolved solids is consistently high in all borewells within the facility. In some cases, the values are in excess of over 12,000 mg/l.

GHMC comment:

It was noted by the Experts Committee that Higher levels of COD, TDS, etc are due to large quantity of leachate contained in the ponds adjacent to the dumpsite as said impounding was done with an intention to avoid pollution of downstream lakes but there is no increase in said concentrations after the capping was completed and also it was noted that as almost 80% of legacy leachate in Malkaram was cleared by now, it is expected that the ground water parameters will improve hereafter. Further, the GHMC is committed to implement the recommendation made by IIT, Bombay to install an active leachate collection system (application of suction) at the site to remove the leachate from the dumpsite and treat it in a scientific manner.

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F. Observations on IIT Mumbai Report

i. As per CPCB Guidelines for legacy waste management, risk assessment and an onsite emergency plan should be conducted prior to commencement of dumpsite bioremediation & bio-mining to counter any fire-hazards during bio-remediation. Further, CPCB has issued specific directions dated 26/05/2022 (Annexure XVII) for implementation of measures to control fire at dumpsites.

GHMC comment: Although said guidelines are suitable for risk assessment and onsite emergency mitigation in respect of biomining of open dumpsites the scenario in respect of closed dumpsite such as already capped dumpsite at Jawahar Nagar are different. For this reason, the GHMC has approached the CPCB for appropriate guidance on biomining and bioremediation of capped dump site wherein the CPCB has advised to approach any municipality or technical institutions, in view of non availability of any such guidelines from CPCB. Accordingly, the GHMC has approached IIT, Bombay. As the IIT, Bombay in its preliminary report stated that "It should be noted that going ahead with Biomining, by opening the existing scientifically capped dumpsite, otherwise might turn out to be dangerous and environmentally hazardous." As such, the above comment is not relevant for the closed dumpsite of Jawahar Nagar for the reason that the IIT, Bombay has concluded that the waste is yet to decompose and hence, the JLH is not ready for bio-mining.

ii. The ash content of RDF can be brought down through pre-processing of RDF

GHMC comment: Since there is no off take of RDF daily generated from the fresh waste by the cement plants, only 25% is utilized for the Waste to Energy and abut 75% is stockpiling at the

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Jawharanagar site. In this situation, there is no scope for the disposal of the huge quantity of RDF going to come from 12 million tons of MSW in the capped dump. As such, there is no scope for pre-processing of RDF in view of the site constraints.

iii. As per CPCB Guidelines, biomining of waste using bio-cultures stabilizes the waste. Waste is called stabilized when there is no more generation of heat or landfill gas or leachate, and seeds are able to germinate in it.

GHMC comment: The same process is being followed for the daily waste, at the site adjacent to the capped dump. Due to said ongoing operations as part of daily waste management smell complaints are being received from the local inhabitants who also filed the present OA. As per the IIT, Bombay report the process of degradation of the waste is under way in the capped dump and hence it is not advisable to take up biomining to Jawharanagar site under present conditions.

K. At present, biomining is being carried out at 545 number of legacy waste dumpsites and has been completed in 616 number of dumspites as of June 2023.

GHMC comment: CPCB has not provided any clear technical assistance except issuing some generic guidelines on Bio-mining. This is clear from the CPCB F No.B-11011/UPC-II/MSW(Direction)/2020-21 Dt.27.01.2021 wherein it was stated that vide order dated 21.08.2020 in OA 681/2018 NGT directed CPCB to issue fresh directions to all PCBs/ PCCs to coordinate with concerned local authorities and see that at least one legacy waste dumpsite is to be remediated and made a model of compliance in each of the 122 NACs, accordingly CPCB directed all SPCBs to ensure that at least one legacy waste dumpsite is to be remediated

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and made a model of compliance in each of the 122 NACs. But, it is not known if any SPCB or CPCB on its own developed any such model.

L. Conditions prevailing at Jawahar Nagar Dumpsite are the same as any other dumpsite, except for the capping, which has been done in violation of SWM Rules 2016.

GHMC comment: Most of the old dumpsites are either isolated sites having sufficient land to do bio-mining activities such as windrow formation, material stocking, vehicular movement etc or without capping done. Whereas the situation at Jawaharnagar site is different that the capped dump is part of the integrated solid waste management project for the entire Greater Hyderabad Municipal Corporation area with no further space for doing bio-mining activity and surrounded by rapidly developed habitation. In view of delay in realization of alternate sites the treatment and disposal facility was constructed in 2012 reclaming the land by shifting the legacy waste, and proposal to cap the same as per EC granted by GoI, short and long term plan for treatment and disposal of legacy Leachates and the same is being implemented by investing huge amounts. If CPCB mean to say biomining of capped dumpsite is no different and/ or tough task than biomining of an open dumpsite, it could have provided necessary guidance to Greater Hyderabad Municipal Corporation, without directing to approach reputed technical institutions for advising on biomining of already capped dump duly ensuring proper leachate and gas management systems. CPCB shall understand the sensitivity involved around the Jawaharnagar capped dumpsite due to peculiar situation if anything happens in terms of fire, emission of dust, smell which may cause hindrance to the ongoing treatment activity for the daily waste generated in the

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city as the entire city waste management of about 8000 MT per day is depending on the Jawaharnagar site at present. Hence, CPCB ought to consider the capping done to the Jawaharnagar dumpsite separately unlike other legacy dumpsites, since the Hon'ble NGT, New Delhi has agreed to reconsider the matter and directed the CPCB to examine in consultation with the experts if the capping already done can be retained. Hence, this view is not correct.

M. It is evident from the above-mentioned points that leachate is being generated and although leachate collection system has been provided, it is not adequate to collect all leachate being generated. Therefore, groundwater/surface water bodies are getting contaminated. As the capped waste still contains high moisture, the generation of leachate is expected to continue for prolonged duration. Further, waste has been reported to be unstable. Therefore, execution of bioremediation of the dumpsite may be considered at this stage to stabilize the waste prior to disposal, to minimize its impact on the environment. As such capping of the waste cannot be retained.

GHMC Comment: Considering the potential danger caused by the unattended open dumpsites only the MSW Manual has recommended for immediate closure as a remedial measure. Further, the leachate generation from already capped dump as pointed out by CPCB will be much less compared to that is going to generate when the capped dump is opened for biomining and kept exposed to rain water incursion for such longer period of time needed for biomining. GHMC has also taken appropriate measures such as a special project for Comprehensive Treatment of Legacy Leachate with Rs.251 Crore with a provision in the project to clear the accumulated leachate before capping and the future leachate

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generated from the waste under capping entering into the tanks adjacent to the dumpsite. Potential of ground water pollution due to moisture contained in the waste inside the capped dump is much less when compared to that due to capped dump being reopened and kept exposed to rain water during minimum of 3 to 4 years of long period needed for biomining 12 million metric tons of waste present in the Capping. The experts have also expressed this opinion keeping the intention of the Hon'ble NGT, New Delhi reconsidering the matter and referred to the CPCB to examine in consultation with the experts.

It appears that, instead of owning the responsibility of protecting the environment, CPCB has been demonstrating it's stand on bio-mining concept without considering the special situation at Jawharnagar site where daily waste management facility is operating in the same site and any disturbance caused due to reopening of the already capped dumpsite will hamper the daily waste management operations. On one side when GHMC approached CPCB to advice GHMC on how to take up biomining of capped dumpsite, it said CPCB has no expertise and advised to consult reputed institutions and on other side the same CPCB is trying to differ with the IIT, Bombay report and saying that "Conditions prevailing at Jawahar Nagar Dumpsite are the same as any other dumpsite, except for the capping". This view is without any technical basis and against the report given by IIT, Bombay after extensive studies and also against the majority opinion expressed by the Expert Committee during the deliberations at both VC meeting and field inspection. In view of the said reasons and risks, GHMC is sincerely requesting for considering to retain the already completed capping and CPCB may recommend all necessary

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additional measures required for ground water remediation duly retaining the capping.

N. Ambient air quality monitoring conducted by Telangana SPCB shall incorporate the parameters of volatile organic compounds and methane concentration as well

GHMC Comment: GHMC shall implement all recommendations from such monitoring reports.

