30/4/15

IN THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

IN

ORIGINAL APPLICATION NO. 199 OF 2014

IN THE MATTER OF:

Almitra H. Patel & Anr. ... Applicants

Versus

Union of India & Ors. ... Respondents

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NDOH - 30/4/2015

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SHAGUN MATTA: ADVOCATE FOR THE RESPONDENT NO. STATE OF WEST BENGAL

8346

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COMPLIANCE AFFIDAVIT ON BEHALF OF THE RESPONDENT NO. STATE OF WEST BENGAL.

I, Bhupal Chandra Patra, Special Secretary Municipal Affairs Department, Government of West Bengal, Writers Buildings, Kolkata -700001 at presently New Delhi, do hereby solemnly affirm and state as under:

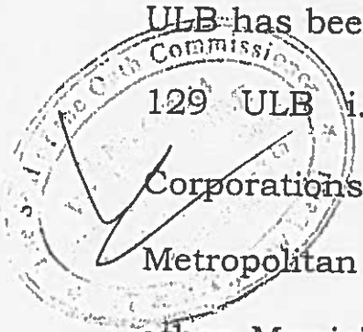
1. That I have perused the Original Application No. 199 of 2014 and the various orders passed by this Hon'ble Court and made myself well acquainted with the facts of the present case and am competent to affirm this Affidavit on behalf of the State of West Bengal.

2. That this Hon'ble Court on 20.03.2015 directed all the concerned states to file comprehensive affidavit within four weeks in the light of judgment of the tribunal in Original Application No. 40 of 2013 in the matter of people for transparency through *Kamal Anand Vs State of Punjab* decided on 25.11.2014 and judgment with regard to state of Haryana in the matter of Almitra H. Patel Vs. Union of India.

Hence the present affidavit in compliance of orders of this Hon'ble court.

3. That as stated earlier in affidavit dt. 27.02.2015 State of West Bengal consisted of total No. of about 128 Urban Local Bodies (ULB's) including 6 Municipal Corporations.

It is stated that on or about March 2015 one new ULB has been recently constituted making it in total 129 ULB i.e 42 ULB including 3 Municipal Corporations are situated within Kolkata Metropolitan Area and remaining 87 ULB with 3 other Municipal Corporations are situated outside Kolkata Metropolitan Area.



These 129 ULB are divided as follows:

(A) **URBAN METROPOLITAN DEVELOPMENT AREA (KOLKATA METROPOLITAN DEVELOPMENT AUTHORITY AND ASANSOL DURGAPUR DEVELOPMENT AUTHORITY)**

A trans Municipal SWM project involving 8 Municipal Towns in KMA had been completed by KMDA in the year 2010 under Urban Infrastructure Governance (UIG) component of JNNURM. These towns include Bansberia, Hoogly –Chinsurah, Bally, Budge Budge, North Barrack pore, Barrackpore, Kamrahati and Garulia has been implemented as non Cluster approach in 2013-2014.

That since this project is already running 2014 onwards sincere efforts are on to convert this project into a cluster project.

A trans-municipal SWM Project in cluster approach for the 6 Urban Local Bodies of Uttarpara-Kotrung, Konnagar, Rishra, Sreerampore, Champdani and Baidyabati has been on-going under JICA (Japan International Corporation Agency) which will be implemented by end of 2016.

For the remaining municipal towns in KMA the following 9 (nine) clusters have been identified for effective handling of SWM which are at the stage of

planning and designing and site identification. That site identification will be completed by end of financial year 2015-2016 and project will be completed by end of 2019 subject to availability of funds.

Cluster – I:	Pujali and Maheshtala Municipality
Cluster – II:	Kalyani, Gayeshpur, Halisahar & Kanchrapara Municipality
Cluster – III:	Naihati and Bhatpara Municipality
Cluster – IV:	South Dum Dum, Rajarhat, Baranagar, Dum Dum and North Dum Dum Municipality
Cluster – V:	Panihati, Khardah and Titagarh Municipality
Cluster – VI:	Madhyamgram & Barasat Municipality
Cluster – VII:	Baruipur & Rajpur-Sonarpur Municipality
Cluster – VIII:	Dankuni Municipality (Stand Alone)
Cluster – IX:	Uluberia Municipality (Stand Alone)

For the planning area of ADDA, the following cluster comprising Durgapur Municipal Corporation,

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Asansol Municipal Corporation, Ranigunj, Kulti and Jamuria Municipalities has been identified.

That site identification at ADDA will be completed by end of financial year 2015-2016 and project will be completed by end of 2019 subject to availability of funds.

The detailed report of Urban Metropolitan Area for implementation of cluster approach is annexed hereto and marked as **Annexure "A"**

(B) KOLKATA MUNICIPAL CORPORATION (KMC)

That since Kolkata Muncipal Corporation is a big corporation having 143 identified wards so this has been considered as a cluster approach of wards.

Present system of waste handling in Kolkata City includes collection of waste, segregation of waste at source, transportation and disposal by way of waste utilization technology. More than 99.5% of the waste generated in KMC is disposed at open disposal site in Dhapa with an area of about 32 hectares. A 500 TDP composed plant is presently run by M/S Easter Organic Fertilizer Limited using the windrow method.

KMC has taken up to set up a waste to energy project by using Municipal Solid Waste at Chapna Mouza, Rajarhat over 06 acre land. The project will be executed on PPP model. Tender has already been floated and project to be completed by end of 2019.

KMC, in ultimate phase, will have to treat 3,500 MT of waste per day out of a total generation of 4,000 MT. The total cost involvement for treatment has been estimated as Rs. 534 Crore while the cost involvement for scientific waste disposal including procurement of land will come to Rs. 1190 Crore aggregating to a total of Rs. 1724 Crore. The present budgetary provision being the order of Rs.10 Crore only. The estimated financial gap works out to Rs. 1714 Crore.

The Detailed report of Kolkata Municipal Corporation is annexed hereto and marked as **Annexure "B"**

(C) ULB OUTSIDE KOLKATA METROPOLITAN AREA

The integrated Solid Waste Management system for 82 ULBs has been proposed in phased manner as shown in the following Table:

Phase wise distribution of ISWM Projects

Phase 1	Clusters I to VI, plus stand-alone towns of Darjeeling, Kalimpong, Kurseong, Mirik, Arambagh, Tarakeswar, Alipurduar, Dhupguri, Mal, Bankura, Bishnupur, Sonamukhi, Bolpur
Phase 2	Clusters VII to XII, plus stand-alone towns of Kalna, Memari, Dinhata, Jhargram, Haldia, Contai, Egra, Birnagar, Haringhata, Beldanga, Jiaganj- Azimganj, Kandi, Bongaon, Gobardanga
Phase 3	Remaining clusters plus stand-alone towns of Jhalda, Purulia, Raghunathpur, Diamond Harbour, Joynagar-Mazilpur, Islampur, Dalkhola, Balurghat, Sainthia

46 ULBs would be operated in Cluster Modes and rest 36 ULBs will be operated in Stand alone Mode.

Stand-alone and cluster oriented ISWM projects

Sl. No.	Name of District	Cluster/ Stand-alone mode	Name of ULBs	Population as on 2011 (Lakh)	Location of landfill site
1	Coochbehar	Cluster I	Coochbehar	1.02	Majherdabri/ MajherSarik Road
2			Haldibari	0.15	
3			Mathabhanga	0.28	
4			Mekhlignj	0.14	
5			Tufanganj	0.24	
6	Uttar Dinajpur	Cluster II	Kaliaganj	0.55	Right Bank of River Torsa
7			Raiganj	1.82	
8	Malda	Cluster III	Englishbazar	2.50	Near Nababgunj, ward No.1
9			Old Malda	0.82	
10	Murshidabad	Cluster IV	Dhulian	0.73	Kanupur, near Jangipur
11			Jangipur	0.86	
12		Cluster V	Berhampore	1.95	Nasirpur, Natungunj
13			Murshidabad	0.44	
14	Darjeeling and Jalpaiguri	Cluster VI	Siliguri MC	5.13	To be identified shortly
15			Jalpaiguri	1.12	
16	Jalpaiguri	Stand-alone	Mal	0.25	
17		Stand-alone	Dhupguri	0.48	
18	Darjeeling	Stand-alone	Darjeeling	1.20	