O. It is also recommended that a committee headed by a State Agency be constituted to oversee the implementation of the ground water remediation and to monitor the quality of air and ground water in the area. The committee will also oversee the bioremediation of legacy waste if capping is removed.

GHMC Comment: The same committee headed by a State Agency can be constituted to oversee the implementation of the ground water remediation and to monitor the quality of air and ground water in the area duly retaining the capping and also to see that no gases escape into air as Gas collection is taking place to the fullest possible extent & leachate treatment is taking place until it's generation stops. CPCB shall understand that both Leachate and Gas shall reduce due to stopping of further incursion of rain water after capping, with an expenditure of 144 Cr, which shall be controlled through the comprehensive Leachate management plant, with an expenditure of Rs 250 Cr, which will be in operation till 2034 and CBG plant/ flaring system established at site and whereas the situation will be worsen if the CPCB recommendation to remove the capping and take up bio-mining since high leachate generation shall repeat due to rain water incursion and air pollution due to escape of gases.

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7. As submitted above, in detailed response on the report of the CPCB, it is respectfully submitted that the CPCB appears to have made deliberate attempts to put its own opinion in the report rather than presenting the factual case along with the true opinion of the Experts with an intention to lead the Hon'ble Tribunal to reject the plea of the GHMC for the following reasons:

7.1 In the Minutes of the Meeting dated 30.12.2022 as an outcome of the first consultation meet of the Experts the CPCB has made contradictory statement by recording on one hand that the Expert Members agreed that the project had been initiated prior to the notification of concerning environmental legislation and intended to develop fresh waste management in the same site by reclaiming old dumpsite but on the other side through its statement that the issues of management of fresh wastes must not be considered together with the management of capped legacy wastes" it failed to take into cognizance of the difficulties in preventing water pollution and in mitigating the smell if the capped dump is opened for biomining and the hindrances it will pose to the daily waste management, non-availability of site etc.

7.2 In the Minutes of the Meeting dated 30.12.2022 the Expert Members opined that management/ treatment of leachate was the major concerns for the capped wastes and so, it was proposed that an expert committee be constituted to monitoring the surface and ground water quality and further decision on the matter be taken on the basis of the trend in surface and ground water quality. But, however, without constituting any such expert committee exclusively for ground water monitoring, the CPCB itself concluded in its final report dated 25.09.2023 at Page 12 that - "Concentration of COD & TDS reported from ground water monitoring stations

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within the premises is much higher than that reported from stations located outside the premises, indicating groundwater contamination through the leachate. However, COD has been reported in ground water outside the premises, indicating the contamination of groundwater outside the premises also"; that "Seasonal and annual variations in the concentration level of various parameters is observed, not following a specific trend"; and that "It is also to be reported that apart from the capped dumpsite, there are no industries in the area. As such the quality of surface and ground water from the sampled locations are affected by discharges of leachate from the capped dumpsite only".

7.3 When GHMC has approached CPCB seeking technical advise on how to take up biomining and bioremediation of the capped dumpsite, it said they have no technical expertise and recommended to approach reputed technical institutions for guidance. Whereas, the CPCB is now opposing the recommendations made by IIT, Bombay after conducting extensive tests with its technical expertise that capped dumpsite at Jawahar Nagar is not ready for biomining.

7.4 Although, the CPCB has stated at Page 18 of its report that "CPCB prepared a draft report (Annexure-XVII) and had sent to the 10 Experts for their comments and comments have been received from five Experts and are awaited from the remaining, but it has not placed said comments before this Tribunal.

7.5 It is also learnt that, the CPCB has asked for the opinion of IIT Bombay on various technical aspects raised by the Expert Members but the same is not mentioned in the report nor the reply of IIT Bombay, if any is enclosed therein.

Commissioner,
Greater Hyderabad Municipal Corporation

10. ***PRAYER :***

For the aforementioned facts and circumstances, it is therefore prayed that this Hon'ble Tribunal may be pleased to close the OA No. 199 of 2021 and pass such other order or orders as this Hon'ble Tribunal deems fit and proper in the circumstances of the case and thereby render Justice.

Sworn and signed on this the

21st day of November, 2023 at Hyderabad

RESPONDENT 6

Commissioner,

Greater Hyderabad Municipal Corporation

(42)

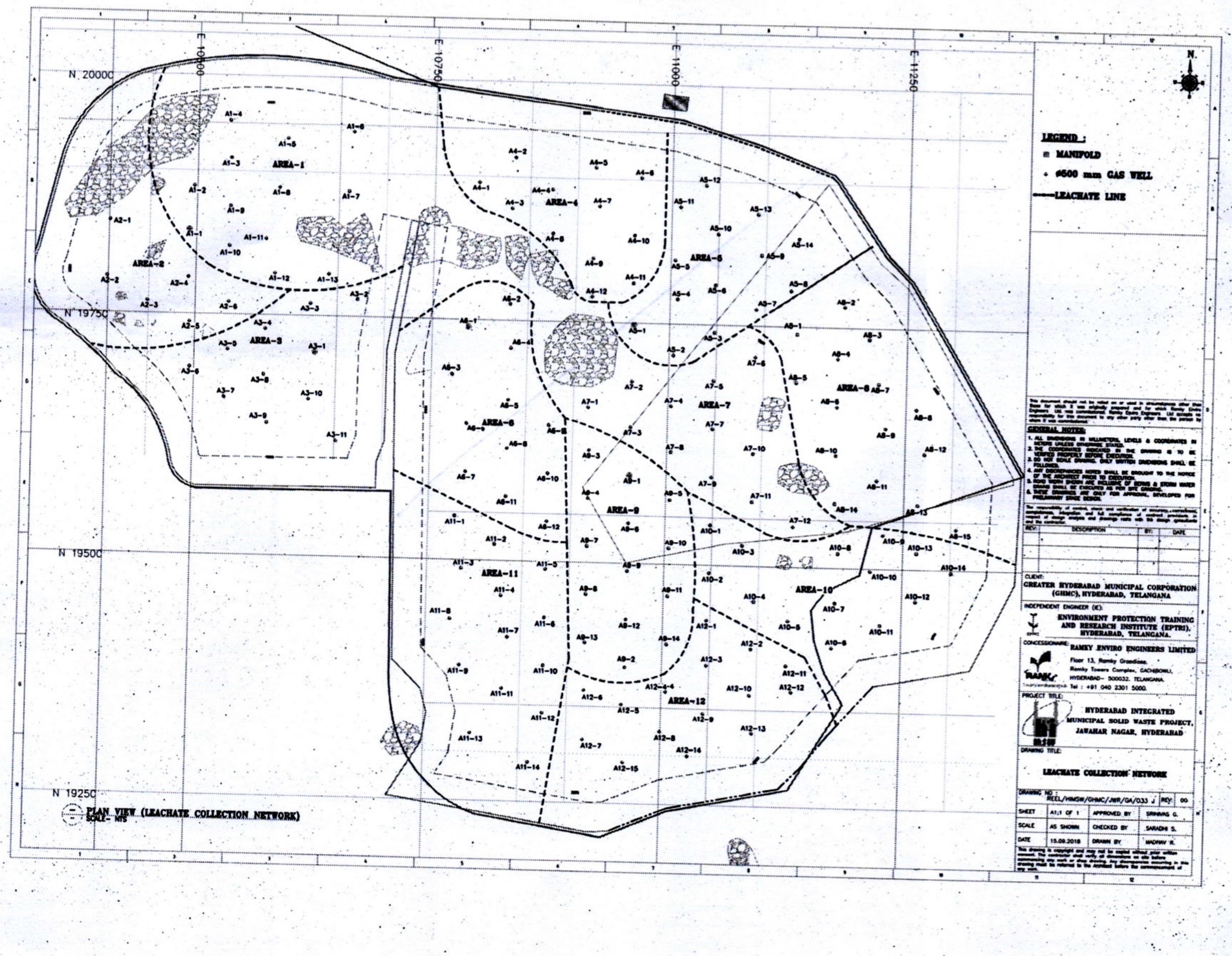
VERIFICATION

I, D. Ronald Rose, IAS S/o. Dinakaran Bose, aged about 43 years, Occ: Commissioner, Greater Hyderabad Municipal Corporation, R/o Hyderabad, do hereby declare that the contents made in the above paragraphs are true and correct to tahe best of my knowledge and based on records available with Respondent Corporation and I believe the same to be true and correct. Hence verified on this the 21st day of November, 2023.