19		Stand-alone	Kalimpong	0.46	
20		Stand-alone	Kurseong	0.46	
21		Stand-alone	Mirik	0.11	
22	Hooghly	Stand-alone	Arambagh	0.70	
23		Stand-alone	Tarakeswar	0.31	
24	Alipurduar	Stand-alone	Alipurduar	0.81	
25	Bankura	Stand-alone	Bankura	1.38	
26		Stand-alone	Bishnupur	0.63	
27		Stand-alone	Sonamukhi	0.30	
28	Birbhum	Stand-alone	Bolpur	0.66	
29	North 24 Parganas	Cluster VII	Habra	1.50	Inbanipur/BaigachhiKhalpar
30			Ashoknagar Kalyangarh	1.34	
31	Nadia	Cluster VIII	Taherpur	0.21	Anulia, beside Ranaghat
32			Ranaghat	0.77	
33			Chakdah	0.95	
34			Coopers Camp	0.19	
35	North 24 Parganas	Cluster IX	Taki	0.43	Ward No.5 of Taki ULB area near Mankundu Rd.
36			Baduria	0.52	
37			Basirhat	1.25	
38	Nadia	Cluster X	Krishnanagar	1.56	Beside KrishnaNagar Highway, nearer from PanthaTirtha Bus Stand
39			Nabadwip	1.35	
40			Santipur	1.55	
41	Midnapore (W)	Cluster XI	Kharagpur	2.75	Hashnabad/near IIT Kharagpur
42			Midnapore	1.79	
43	Burdwan	Cluster XII	Burdwan	3.22	To be identified shortly
44			Gushkara	0.39	
45	Burdwan	Stand-alone	Kalna	0.58	
46		Stand alone	Memari	0.46	
47	Coochbehar	Stand alone	Dinhata	0.41	
48	Midnapore (W)	Stand-alone	Jhargram	0.62	
49	Midnapore (E)	Stand-alone	Haldia	2.00	
50		Stand-alone	Contai	0.78	
51		Stand-alone	Egra	0.30	
52	Murshidabad	Stand-alone	Beldanga	0.29	
53		Stand-	Jiaganj-	0.55	

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		alone	Azimganj		
54		Stand-alone	Kandi	0.75	
55	North 24 Parganas	Stand-alone	Bongaon	1.08	
56		Stand-alone	Gobardanga	0.54	
57	Nadia	Stand-alone	Birnagar	0.29	
58		Stand-alone	Haringhata	0.46	
59	Midnapore (E)	Cluster XIII	Tamluk	0.65	Near Rupnarayan River
60			Panskura	0.58	
61	Midnapore (W)	Cluster XIV	Chandrakona	0.23	Near Ward No. 7, Khirpai / Near ward No. 2, RamNagar
62			Ghatal	0.64	
63			Ramjibanpur	0.21	
64			Kharar	0.13	
65			Khirpai	0.16	
66	Birbhum	Cluster XV	Rampurhat	0.60	Jhanjhania, near Rampurhat
67			Nalhati	0.38	
68		Cluster XVI	Suri	0.70	Khatanga, near Suri/Ward No 16 near Dubrajpur
69			Dubrajpur	0.38	
70	Burdwan	Cluster XVII	Dainhat	0.41	Near Katwa
71			Katwa	0.82	
72	Dakshin Dinajpur	Cluster XVIII	Gangarampur	0.56	To be identified shortly
73			Buniyadpur	0.32	
74	Birbhum	Stand-alone	Sainthia	0.45	
75	Purulia	Stand-alone	Jhalda	0.17	
76		Stand-alone	Purulia	1.21	
77		Stand-alone	Raghunathpur	0.25	
78	South 24 Parganas	Stand-alone	Diamond Harbour	0.42	
79		Stand-alone	Joynagar-Mazilpur	0.26	
80	Uttar Dinajpur	Stand-alone	Islampur	0.61	
81		Stand-alone	Dalkhola	0.37	
82	Dakshin Dinajpur	Stand-alone	Balurghat	1.54	

It is further proposed that the activities associated with SWM from the point of generation to final disposal will be grouped into the six functional

elements: (a) waste generation; (b) waste handling and sorting, storage, and processing at the source; (c) collection; (d) sorting, processing and transformation; (e) transfer and transport; and (f) disposal. The highest rank of the ISWM hierarchy will waste minimization or reduction at source, followed by recycling, followed by waste processing to recover conversion products and energy, followed by Landfilling.

The detailed report of ULB outside Kolkata Metropolitan Area is annexed hereto and marked as **Annexure "C"**

(D) **HOWRAH MUNICIPAL CORPORATION**.

To tide over this situation and to have a permanent solution of management of MSW, Howrah Municipal Corporation authorities entered into a MoU with the foreign partner M/s SOWAREEN Solutions AG. The project envisages constructing an emission-free waste to energy plant with patented technology of the foreign partner for treatment of any type of garbage or waste for which they need about 91 acres of land.

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Howrah Municipal Corporation authorities have found a suitable land of the required area in Domjur about 16 kms from the existing Trenching Ground and if funds are available, project will be completed by end of 2019.

The detailed report of Howrah Municipal Corporation for implementation of cluster approach is annexed hereto and marked as **Annexure "D"**

4. In view of above , it is stated that for efficient Solid Waste Management in 129 ULBs the respondent/State has taken some major steps i.e. adoption of cluster approach with due regards to the proximity of ULBs involved in the concerned planning areas however the concerned ULB's are facing some of the following issues for effective Solid Waste Management:

(a) Absence of segregation of waste at source

(b) Absence of institutional arrangements in ULBs and lack of technical expertise.