Respondent-6

Commissioner,
Greater Hyderabad Municipal Corporation

ANNEXURE - A



PLAN VIEW (LEACHATE COLLECTION NETWORK)
SCALE- NTS

ANNEXURE B

(44)

State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Government of India
Ministry of Environment & Forests
A-3, Industrial Estate, Sanathnagar, Hyderabad-500 018.

REGD.POST WITH ACK.DUE

Order No. SEIAA/AP/RRD-111/2009 - **Dt: 20-06-2012.**

Sub: SEIAA, A.P. – Integrated Municipal Solid Waste Management Project (proposed by GHMC), at Sy. No: 173, Jawaharnagar (V), Shameerpet (M), Ranga Reddy District - Environmental Clearance - Issued - Reg.

I. This has reference to your letters dt.17.02.2009, 27.04.2009, 18.05.2009, 02.07.2010, 04.08.2010, 07.10.2010, 05.01.2011, 15.04.2011, 06.05.2011, 23.05.2011, 24.05.2011, 04.07.2011, 30.08.2011, 07.10.2011, 24.10.2011, 20.12.2011, 26.12.2011, 30.01.2012, 10.04.2012 and 10.05.2012 seeking Environmental Clearance for the proposed **Integrated Municipal Solid Waste Management Project by GHMC, at Sy. No: 173, Jawaharnagar (V), Shameerpet (M), Ranga Reddy District;** by modernizing the existing municipal dumping yard. It is reported that the nearest human habitation viz., Jawaharnagar (V) exists at a distance of 0.7 km from the project site. The Army College of Dental Sciences is situated at a distance of 0.3 km. The Sub-Committee constituted by the SEAC reported that there are some built-up or upcoming housing complexes or housing colonies around the MSW dumping site within a distance of less than 1.0 km. viz., Rajiv Gruhakalpa, Defence colony. It is noted that Dammaiguda RF and Shammeerpet RF exist at 0.67 km and 3.0 km from the proposed project site. The total area of the existing site is Ac. 351.12; Green belt is Ac. 7.12. The total cost of the project is Rs. 778.70 Crores. It is proposed to develop the following facilities in a phased manner to process MSW of 5500 TPD (as per lr.dt. 20.12.2011).

Description of the facility	Total capacity
RDF plant : (2 x 1200 TPD)	2400 TPD
Compost plant : (3 x 680 TPD)	2040 TPD
Power plant : (2 x 24 MW)	48 MW
Bio-Methanization : (10 x 50 TPD)	500 TPD
Recycling complex (Plastic, Paper, Metal, Rubber, Glass etc.,)	600 TPD
Processing of construction and demolition waste :	800 TPD.
Landfill with leachate collection and treatment system:	735 TPD

II. In the process, the Municipal Solid Waste (MSW) from different dump yards in GHMC limits is collected. It is transported in closed and dedicated containers to the Jawaharnagar site. The MSW is processed by segregating the waste into land-filling, composting, recycling and using waste to generate electricity.

III. The proposal has been examined and processed in accordance with EIA Notification, 2006 and its amendments thereof. The State Level Expert Appraisal Committee (SEAC) examined the application in its meetings held on 29.04.2009, 26.06.2009, 07.01.2011, 25.02.2011, 30.05.2011, 28.07.2011, 02.09.2011, 28.10.2011, 25.11.2011, 29.12.2011, 21.04.2012 & 19.05.2012. The public hearing was held on 29.03.2012 at Pachayat Office, Jawaharnagar, RR Dist. The sub-Committee constituted by the SEAC inspected the site on 27.01.2011. The members of SEAC inspected the site again on 28.04.2012. Based on the information furnished, presentation made by the proponent and the consultant M/s. Ramky Enviro Engineers Ltd., Hyderabad; site inspection reports of SEAC; minutes of the public hearing and objections in the public hearing/representations received against the project, the SEAC considered the project proposal

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and recommended for issue of Environmental Clearance. The State Level Environment Impact Assessment Authority (SEIAA), in its meetings held on 19.08.2011, 23.11.2011 & 31.05.2012 examined the proposal and the recommendations of SEAC, and decided to issue Environmental Clearance. The EFS&T Department vide lr. dt. 21.05.2012 informed that the SEIAA may issue Environmental Clearances to the projects, which are not falling in the areas of bye-polls. The SEIAA in its meeting held on 31.05.2012 had decided to implement the same. The SEIAA, A.P hereby accords prior Environmental Clearance to the project as mentioned at Para no. I under the provisions of the EIA Notification 2006 and its subsequent amendments issued under Environment (Protection) Act, 1986 subject to implementation of the following specific and general conditions:

A. Specific Conditions:

a) The proponent shall comply with the following conditions:

i The operator and the management shall strictly enforce and implement the Municipal Solid Waste (Management and Handling), Rules of 2000.

ii Full medical facility shall be provided to all the employees and workers engaged by the integrated MSW facility, irrespective of their income and financial status.

iii Compound wall shall be constructed around the MSW site.

iv The management shall supply drinking water to the affected areas where the water resources are contaminated.

v Alternate fuels shall be used only for heating or re-heating the furnace (as startup fuel) to the extent required, only to facilitate combustion of Municipal Solid Waste as per the norms.

b) Air pollution:

i The particulate emissions from the stack of height 60 m connected to the Boiler of MSW based TPP, shall not exceed 100 mg/Nm^3. ESP & Venturi scrubber shall be provided to control emissions as presented.

ii Sampling Port with removable dummy of not less than 15cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc., shall be provided to monitor stack emissions. Adequate stack height shall be provided for D.G. Sets (2 x 500 kVA) as per CPCB norms.

iii On line Stack monitoring/Ambient air quality Monitoring Stations shall be installed. Energy meters shall be installed for all pollution control systems.

iv The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points. Appropriate control systems such as bag filters shall be provided at all transfer points, Raw material screen houses, etc.,

v Municipal Solid Waste shall be transported in covered trucks. All the belt conveyors shall be covered with G.I. sheets. Appropriate dust suppression system shall be provided all around the stockpiles and conveyor system. All the roads in the plant area shall be asphalted / concreted and water shall be sprinkled to suppress the dust.

vi The entire MSW collected in a day shall be processed completely, to eliminate the possibility of putrefaction. Herbal Sanitizer shall be sprayed on the MSW to arrest multiplication of pathogenic micro organisms, flies and to control odour.

vii Acoustic enclosures shall be provided around turbine to control noise levels. Ambient air quality including ambient noise levels must not exceed the standards stipulated under Notification dt. 16.11.2009 issued by the MoE&F,GOI. Monitoring of ambient air quality and stack emissions shall be carried out regularly in consultation with APPCB and report submitted to the Board and to the Ministry's Regional Office at Bangalore half yearly.

c) Water Pollution:

i The source of water is HMWS & SB/ Bore wells within the site. The total water requirement shall not exceed 3100 KLD. Out of that, fresh water requirement is 2575 KLD and 525 KLD is recycled water. Quantity of water used for: Cooling tower makeup is 750 KLD ; DM Plant/ boiler make-up is 675 KLD; floor washing is 10 KLD; vehicle work shop, fire water makeup etc., is 20 KLD; compost plant is 350 KLD; RDF plant is 25 KLD; recycling complex is 10 KLD; development of green belt is 1160 KLD ; domestic purpose is 100 KLD.

ii The total waste water generated is 552 KLD. Out of that, 262 KLD is from cooling tower blow down; 106 KLD from Boiler blow down; 70 KLD from DM regeneration; 90 KLD from domestic section; 6 KLD from floor washing; and 18 KLD from work shop/vehicle maintenance shed.

iii No effluent shall be discharged outside the premises and 'zero' discharge shall be adopted. The waste water generated from the boiler blow down, DM plant regeneration; cooling tower bleed of, floor washings and work shop/vehicle maintenance shed shall be treated to conform to on land for irrigation standards prescribed by the MoE&F, GOI. The treated waste water is to be reused and recycled for various purposes with in the premises including development of green belt. The domestic waste water of 90 KLD shall be treated in an STP and used to develop green belt to conserve fresh water.

iv The leachate generated from the windrow of the compost plant (204 KLD) and leachate generated from the operated landfill (110 KLD) shall be treated and re-used for sprinkling on windrows to maintain the moisture content, as mentioned at page no. 9.9 of the final EIA report. Leachate shall not be discharged into the water bodies existing in and around the project site.

v The company must harvest the rainwater from the rooftops and storm water drains to recharge the ground water.

vi Green belt of adequate width shall be developed along the boundary, approach roads etc., in consultation with the local DFO.

vii The existing dump shall be capped and greenery shall be developed on the same to reduce soil erosion.

d) Solid Waste :

i. The solid waste generated from the MSW viz., Soil Enricher is to be used as manure; The Ash generated from the MSW based thermal power plant and the inert material shall be disposed into the secured land fill.

ii. Waste oils, used oils, hazardous waste generated from the industry shall be disposed as per the Hazardous Wastes (Management, Handling, and transboundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by APPCB.