(c) Inadequate resource available with the ULBs

(d) Non availability of adequate land for landfill requirement.

(e) Lack of community participation

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(f) Indifference of the citizens towards Solid Waste Management.

Bhupal Chandra Patra
DEPONENT

VERIFICATION:

I, the above named deponent do hereby verify that the contents of the above affidavit are true to the best of my knowledge as based on records of the case and nothing is false and nothing material has been concealed therefrom.

I identified the deponent who has signed in my presence.

Verified by me on this 24th April, 2015 at New Delhi.

24 APR 2015

Bhupal Chandra Patra
DEPONENT

CERTIFIED THAT THE DEPONENT

24/4/15

Oath Commissioner, Delhi

ATTESTED

Oath Commissioner Delhi

FILED BY

(SHAGUN MATTA)
Advocate for the State of West Bengal
6, School Lane, New Delhi – 110 001
Ph#: 23311168/23315816

Place: New Delhi

8370

Annexure- 'A'

PART I

URBAN METROPOLITAN DEVELOPMENT AREA (KOLKATA METROPOLITAN DEVELOPMENT AUTHORITY AND ASANSOL DURGAPUR DEVELOPMENT AUTHORITY)

In compliance with the order dated 20-03-15 of the Hon'ble National Green Tribunal, the State Government in the Urban Development Department has taken the following actions:

1. A cluster approach has been considered in the matter of strategy of Solid Waste Management (SWM).

   The clusters have been identified in the planning areas of the Development Authorities like Kolkata Metropolitan Development Authority (KMDA), Asansol Durgapur Development Authority (ADDA), Haldia Development Authority (HDA) and Siliguri-Jalpaiguri Development Authority (SJDA) under Urban development Department, Govt. of West Bengal

   There are 42 (forty two) Urban Local Bodies in Kolkata Metropolitan Area (KMA) including the three Municipal Corporations of Kolkata, Howrah and Chandanagar. Out of these the SWM of Kolkata Municipal Corporation (KMC) and that of Howrah Municipal Corporation will be taken care of by the Municipal Affairs Department, Govt. of West Bengal. SWM of Chandanagar Municipal Corporation has already been implemented by Kolkata Metropolitan Development Authority (KMDA) under Mega City Project.

   A trans Muncipal SWM project involving 8 Municipal Towns in KMA had been completed by KMDA in the year 2010 under Urban Infrastructure Governance (UIG) component OF JNNURM,. These towns include bansberia, hoogly –chinsurah, Bally, Budge, North Barrack pore , Barrackpore, Kamrahati and Gurlia has been implemented as non Cluster approach in 2013-2014.
   That since this project is already running 2014 onwards sincere efforts are on to convert this project into a cluster project.

   A trans-municipal SWM Project in cluster approach for the six Urban Local Bodies of Uttarpara-Kotrung, Konnagar, Rishra, Serampore, Champdani and Baidyabati has been on-going under JICA (Japan International Corporation Agency) which will be implemented by end of 2016.

For the remaining municipal towns in KMA the following 9 (nine) clusters have been identified for effective handling of SWM which are at the stage of panning and designing and site identification. That site identification will be completed by end of financial year 2015-2016 and project will be completed by end of 2019 subject to availability of funds.

Cluster – I: Pujali and Maheshtala Municipality
Cluster – II: Kalyani, Gayeshpur, Halisahar & Kanchrapara Municipality
Cluster – III: Naihati and Bhatpara Municipality
Cluster – IV: South Dum Dum, Rajarhat, Baranagar, Dum Dum and North Dum Dum Municipality

Cluster – V: Panihati, Khardah and Titagarh Municipality
Cluster – VI: Madhyamgram & Barasat Municipality
Cluster – VII: Baruipur & Rajpur-Sonarpur Municipality
Cluster – VIII: Dankuni Municipality

Cluster – IX: Uluberia Municipality

For the planning area of ADDA, the following cluster comprising Durgapur Municipal Corporation, Asansol Municipal Corporation, Raniganj, Kulti and Jamuria Municipalities has been identified. That site identification at ADDA will be completed by end of financial year 2015-2016 and project will be completed by end of 2019 subject to availability of funds.

2. For the identified clusters in the planning areas of KMDA and ADDA the some of the following factors are taken into consideration:

a) Present practices of Solid Waste Disposal being followed

b) Interventions / Projects already taken up

c) Assessment of need for improvement

d) Recommended Solid Waste Management Plan (With special reference to the principles to be followed, salient features, regulatory framework, sub clustering approach if required, broad level Operational & Management Plan and Institutional & Management Framework

e) Recommendations for strong awareness building programmes including effective outreach programmes to every single household, every unit (Industry /Trade / Organisation / Educational Institutions), Community etc and strong advocacy for ensuring positive motivation of the ULBs:
Sensitization / Changing the outlook and behaviour of the West Collectors, Supervisors and the Conservancy staff:
Development of IEC materials (Visual, audio and audio-Visual) for dissemination of Environmental education etc

f) Certificate of Land Acquisition / Possession for setting up MSW Treatment Plant (MSWTP), landfill and MSW transfer stations by ULBs & Right of Way (ROW) / spots for setting up community MSW storage containers to be included in the DPR.

g) Consent from the State Pollution Control Board, Airport / Airfield Authorities, Flood Control, Ground Water Management Authorities for setting up MSW treatment plants and landfill sites to be received.

h) Clearance for Environment Impact Assessment (EIA) for the proposed Landfill Sites to be obtained

i) Topographic map of the city / town / project area drawn to the scale showing all streets to be a part of the DPR

j) Geo- technical (soil) investigation reports and bore hole logs for the site of MSW treatment plant and Landfill sites to be furnished in the DPR

k) The proposed Action Plan also include adducing
   i) Report of MSW characteristics analysis based on recent composite sample,
   ii) Certificate to that effect from a laboratory accredited by the State Pollution Control Board / MoEF / State Government,
   iii) Physical and Chemical analysis indicating component wise breakup such as: a) % Biodegradable, b) % Non- biodegradable, c)% recyclables and d) % others (to specify)

l) Report on the performance of the existing SWM to be made a part of DPR

m) Assessment of rationale for location of Transfer Station and calculation of operating schedule of primary and secondary collection vehicles for synchronisation to be attached to the DPR

n) The MSW management system proposed will include components of collection of MSW in segregated form right from the source of collection, educating & enthusing people to segregate and provide dry and wet municipal solid waste separately by putting them in separate dustbins, primary transportation, secondary collection points-community / street side separate storages for solid and wet waste, secondary transport, Transfer Stations, Bulk Transport, Waste receiving pad, segregation / recycling facilities for complete segregation of the MSW at the site into wet and dry waste, MSW Treatment Plant and landfill designed as per CPHEEO Manual with detailed drawings to be provided in the DPR.

o) Details of secondary collection and transportation system

p) Details of primary collection equipment, secondary transportation vehicles proposed with tender specification and quotation

q) Mass Flow Diagram for entire MSW management system comprising all components (Generation, Collection, Transportation, Processing / Treatment plant and Disposal)

r) Design of processing plant with Mass flow diagram and Design of sanitary Landfill as per CPHEEO guidelines

s) Design of Leachate collection system and treatment plant

t) Bill of Quantities (BOQ) and cost estimates of individual component of MSW management system prepared as per latest Schedule of Rates (SOR) and Proforma Invoices to be annexed with DPR

u) Detailed PERT / CPM network showing implementation schedule to be furnished in the DPR

v) Internal Rate of Return (IRR) / Economic Rate of Return (ERR) as applicable to be furnished in DPR

w) Institutional and Financial status of Project executing agency to be reported in DPR

x) Scientific composting of wet waste completely through approved techniques with details of mechanism for marketing of composed with incentives for farmers to use it and further segregation of remaining MSW in to recyclable and unrecyclable waste particularly plastic and other wastes: The Refuse Disposal Facility (RDF) has to be tied up with persons / farms authorised for handling recyclable plastic and allied waste or for making RDF.

y) Exploring the possibilities of using other un-recyclable plastic or other waste for the purposes of construction of roads or such allied activity where it is scientifically permissible. Whatever is still found to be unrecyclable, the same shall be put into incinerators for disposal. The waste left in the incinerators shall be collected and disposed of in accordance with the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules,2008, so as to minimise residual waste to the extent possible.

z) Operation & Maintenance cost and revenue generation details (O & M Framework-existing and proposed) to be furnished in the DPR. Whether the proposed tariff charges have different rates for different categories such as residential, commercial establishments, hotels, restaurants, Vegetable markets etc has to be indicated in the DPR.