B. General Conditions:

i. **This order is valid for a period of 5 years.**

ii. "Consent for Establishment" shall be obtained from Andhra Pradesh Pollution Control Board under Air and Water Act before the start of any activity / construction work at site.

iii. Provision shall be made for the housing of the construction labour within the site with all necessary infrastructure and facilities such as safe drinking water, fuel for cooking, mobile toilets, mobile STP, medical health care, crèche etc., The housing may be in the form of temporary structures to be removed after the completion of the project. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.

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iv. No change in the process technology and scope of working should be made without prior approval of the SEIAA, A.P. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA, AP/ MoE&F, GoI, New Delhi, as applicable.

v. The proponent shall submit half-yearly compliance reports in respect of the terms and conditions stipulated in this order in hard and soft copies to the SEIAA; and CCF, Regional office of MoE&F, GoI, Bangalore on 1st June and 1st December of each calendar year.

vi. Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

vii. Data on ambient air quality should be regularly submitted to the Ministry including its Regional Office located at Bangalore and the State Pollution Control Board/ Central Pollution Control Board once in six months.

viii. Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

ix. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

x. A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

xi. The funds earmarked for environmental protection measures (Capital cost Rs.34 crores and Recurring Cost Rs. 12 lakhs per annum) and socioeconomics development (Rs. 60 lakhs) should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the SEIAA, Ministry and its Regional Office located at Bangalore.

xii. The Regional Office of MOE&F located at Bangalore monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.

xiii. The project proponent shall submit the copies of the environmental clearance to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

xiv. The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and SEIAA, A.P. This order shall be displayed in the website of the project proponent.

xv. The SEIAA or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xvi. The proponent shall explicitly follow the suggestions and commitments made in the public hearing in protection of the environment.

xvii. Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

xviii Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

xix. The company shall undertake eco-development measures including community welfare measures in the project area.

xx. The proponent shall obtain all other mandatory clearances from respective departments.

xxi. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xxii. The SEIAA may revoke or suspend the order, if implementation of any of the above conditions is not satisfactory. The SEIAA reserves the right to alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xxiii The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

Sd/-	Sd/-	Sd/-
MEMBER SECRETARY	MEMBER	CHAIRMAN,
SEIAA, A.P.	SEIAA, A.P.	SEIAA, A.P.

To

The Additional Commissioner (H&S) GHMC,
Municipal Complex, Tank Bund Road,
Hyderabad - 500063.
Ph. No. 040-23222160/23224564.
Fax: 040-23222160/23220430.
E-mail: ac_health@ghmc.gov.in

Copy to:

1. Prof. M. Anji Reddy, Chairman, SEAC, A.P. for kind information.
2. The Member Secretary, APPCB for kind information.
3. The EE, RO-II, APPCB, RR Dist for information.
4. The Zonal Officer, MoE&F, GOI Bangalore for kind information.
5. The Secretary, MoE&F, GOI New Delhi for kind information.

-//T.C.F.B.O//-

28/6/12

SENIOR ENVIRONMENTAL ENGINEER (EC)

ANNEXURE - C

4.5.7 EXISTING DUMPSITE CLOSURE OR RECLAMATION

Many open solid waste dumpsites in India do not have an engineered liner system, leachate collection system (LCS), or an appropriately designed cover system, thus posing a threat to the environment and human health. Such dumpsites should be immediately closed to minimise their impact on land, groundwater, and surface water quality and on air quality in the vicinity of the dumpsite. Repeated burning of wastes on dumpsites cause deleterious environmental impacts.

4.5.7.1 DUMPSITE CLOSURE

Closure of municipal solid waste (MSW) dumpsite assumes great importance because each city has more than one dumpsite, which create significant health and environmental degradation. This activity requires huge logistics depending on the size of the heap, climatic condition of the place, and the plan for its future use. The requirement of logistics and time frame increases multifold in case site reclamation is planned. Some options are mentioned below, although more options can be worked out depending on the site conditions and prospects of utilisation of the retrieved material in case of reclamation.



As per Schedule I of SWM Rules, 2016:

J. Closure and Rehabilitation of Old Dumps- Solid waste dumps which have reached their full capacity or those which will not receive additional waste after setting up of new and properly designed landfills should be closed and rehabilitated by examining the following options:

(i) Reduction of waste by bio mining and waste processing followed by placement of residues in new landfills or capping as in (ii) below.

(i). Capping with solid waste cover or solid waste cover enhanced with geomembrane to enable collection and flaring / utilisation of greenhouse gases.

(iii) Capping as in (ii) above with additional measures (in alluvial and other coarse grained soils) such as cut-off walls and extraction wells for pumping and treating contaminated ground water.

(iv) Any other method suitable for reducing environmental impact to acceptable level.

Dumpsite closure may be carried out through any of the following means, as may be feasible at the site:

- The waste has to be placed in a new landfill with liner and cover in accordance with SWM Rules, 2016 (Figure 4.25). Attempts are being made towards adopting appropriate process for dumpsite closure, however, this area need definite guidelines.

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ANNEXURE – D

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officers of the North MCD as well as experts hired by the said Corporation. Some of the observations of the said Committee are as follows:

"3.5 *The Cost indicated in the DPR for bioremediation is Rs.1178 Crores. However, as per CPCB Guidelines for Disposal of Legacy Waste, the cost of bioremediation and bio-mining of dumpsite is in the range of Rs.400- 700/Cum which works out in the range of Rs.440 - 560 Crore. The actual cost shall be further reduced, if cost of land recovered by means of bio-mining/bioremediation is factored in. Hence the cost indicated by NDMC seems to be very much on the higher side.*

Similarly, the other issues raised by NDMC need detailed assessment.

3.6 *As per CPCB Guidelines,* ***capping of dumpsites is not advisable*** *as it would lead to generation of more leachates and methane/landfill gas generation which would further contaminate the already heavily contaminated Groundwater (Ground/surface water reports at Annexure VIII to X). Further as per CPCB Guidelines, gas extraction is very difficult and inefficient when attempts are made to insert suction pipes into dumped waste instead of before dumping begins. Poor success at Gorai capping led to the forced refund by Mumbai city of Rs.15 crore advance carbon credits. Taking into consideration the present height (65 m) of the landfill, extraction of leachate & gas will be even more difficult.*

3.7 *In addition, in the present tender documents, there is no provision for onsite treatment of leachates and utilization of gas generated as also decontamination of ground water/bio-remediation have not been envisaged in spite of the fact that ground and surface water are heavily polluted as reflected by analysis of ground water and surface water reports given in the DPR. The details of analysis reports are given below:*

(a) *Table-I (Annexure-VIII) pertains to ground water sampling report of hand pumps which has indicated that average levels of BOD (2.4 mg/1), COD (28.0 mg/1), TDS (2783 mg/1) are more than the prescribed acceptable limit of zero for BOD, zero for COD and 500 mg/1 for TDS. Besides, the average high level of Residual Free Chlorine of208.7 mg/1*

proposal to utilize the inert material as filling material in the widening of national highways. Some of the dumpsite gas has been extracted and flared in association with GAIL. A pilot project was conducted for bioremediation of 100 TPD for both fresh and legacy waste. Experts were consulted in regard to slope stabilization and treatment of leachate. EDMC has started decentralized waste management processes with the help of urban development fund from the Govt. of India to the tune of Rs. 70 Crores.