3. Environment Management Plan (inclusive of post implementation monitoring plan) and mitigation measures would be included in the DPR along with aa) Proposed SWM Sustainability Plan, bb) Schedule of the project Implementation, cc) Funding resources for the project and dd) List of Anticipated Bottlenecks and Possible Solutions

4. A Consultancy Agency comprising of a Joint Venture Company between ILF & S and State Government called BUIDL (Bengal Urban Infrastructure Development Corporation Ltd) has been engaged by the Urban Development Department for making out the strategy paper and concept plan based on the Haryana model of cluster approach as directed in the order of the Hon'ble NGT dated 20th March,2015

5. Previously a meeting has been held by the Urban Development Department on 16th of February,2015 with BUIDL , the Consultant Agency, the Chief Executive Officers of KMDA and ADDA and concerned ULBs to discuss the directions of the Hon'ble NGT vide order 5·02.2015 and ensure compliance.

True Copy
Shagun Mittal
Advocate

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Annexure- 'B'

PART II

KOLKATA MUNICIPAL CORPORATION

- Present system of waste handling in Kolkata City includes collection of waste, segregation of waste at source, transportation and disposal by way of waste utilization technology. More than 99.5% of the waste generated in KMC is disposed at open disposal site in Dhapa with an area of about 32 hectares. A 500 TDP composed plant is presently run by M/S Easter Organic Fertilizer Limited using the windrow method.
- KMC has recently adopted segregation at source in some of its wards and afternoon service of sweeping and cleaning.
- Modern scientific waste compaction stations have recently been set up in 8 locations of the city. Some moveable compactors with Tip-carts have also been introduced. Advantages of compactor station and portable compactor are (i) restriction of accessibility of birds, animals and rain water (ii) transport more garbage due to compaction system (iii) odourless transportation from compactor station to the disposal ground (iv) stoppage of rag picking (v) no spilling of garbage during transportation (vi) no seepage of water during transportation due to water tight system (vii) facilitates night transportation of solid waste etc.

- Future Plan For Collection & Transportation System

  - **Segregation of waste at source:** Segregation at source to be implemented in remaining wards as it is crucial for effective solid waste management.
  - **100 % door to door collection & transportation:** 100 % Collection and transportation of waste will be done in KMC jurisdiction. Vehicle productivity will be effectively increased since it is the most important factor influencing collection efficiency.
  - **Small and medium sized mechanical sweepers:** Introduction of more small and medium sized mechanical sweepers will be introduced to make sweeping operation efficient and dust free.
  - **Abolition of open vat points:** KMC will abolish all open vat points made of reinforced cement concrete / masonry to avoid multiple manual handling and waste will not be visible or not come in contact with the atmosphere, thereby pollution will be less.
  - **Own waste storage system in housing complexes:** Housing complexes, multistoried building - societies will be encouraged to collect waste from each household and store it at a common point within their complex. This can be near the entrance from where an operator can easily lift the same.
  - **Awareness campaign:** Continuous Awareness Campaign has been taken to create improved waste consciousness among citizens. Promoting stakeholder awareness for better waste management, segregation of waste at source by public participation and involving NGOs and also educational institutions may be involved for training to trash sorters (rag pickers). Awarding or felicitating the citizens in public for efforts to keep their localities clean, may also encourage public participation.
  - **Outsourcing for cleanliness of major thoroughfares:** Generally KMC provide sweeping in the morning by the KMC employees and in the afternoon by way of engaging labours under West

Bengal Urban Employment Scheme. But due to huge amount of waste, generated in the evening and night at the major thoroughfares of the city, night sweeping services may be introduced in future to get rid of such problems.

- **Stationary / portable compactors of different sizes:** Considerable number of stationary / portable compactors of different sizes will be introduced to remove open vats throughout the city of Kolkata.

- <u>For Treatment & Disposal Facilities</u>:
  - **Construction of engineered landfill, C&D facilities:** Construction of an Engineered Landfill site will be in place since one of the existing Kalmiban- Makaltala dumping site (11.6 hectare plot) has already been handed over to WBPCB, for implementation of World Bank aided project (CBIPMP) on remediation of Dhapa municipal solid waste dumping ground in Kolkata. Therefore, present available active landfill site is almost saturated and shall only be sufficient for KMC to continue its SWM operations for a maximum period of one year only. Design life of a scientific Landfill on 14 Acre land provided by HIDCO will be only for another 1.5 years, so land for multiple disposal sites are an immediate prerogative for long term planning.
  - **Waste to Energy Project: -** KMC has taken up to set up a waste to energy project by using Municipal Solid Waste at Chapna Mouza, Rajarhat over 06 acre land. The project will be executed on PPP model. Tender has already been floated and to be completed by end of 2019.
  - **Review of waste treatment facilities:** For integrated waste treatment facilities processor plants such as composting, bio-mechanization, etc. for the biodegradable waste may be reviewed.
  - **Laboratory scale pilot project for utilization of MSW and clayey materials:** KMC has taken up development of laboratory scale process knowhow for making common building blocks, vitreous tiles, decorative tiles and paver block utilizing MSW and clayey materials for KMC.

- <u>Fund Requirement</u>
  - KMC, in ultimate phase, will have to treat 3,500 MT of waste per day out of a total generation of 4,000 MT. The total cost involvement for treatment has been estimated as Rs. 534 Crore while the cost involvement for scientific waste disposal including procurement of land will come to Rs. 1190 Crore aggregating to a total of Rs. 1724 Crore. The present budgetary provision being the order of Rs.10Crore only. The estimated financial gap works out to Rs. 1714 Crore.
  - A DPR for SWM at a cost of Rs. 153 Crore under JNNURM has been approved by the Government of India and due to its sanction in the transition phase of JNNURM, fund is not likely to be released by Government of India. So, this need to be posed through other programmes.

<u>ACTION PLAN</u>

- Accordingly the present Action Plan for SWM for the Urban Local Bodies of the State of West Bengal is prepared as per direction of the Hon'ble NGT. It is proposed that all the facilities envisaged will be in position by 2019 to match with the time frame of Swachh Bharat Mission.

- The Action Plan is presented in four parts considering separate institutional arrangements responsible for SWM of urban areas of the State.
- A Strategy Plan of Action is under preparation for 129 ULBs in West Bengal. Based on the report, a state level MSW guideline may be elicited for effective implementation of solid waste management system in terms of the verdicts of the Hon'ble NGT and Municipal Solid Waste Management an Handling Rules, 2000.

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Annexure-'C'

Part III

82 Non-KMA ULBs

Need of the Action Plan

- There are 129 Urban Local Bodies (ULB) in West Bengal generating approximately 5377MT/day of MSW, the per capita per day generation rate varying from 290 to grams to 460 grams. SWM in these ULBs are not at present adequately handled in terms of collection, transportation, disposal and treatment to meet the requirement and standards of overall scientific SWM in the State. Issues like segregation of waste at source, lack of technical expertise and appropriate institutional arrangement in ULBs, lack of funds, absence of Sanitary Land Fill Practice (SLF), non-availability of land for new landfill sites, non-collection SWM fees, lack of mass awareness towards SWM and lack of community participation etc. are some of the key challenges in MSW service.
- Hence the need for a comprehensive Action Plan for SWMService in is felt that will address and resolve the key existing issues and challenges of SWM in ULBs of the state to provide the best possible MSW services to the ULB citizen. The Action Plan is proposed to adopt an **Integrated Solid Waste Management (ISWM)** approach to deal with the existing problems and provide adequate measures for generation, segregation, collection, transportation, treatment and disposal of MSW in accordance with the ULB Solid Waste (Management and Handling) Rules, 2000.

Coverage of Services

- **The service will cover all the 82 Non-KMA ULBs of West Bengal** (excluding 40 KMA ULBs, KMC, HMC and 5 ULBs within ADDA area).
- The work will be done in 3 phases: (i) Upgradation and updation of the existing services wherever required with all necessary reinforcement in services; (ii) Clustering of ULBs wherever possible to render common treatment and disposal facilities. (iii)Wherever clustering is not possible, standalone services would be considered along with all updated and upgraded facilities in terms of segregation, recycling, collection, transportation, treatment and disposal of MSW.
- To mention here, the Hon'ble Supreme Court has proposed the Haryana Model of ULB Solid Waste Management Plan, where the ISWM facility has been proposed on Cluster basis. **Hence clustering of ULBs for common treatment and disposal facilities of MSW wherever possible and standalone service where clustering is not feasible are proposed to be adopted under this Action Plan.**
- The factors for clustering are:

(1) Economy in processing and disposal of MSW, (2) Geographical proximity, (3) Quantum of daily generated MSW and (4) Contiguity of the ULBs and inventory

Existing situation

- As per Census 2011, population of the 82 Non-KMA ULBs it is approximately 66.45 Lakhs, **quantum of daily generated MSW being 2761 MT out of which 76.13% is domestic waste, 11.27% is market waste, 2.63% is agricultural waste, 8.46% is produced by commercial activity and 4.97% by other activities.**
- Irregularity in terms of daily and efficient waste collection, non-segregation of waste at source, primary or secondary collection points, improper storage of waste, mixed nature of collected and transported waste, crude dumping of mixed waste, use of low land/wet land for landfilling purpose,

open dumping of waste on road sides and public places are some of the common practices in most of the ULBs.