7. The Counsel appearing for South Delhi Municipal Corporation (SDMC) has handed over, during the hearing, their copy of action taken report. According to the action taken report furnished by the SDMC, it consulted experts and executed some work of sterilizing the legacy waste at *Okhla* Phase-I.

8. In O.A. No. 386/2019, the grievance raised was that unscientific capping process of the *Bhalswa* legacy waste dumpsites was against the SWM Rules and not conducive to the environment. This Tribunal, vide order dated 04.04.2019, sought opinion from a Committee comprising CPCB and Dr. G.K. Pandey, former Expert Member of this Tribunal, who is known to have expertise in the subject. Report dated 31.05.2019 has been submitted by the said Committee after visit to the *Bhalswa* site, visit to Bawana Waste Processing Plant and meeting with the North Delhi MC officers. Presentation was made before the said Committee by concerned

ANNEXURE -E

(S2)

FINAL

Suggestive/Indicative

"The National Action Plan for Municipal Solid Waste Management"

[In compliance with Hon'ble National Green Tribunal Order Dated 5th February, 2015 in the Matter of OA No. 199 of 2014, Almitra H. Patel &Anr. Vs Union of India &Ors.]



CENTRAL POLLUTION CONTROL BOARD

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THE NATIONAL ACTION PLAN FOR SOLID WASTE MANAGEMENT

1.0 INTRODUCTION

The fact is that Indian cities and towns are found littered with garbage (MSW) and represent an ugly look at many places within the city/town. In most of the towns/cities, only important locations are maintained cleanliness leaving other places chocking with uncollected waste. The collected wastes are disposed on un-attended land-fills; and it is a long-way to see that the entire waste collected by a city or town is processed and only remnants disposed in landfill. In fact, remnants classified as "inert / non-recyclable have to be converted into other useable product so to realize the vision and mission of achieving 'Zero' landfilling.

Drawing of time-targeted action plan for management of MSW by each city and town is essential against the population and developmental growth, otherwise, with the increasing quantity of waste will lead to un-healthy environmental conditions.

2.0 DIRECTION OF HON'BLE NGT

Hon'ble NGT in OA No 199 of 2014 (Almitra H. Patel Vs Union of India) on 5th February, 2015 directed that "The Central Pollution Control Board shall submit its independent comment in relation to formulation of a national policy with regard to collection and disposal of a municipal solid waste as a National policy to be adopted. Let the CPCB also submit such proposal within two weeks from today and put it on their web sites so that other State Board and State Government shall also have advantage of that report and take the same into consideration while submitting status reports / suggestion in accordance with this order". The Hon'ble NGT also directed CPCB on 25.05.2016 to submit comments on Action Plan prepared for Bhatinda Solid Waste Management Plan.

3.0 GENERATION, COMPOSITION AND MANAGEMENT OF MSW

3.1 It has been observed that municipalities do not keep/maintain regular data on waste generation and its composition. Only few references of National Environmental Engineering Research Institute (NEERI) on selected towns [CPCB's study on 59 cities (2008-09)] and other institutes are available. Presently,no systematic and authentic data on MSW generation at National Level and subsequently at State, District and at city / town level is available. It is to state that quantification of MSW and assessing its composition is a systematic study with laid down procedures as prescribed in the Manual of CPHEEO, MoUD, 2000.

Based on the information collected by CPCB from time-to-time, the reported/estimated waste generation in the country is 1,41,064 tons/day and out of which, 127531 tons/day (90%) is collected and 34,752 tons/day (27%) processed. The state-wise waste generation is given in **Annexure – I**.

3.2 The characterization of MSW is an important aspect as the composition will determine the applicability of waste processing technology. On an average, garbage is composed of 40-45% of organic fraction and 20-30% inert fraction, rest being plastics, paper, rags and other components. The calorific value of garbage will help to identify the treatment technologies like Waste-to-Energy and other thermal processes.

3.3 Status of MSW Management varies from city-to-city. However, overall status is based on approach / strategy adopted by the local bodies. The general observations as applicable throughout the country are summarized as under;

i. Segregation of MSW at source or at household level is not practiced. Partial waste segregation practice observed in a few cities/towns where public are provided with infrastructure facilities and created awareness by the civic bodies.

ii. Bio-medical, slaughter house and other wastes get mixed with MSW at dust bins and finally reach landfill sites.

iii. Door-to-door collection of waste is not practiced in majority of city/town. However, organized and privately managed societies have segregated waste collection system in few pockets of cities/towns but, after retrieving recyclable materials, the segregated wastes are mixed again in nearby community bins, transport vehicles or at disposal site.

iv) Most of cities/towns do not practice covered transportation of wastes. The scenario is that the waste transporting vehicles are not well maintained for cleanliness; they look dirty/ filthy and even emit foul smell and litter wherever they pass through.

v) The community bins set up are not maintained properly and cause public resentment (NIMBY syndrome). Stray cattle are attracted by such bins and become breeding place of rodents/fly. The foul smell prevails in the area due to not lifting waste regularly/timely.

vi) There are unaccounted generation of recyclable materials collected by waste pickers at source. These recyclable materials reach custody of informal sectors leaving behind the waste of less calorific value that cannot be utilize in waste-to-energy projects.

vii) Many cities/towns have set up waste processing plants, but they are not self-sustaining. Some of them are closed and remaining waste processing plants are running at loss due to lack of policy.

viii) The municipalities face problem in identifying new landfill sites. Each town/city has 2-3 open dumping grounds which have already been exhausted. The collected waste from cities goes directly to the dumping ground. The dumped waste is mixed in nature. Almost, entire waste collected is dumped and only in selected cities, waste is processed biologically or thermally.

ix) Landfill sites are not scientifically maintained and these dumps pose potential threat for ground water pollution and are likely cause deterioration of the ambient air quality.

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x) Local bodies do not have long term action plan for managing their city waste. Whatever scheme they implement for waste management, those are worked out on day-today requirement basis or for a short term remedial measures.

4.0 BASIS OF CPCB FOR DRAFTING NATIONAL PLAN

At the instance of Hon'ble NGT, CPCB drafted an indicative National action plan based on MSW Rules, 2000 and posted in website for reference of drawing State Action Plans. As the MSW Rules, 2000 have been revamped and notified the Solid Waste Management Rules, 2016, the National Action Plan is also re-drafted accordingly. The references of drafting National Action Plan are as under;

i) The Solid Waste Management Rules, 2016 notified dated 8th April, 2016.

ii) Annual reports received from SPCBs/ PCCs regarding implementation of MSW Rules

ii) Survey carried out by CPCB for 59 cities (35 metro cites and 24 state capitals) in 2004-05 with NEERI

iii) State wise interactions with local bodies in coordination with SPCBs/PCCs

iv) Field visits made of landfill sites and existing waste processing facilities.

5.0 REFERENCES USED FOR DRAFTING NATIONAL PLAN

While drafting the action plan, CPCB has referred following documents and interactive experience and these include;

i) High powered / Expert committee report (Under Chairmanship of Shri Asim Barman, Municipal commission, Kolkata) 2001. This committee was constituted by Hon'ble Supreme Court in the matter of Almitra H. Patel Vs Union of India on Solid Waste Management.

ii) Manual on Solid Waste Management proposed by CPHEEO, Ministry of Urban Development, 2000.

iii) Prof. Kasturirangan Report, 2014 on Waste-to-Energy (Planning Commission).

iv) Punjab Model-Municipal Solid Waste Management Plan, 2014; with

v) Order of Hon'ble NGT (OA Nos 40/34/38/36 and MA Nos 1082 & 232 of 2013) dated 25th November, 2014.

THE NATIONAL PLAN

6.0 ACTION PLAN

The National Action Plan /Policy proposed is an outline of suggestive/ indicative strategy that states and UTs may refer for similar State Action Plan. However, each State / UT and individual city/ town will have to draw city/town-specific action plan which has to be prepared in the form of Detailed Project Report (DPR)

The National Plan suggested in this document gives basic objectives and broad framework in accordance with the Solid Waste Management Rules, 2016 to derive the needs in-terms of tool and tackles, equipment and indicative technological options.

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The National Plan further outlines packages and combinations based on quantum of waste generation, an approach to be adopted and environmental standards to be maintained.

7.0 AN APPROACH FOR ACTION PLAN

The action plan at state level may have following approach;

7.1 State / UT Plan;

Each state will have to assess the local situation and considering the preparedness of local bodies. The state plan would provide advice to local bodies and finalize modalities for setting up of individual or formulating combined waste processing and disposal facilities. This will have to be done based on Regional / Cluster approach besides decentralized facilities. The State policy also required to address the financial incentives and penal provisions for the local bodies.

Each State may follow the waste management policy (hierarchy) as under;

(i) Waste prevention or minimization
(ii) Waste utilization
(iii) Waste recycling
(iv) Waste processing
(v) Waste-to-Energy
(vi) Landfilling

Firstly, the state may adopt certain policy to prevent generation of unnecessary waste within the city and minimize generation of waste at source to avoid cost of waste management. Immediate attention is needed to focus on generation/ management of bio-degradable fraction of waste as it has potential to cause health effect and need immediate stabilization. Such waste can be minimized also by home composting, community biogas production and other initiatives like cattle feed. The horticultural waste, drain silt, debris from demolition /construction works, etc, are to be collected and managed

separately. The awareness program will be an effective tool for such waste minimization and segregation.

Secondly, every state needs to promote setting up of material Recovery facility (MRF) to segregate and recover valuable matters from household waste. Such recovered materials can be utilized directly or after re-processing. The local body also may collect bulk wastes like furniture, home appliances, etc. through depots and sell to recyclers. Public should be encourage to deposit such wastes at MRFs.

Thirdly, the recyclable materials like paper, plastic, metals, wood, clothes, etc segregated from the waste are to be given to recyclers for reprocessing. Such activities will help in conservation of natural resources; and promote economic benefits and employment opportunity in the state.

The fourth step i.e. processing of organic waste is very essential before waste disposal in landfills. The organic waste can be processed for compost or biogas production. Decentralized or regional facilities may be set up for treating such organic waste depending upon their quantity of generation.

The fifth option could be waste-to-Energy that helps in recovery of energy from waste. Though it is highly technical and polluting nature, provide quick disposal of waste with economic benefits. The generation of biogas or bio-fuel can be utilized for electricity, locomotive fuel and heat energy.

The last option may be made as landfilling of waste, which is not very cost effective besides posing threat to environment and health. Attempts may be made to minimize landfillable waste by way of maximum utilization of waste so that landfills are last longer.

7.2 City / Town – level Action Plan

Each municipal body will prepare action plan in consultation with State Urban Department after assessing the status of waste generation and composition. Local body would work-out requirement of tools and equipment to ensure proper; segregation, material recovery, storage, transportation, processing

and disposal of waste; and document it in form of DPR. This plan will meet the provisions as per Solid Wastes Management Rules, 2016.

8.0 FORMULATION AND IMPLEMENTATION OF PLAN

The Action Plan formulation and its implementation can be achieved by dividing under followed Heads;

8.1 Intra-city activities

Each local body is required to frame byelaws considering the provisions of the Solid Waste Management Rules, 2016. Notify user fee, tipping fee, spot fine, etc. for management of solid waste.

Each Local Body may at its own level undertake segregated collection of waste, material recovery facilities, storage and transportation. These activities otherwise also are being performed by them. However in each of these activities, participation of voluntary groups, NGOs can be considered and contracting / outsourcing can also be done. The waste pickers are to be identified.

Each local body to ensure separate collection of Horticultural wastes for their separate processing and disposal. Attempt may be made to prevent generation of horticultural waste by utilizing or processing for compost at the site itself.

The local bodies also need to ensure that the city solid waste is not get mixed with other streams of wastes like bio-medical waste, hazardous waste, C&D waste, E-Waste, etc.; and manage them according to their respective rules.

Waste after transportation should reach the waste processing and disposal sites which should be developed at appropriate acceptable locations based on environmental clearances as required.

The Waste processing and disposal services can be operated with private sector participation for which proper model agreement can be entered. In this endeavor, State Govt. should facilitate local bodies.

The best suited option is to set up Regional / cluster based common waste processing and disposal facilities under the guidance of State UDD.

9.0 REGIONAL / CLUSTER-BASED APPROACH FOR COMMON WASTE PROCESSING & DISPOSAL FACILITIES.

The cluster–based approach adopted by the state of Punjab has been examined. The Govt. of Gujarat has also attempted a similar approach.

9.1 The concept.

The concept of Regional / Cluster–based approach is to discourage setting up of individual based waste processing or disposal facilities as far as possible. If individual local body set up their facilities, it will result in mushrooming of many / innumerable facilities within the state which may be difficult to monitor. However, bigger cities may set up their own facilities to avoid long distance transportation of garbage.

9.2 Criteria for Cluster-Regional facility:

The following criteria may be considered for adopting cluster-based approach for setting Regional / Common waste processing and disposal facilities;

i) A detailed survey of State / UT with positioning of city / town / village and distance between them.

ii) Based on local condition, fixing of criteria by the local body to transport the waste for common disposal point without causing public nuisance and traffic hurdles. An indicative distance of say upto 50 km for each local body may be feasible. However smaller local bodies may difficult to arrange transportation on daily basis. For such villages / towns, alternative options can be worked-out.

iii) An adequate size of land will have to be acquired which should be free from public objection. Common facility should not have settlement at least 3-5 km from its periphery.

iv) Common facility perhaps should not be designed for handling waste say less than 3000-5000 tons per day and this will be depending upon number of towns/villages covered and corresponding to waste generation. Common facility should consider giving some value back in terms of end-product and also to be sustainable.

v) Common facility should be 'integrated' with facilities for sorting, compost, RDF and energy plant and followed by inert recycling / re-use. Only a fraction of inert waste should go for land-filling.

vi) Bigger cities generating more than 1000 tons/day should adopt combination of waste processing technologies which may include; composting, RDF, waste-to-energy (Anaerobic or thermal). Such facilities should meet existing environmental standards and even be designed with latest state-of-the-art technologies to meet stricter norms. However, State Govt. should provide proper incentives so that such plants can be sustained and techno-economically viable.

vii) Smaller city, say generating <1000 tones, can go for composting, RDF. In further smaller town, where waste generation is less than 100-500 tonnes per day, they can compost and produce RDF and send it to common facility for power generation. Even at District and sub divisional level, centralized RDF / Compost facility can be set up.

9.3 How clusters can be formed

i) Gujarat Govt. got a study conducted through Bhaskaracharya Institute of Space Application and Geo Centre (BISAG), a State Remote Sensing Agency who surveyed the entire state and after working out travel and environmental criteria, has arrived on 28 clusters which include 159 Nagar Palika, 8 municipal corporation, 4 notified areas and one Urban Development Authority. The common facility for establishment include; Regional landfills and compost / vermi-compost plants.

ii) Govt. of Punjab has also evolved 8 clusters to set up common facilities.

iii) CPCB got a study conducted based on GIS/Remote Sensing for Delhi, Andhra Pradesh and Karnataka on experimental study basis.

Based on the experience of Gujarat and Punjab Model and study of CPCB, each state can work-out clusters for setting up of common facilities. This can be done by each state within 3 months.

It is important to mention that, the common site identified for setting up of common facility should meet environment siting criteria and should be adequate for realistic time-frame.

10.0 SUGGESTIVE / INDICATIVE PLAN.

The proposed action plan for formulation and implementation is based on (i) Quantum of waste generation, (ii) indicative action plan and (iii) suggested/ indicative guidelines to proper DPR / Plan of implementation and accordingly estimating cost on accomplishing the targets. The suggested plan is as under;

10.1Theme of action plan

States and Union territories are required to prepare action plans for cities and towns based on the population and waste generation. Steps/action need to be taken could be indicated in a phased manner.

(i) Action plan for cities generating waste >500 tonnes per day

- Cities generating solid waste more than 500 t/d are suggested to formulate action plan which may include the following components;

- Modernization/ mechanization of waste storage and transportation facilities;
- Privatization/ contract with 'operators' for collection of waste from various sources and its transportation; and

- Seeking support of Private entrepreneurship in setting up of waste processing and disposal facility.

- The cities with estimated waste generation of more than 500 t/d includes; Ahmedabad, Agra, Bangalore, Bhopal, Chennai, Delhi, Hyderabad, Jaipur, Kanpur, Kolkata, Lucknow, Mumbai, Nagpur, Pune, Surat and other cities.

(ii) Action Plan for cities generating waste between 100-500 t/day

- The towns generating waste ranging between 100 and 500 tonnes per day would be required to initiate similar type of actions as suggested above to prepare action plan for improving collection system, storage, transportation, processing and disposal of waste. It may be possible that establishing one single plant for waste processing may be adequate.

- The cities generating waste between 100 and 500 TPD for indication /illustration are given in **Annexure-II.**

(iii) Action Plan for towns generating waste less than 100 t/d

- Towns having population more than 50,000 (class II towns) and generating waste between 50 and 100 TPD may not require high-cost waste processing and disposal technologies. Such towns can design proper system for waste collection, storage and transportation considering the local situation. Aerobic composting could be an appropriate option for these towns. Such towns can be the member of Cluster/Regional facility. The towns generating MSW between 50 and 100 TPD are given at **Annexure-III.**

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(iv) Towns having waste generation less than 50 t/d.

- Majority of towns fall under this category. These towns would need simple technological solutions which could be managed without high skill operations. Main emphasis in such towns should be on proper collection of waste and motivating citizens for segregation of waste. Collected waste could easily be composted and used locally. Such towns located near the Regional facility, should be the part of it.

11.0 INDICATIVE ACTION-PLAN

Components to be covered for action plan and indicative guidelines are as under;

	MSW Generation-> (T/day)	**>500**	**100-500**	**50 -100**	**<50**
1	Authorization	Should apply for authorization and seek from SPCBs/PCCs	Should apply for authorization and seek from SPCBs/PCCs	SPCBs/PCCs to prioritize based on State/ UT-specific requirement	To be perused in a phased manner
2	Collection of Waste	Comply with Schedule- II of the Rules and comply within six months	Comply with Schedule-II of the Rules and comply within six months	Comply with Schedule-II of the Rules within six months	Comply with Schedule-II within a year
3	Segregation of waste	Launch mass awareness programme	Launch mass awareness programme	Launch mass awareness programme	Launch mass awareness programme
4	Storage of Waste Or MRF	Set up waste storage facilities which would be combination of conventional as well as mechanized system	Set up waste storage facilities which would be combination of conventional as well as mechanised system	Set up waste storage facilities which would be combination of conventional as well as mechanise system	Set up conventional bin system and maintaining them in hygienic manner

5	Transportation of waste	Vehicles used for transportation of waste. Storage facilities should synchronize with transportation system. Strict compliance with Schedule-II to be ensured	Vehicles used for transportation of waste. Storage facilities should synchronize with transportation system. Strict compliance with Schedule-II to be ensured	Vehicles of smaller size and easy to maintain be used	Economic type of vehicles including local means considering hygienic aspect, be preferred.
6	Processing of waste Schedule II & IV	• Adopt combination of waste processing technologies, as single technology may not take care of such quantities of waste. • Processing plants should be set up as per Schedule-I	• Adopt combination of waste processing technologies, as single technology may not take care of such quantities of waste. • Processing plants should be set up as per Schedule-I	Considering technical capabilities of local bodies and garbage quantities upto 100 t/d, aerobic process could be feasible solution with better segregation, bio-gas plants can be set up	Aerobic biological method for stabilization of waste can be a viable solution. Also, Bio-gas plants may come which can cater energy demand.
7	Disposal of waste (Schedule-III)	Rejects of waste processing plants to be disposed off as per Schedule-III of the Rules. In case of mixed waste, landfilling may be continued following specifications laid down in Schedule III of the Rules	Rejects of waste processing plants to be disposed off as per Schedule-III of the Rules. In case of mixed waste, land filling may be continued following specifications laid down in Schedule III of the Rules	Simpler-easy to operate landfills be preferred	Simpler-easy to operate landfills be preferred

12.0 INDICATIVE GUIDELINE FOR FORMULATION OF ACTION PLAN

Activities	Action points	Likely Procedures / Requirements	Time-frame
DPR	Prepare a detailed project report (DPR) management of MSW in accordance with MSW Rules to cover; (i) waste segregation (ii) Collection (iii) Storage (iv) Transportation (v) Proceeding; and (vi) Disposal DPR could be prepared based on the indicative guidelines brought out by CPCB [**Annexure-IV]**	Municipal Authorities (MA) and State Urban Development Departments (UD)	Six months
Survey/ Assess-ment	Each local body to undertake assessment of quantity of MSW generation and its composition before identification of processing technology for MSW management	Municipal Authorities (MA) Private operators	Six months (metro cities + State Capitals) 8 months (Class I cities) 12 months (Class II towns + below)
Collection of waste	Making arrangements for collection of waste to cover; • House-to-house collection • Slums and squatters • Commercial areas • Industrial areas • Horticultural waste from parks, etc. • Construction and demolition waste • Office complexes • Slaughterhouses, vegetable markets	By engaging NGOs/ Agencies	9 months
Segregation of waste	- Mass awareness programmes for segregation of waste at; • At school level • At residential level • At market/commercial areas *Through :* • Pamphlet • Interaction • Hoarding/newspaper/ local cable network,	Through Institutions/ NGOs or Govt Departments.	6 months

Activities	Action points	Likely Procedures / Requirements	Time-frame
	direct interaction, etc. - Door - to - door collection of segregated waste followed by recycling/ utilization by appropriate environment friendly manner.		
Intra-city activities	i) Regulation of stray cattle movement ii) Prohibiting burning of garbage, leaves, other waste. iii) Regular street sweepings. iv) Improving street sweeping on wider roads by mechanical means. v) Covering dusty areas/ road sides to prevent flow of dust on roads and / or sweeping of dust causing high levels of dust in ambient air. vi) Setting up of public complaint cell and attending them on urgent basis. vii) Constitution of vigilance squads to; prevent littering of waste, monitoring lifting of garbage on daily basis, maintenance of dust bins, movement of stray cattle, burning of garbage, transportation of waste in covered conditions etc.	Issuing notification from DM or ULBs -by ULBs or engaging NGOs Agencies By SPCBs/ ULBs	6 months
Storage of waste Or MRFs	i) Setting up of bins of appropriate sizes in different localities (residential, commercial, slums/ squatters) ii) Setting up of three bins as per Rules. iii) Provision of litter bins iv) Provisions of containers for horticulture and construction and demolition waste. v) Regular operation and maintenance of waste storage facilities. vi) Provision of bins for weekly markets, marriage halls and other functions. vii) Open sites to be eliminated.	Procuring tools/tackles, as per DPR.	9 months
Transportation of waste	i) Devising transportation system for congested areas. ii) Devising transportation system for slums and squatters iii) Devising transportation system for horticultural and construction and demolition waste. iv) Setting up of workshop facilities for O & M of vehicles. v) Estimating requirement of transportation fleet (optimum requirement) Assessment of requirement of hand-cards, tricycles and other devices	Procuring transport vehicles as per DPR	18 months

Processing of waste	i) Formulation of State level plan/ policy and action plan for setting up of facilities. ii) Drafting terms for seeking private entrepreneurship to set up facilities. iii) Constitution of State level Technology Advisory Group to assist local bodies in evaluation of tenders, selection of technologies, etc. iv) Local bodies to initiate tendering procedures, follow up to set up requisite processing plants. Local bodies to save expenditure on waste processing and disposal by encouraging private entrepreneur to set up such facilities.	Site selection as per land-use plan of town & country planning Deptt. Or state UDA Incorporating SPCB/ Local Institutions Inviting tender from experienced firms	18 months (other towns) 36 months (Class-I cities)
Disposal of waste	**New sites** i) Identification of probable sites for operating them as waste processing-cum-disposal sites. ii) Identification of sites based on rapid EIA and following the criteria stipulated in the Rules. iii) Setting up of site clearance committee by the State Board/ Committee or State Urban Development Department for advising on suitability of site for waste processing/ disposal. iv) State plan for making arrangements for operation and maintenance of landfill site considering the views of local bodies. **Existing site** (i) Improvement in existing sites to include; provision of fencing entry gate, office-cum-record room, building of approach including internal roads, Installation of weigh bridges/ or making alternate arrangements and other provisions as specified under the Rules. ii) Operation of landfills following the provisions (18)-(21) and (22) of the Rules. iii) Provisions for monitoring of pollution (water quality monitoring, ambient air quality monitoring.) iv) Plantation at landfill site Closure of landfill site and post care.	As per land-use plan of town & country planning or UDA Public hearing Incorporating SPCBs/ Local institutions To take possession immediately to avoid encroachment. Initiate construction work inviting tenders from experienced firms.	36 months
Old dumpsites	Rehabilitation or reclamation of old dump site followed by capping & plantation.	Prepare rehabilitation plan for clearing old dump site through expert firms.	18 months

13.0 MONITORING IMPLEMENTATION OF PLAN

(i) Monitoring of implementation of action plan is required at State level, District level and at Municipal level.

(ii) Monitoring of Action Plan at State and National level may be done on the same modal as directed by Hon'ble NGT in the matter of Ganga. State level committees are reporting to main committee at central level. The similar type of mechanism could be monitored for monitory MSW action plan.

14.0 FINDINGS AND CONCLUSIONS

(i) The contents given in the present document are based on field experiences of CPCB and interaction with SPCBs / PCCs and other institutions.

(ii) The expressions given under Para 10, 11 and 12 are indicative in nature and these are placed with a view to give any local body and State Authority to think for devising the action plan. However, each state and local body may work out considering the local situations.

(iii) The bigger cities having population million plus and generating waste more than 1000 tonnes per day will have to opt for higher waste consuming technologies like waste to energy so that the waste processing plants become as sustainable and economically viable.

(iv) For waste to energy projects operating based on thermal route should ensure calorific value which can be enhanced by adopting proper segregation practices. However, mass burn technologies utilising bio mas are discouraged.

(v) The cluster based project to cover all villages and towns should be practiced. This will eliminate the process of setting up of individual waste processing and disposal facilities which subsequently will be difficult to monitor and also may raise public objections.

(vi) The option can also be that waste generated between 100-500 tonnes can prepare the RDF at the town level which can go to the Regional / Common facilities.

(vii) For setting up of regional / common facilities, adequate size of land and such site meeting the environmental criteria should be identified. No settlement around such facility should be permitted to avoid the public objection.

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Annexure-I

STATE-WISE GENERATION, COLLECTION AND TREATMENT

(February' 2016)

S.No	States	Generated (TPD)	Collected (TPD)	Treated (TPD)	Landfilled (TPD)
1	Andaman & Nicobar*	70	70	05	
2	Andhra Pradesh*	4760	4287	6402	
3	Arunachal Pradesh	116	70.5	0	
4	Assam	650	350	0	
5	Bihar	1670	-	-	
6	Chandigarh	370	360	250	
7	Chhattisgarh*	1896	1704	168	
8	Daman Diu & Dadra*	85	85	Nil	
9	Delhi	8370	8300	3240	
10	Goa	450	400	182	
11	Gujarat	9988	9882	2644	
12	Haryana	3103	3103	188	
13	Himachal Pradesh	276	207	125	150
14	Jammu & Kashmir*	1792	1322	320	375
15	Jharkhand*	3570	3570	65	
16	Karnataka	8697	7288	3000	
17	Kerala	1339	655	390	
18	Lakshadweep*	21	-	-	
19	Madhya Pradesh	6678	4351	-	
20	Maharashtra	22,570	22,570	5,927	
21	Manipur*	176	125	-	
22	Meghalaya	208	175	55	122
23	Mizoram*	552	276	Nil	
24	Nagaland	344	193	-	
25	Orissa	2374	2167	30	
26	Puducherry	495	485	Nil	
27	Punjab*	4105	3853	350	
28	Rajasthan*	5037	2491	490	
29	Sikkim*	49	49	0.3	
30	Tamil Nadu	14500	14234	1607	
31	Tripura	415	368	250	
32	Telengana	6740	6369	3016	3353
33	Uttar Pradesh	19180	19180	5197	
34	Uttrakhand	918	918	Nil	
35	West Bengal	9500	8075	851	515
	Total	1,41,064	1,27,531 (90%)	34,752 (27%)	4,515

data of Annual Report 2013-14 & 2014-15

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Annexure-II

Cities Generating Wastes in between 200-1000 TPD

[Illustrated /Indicative]

S. No	Cities	Estimated Waste Generation (t/d)	S. No	Cities	Estimated Waste Generation (t/d)
1	Vishakhapatanam	350	36	Gwalior	300
2	Patna	450	37	Jabalpur	550
3	Vadodara	1150	38	Raipur	230
4	Hubli-Dharwar	300	39	Ujjain	300
5	Kochi	360	40	Ahmadnagar	250
6	Thiruvanathpuram	360	41	Akola	200
7	Indore	850	42	Amravati	250
8	Bhubaneshwar	600	43	Aurangabad	500
9	Ludhiana	850	44	Jalgaon	550
10	Coimbatore	850	45	Kolhapur	250
11	Madurai	450	46	Latur	250
12	Allahabad	450	47	Malegaon	260
13	Varanasi	500	48	Nasik	500
14	Guntur	250	49	Solapur	350
15	Elluru	200	50	Cuttack	250
16	Kakinada	200	51	Rourkela	250
17	Kurnool	220	52	Amritsar	600
18	Nellore	250	53	Jallandhar	360
19	Nizamadabad	200	54	Ajmer	420
20	Rajamundhry	300	55	Bikaner	230
21	Vijaywada	550	56	Jodhpur	550
22	Warangal	500	57	Kota	400
23	Guwahati	600	58	Trichy	240
24	Dhanbad	180	59	Thirunelveli	270
25	Jamshedpur	300	60	Aligarh	300
26	Ranchi	150	61	Bareily	450
27	Bhavnagar	300	62	Ghaziabad	500
28	Jamnagar	320	63	Gorakhpur	340
29	Rajkot	450	64	Meerut	500
30	Faridabad	400	65	Moradabad	250
31	Belgaum	200	66	Saharanpur	250
32	Mysore	350	67	Durgapur	280
33	Kannur	350	68	Chandigarh	370
34	Kozhikode	250	69	Salem	200
35	Durg	300	70	Dehradun	270

Annexure-III

Cities Generating Wastes in between 100-200 TPD

[Illustrative /Indicative]

S. No	Cities	Estimated Waste Generation (t/d)	S. No	Cities	Estimated Waste Generation (t/d)
1	Anantpur	110	31	Bharatpur	100
2	Khammam	270	32	Bhilwara	110
3	Tirupati	270	33	Ganganagar	110
4	Arrah	100	34	Pali	120
5	Bhagalpur	140	35	Sikar	100
6	Bihar Sharif	120	36	Tonk	100
7	Bokaro(Steel)	160	37	Udaipur	120
8	Gaya	150	38	Dindugul	120
9	Muzaffarpur	100	39	Nagarcoil	120
10	Panipat	120	40	Thanjavur	120
11	Rohtak	130	41	Tuticorin	120
12	Bellary	160	42	Firozabad	120
13	Davengere	140	43	Jhansi	180
14	Gulbarga	160	44	Mathura	140
15	Mangalore	140	45	Muzaffarnagar	140
16	Thirussur	130	46	Rampur	120
17	Murwara(Katni)	120	47	Shahjahanpur	130
18	Ratlam	120	48	Asansol	120
19	Sagar	100	49	Bardhaman	140
20	Chandrapur	100	50	Kharagpur	100
21	Dhule	130	51	Medinipur	180
22	Ichalkaranji	170	52	Ondal	120
23	Nanded	160	53	Pondicherry	160
24	Prabhani	100	54	Jammu	180
25	Sangli	170	55	Srinagar	140
26	Bhivandi	180	56	Shimla	180
27	Berhampur	100	57	Shillong	180
28	Patiala	140	58	Aizwal	100
29	Alwar	110	59	Tirupur	120
30	Beawar	110	60	Imphal	140