- Either direct transportation from primary collection points or transportation from secondary collection points isobserved where the mixed solid waste is transported and disposed of in the landfill site without any segregation or treatment.
- Tri-cycle, wheel barrow, tractor, tempo, mini truck etc. are the common means of transportation of MSW instead of mechanised hydraulic vehicles.
- Also community bins are insufficient in terms of numbers; transfer stations where available, are not hygienically and aesthetically maintained. Solid Waste carrying vehicles are found moving without any cover.
- Most of the ULBs use low lying areas/wetlands as common landfill sites. Sanitary Land Fill Practice (SLF) is practically absent in all ULBs.
- Compaction for waste volume reduction is not practised anywhere. Recycling of waste is only practised discretely by the rag pickers either at secondary collection points or at landfill sitesas they collect a portion of the MSW in the form of plastics, cardboards, papers, glasses etc. and send back them to the recycling industry.
- Recycle material collectors also collect such recyclable materials at source from individual households. A fair amount of market waste and construction and demolition waste are generated daily which are also collected and transported in the landfill site.
- Attempt of Trans-ULB service for MSW in several ULBs have not been satisfactorily implemented because of the non-availability of land and lack of funds.

Proposed Action Plan

It is proposed under the current SWM Action Plan that each and every ULB will adopt Integrated Solid Waste Management (ISWM) Approach.

The integrated solid waste management system for 82 ULBs has been proposed in phased manner as shown in the following Table:

Phase wise distribution of ISWM Projects

Phase 1	Clusters I to VI, plus stand-alone towns of Darjeeling, Kalimpong, Kurseong, Mirik, Arambagh, Tarakeswar, Alipurduar, Dhupguri, Mal, Bankura, Bishnupur, Sonamukhi, Bolpur
Phase 2	Clusters VII to XII, plus stand-alone towns of Kalna, Memari, Dinhata, Jhargram, Haldia, Contai, Egra, Birnagar, Haringhata, Beldanga, Jiaganj- Azimganj, Kandi, Bongaon, Gobardanga
Phase 3	Remaining clusters plus stand-alone towns of Jhalda, Purulia, Raghunathpur, Diamond Harbour, Joynagar-Mazilpur, Islampur, Dalkhola, Balurghat, Sainthia

46 ULBs would be operated in Cluster Modes and rest 36 ULBs will be operated in Stand alone Mode.

Stand-alone and cluster oriented ISWM projects

Sl. No.	Name of District	Cluster/ Stand-alone mode	Name of ULBs	Population as on 2011 (Lakh)	Location of landfill site
1	Coochbehar	Cluster I	Coochbehar	1.02	Majherdabri/ MajherSarik

2			Haldibari	0.15	Road
3			Mathabhanga	0.28	
4			Mekhlignj	0.14	
5			Tufanganj	0.24	
6	Uttar Dinajpur	Cluster II	Kaliaganj	0.55	Right Bank of River Torsa
7			Raiganj	1.82	
8	Malda	Cluster III	Englishbazar	2.50	Near Nababgunj, ward No.1
9			Old Malda	0.82	
10	Murshidabad	Cluster IV	Dhulian	0.73	Kanupur, near Jangipur
11			Jangipur	0.86	
12		Cluster V	Berhampore	1.95	Nasirpur, Natungunj
13			Murshidabad	0.44	
14	Darjeeling and Jalpaiguri	Cluster VI	Siliguri MC	5.13	To be identified shortly
15			Jalpaiguri	1.12	
16	Jalpaiguri	Stand-alone	Mal	0.25	
17		Stand-alone	Dhupguri	0.48	
18	Darjeeling	Stand-alone	Darjeeling	1.20	
19		Stand-alone	Kalimpong	0.46	
20		Stand-alone	Kurseong	0.46	
21		Stand-alone	Mirik	0.11	
22	Hooghly	Stand-alone	Arambagh	0.70	
23		Stand-alone	Tarakeswar	0.31	
24	Alipurduar	Stand-alone	Alipurduar	0.81	
Sl. No.	**Name of District**	**Cluster/ Stand-alone mode**	**Name of ULBs**	**Population as on 2011 (Lakh)**	**Location of landfill site**
25	Bankura	Stand-alone	Bankura	1.38	
26		Stand-alone	Bishnupur	0.63	
27		Stand-alone	Sonamukhi	0.30	
28	Birbhum	Stand-alone	Bolpur	0.66	
29	North 24 Parganas	Cluster VII	Habra	1.50	Inbanipur/BaigachhiKhalpar
30			Ashoknagar Kalyangarh	1.34	
31	Nadia	Cluster VIII	Taherpur	0.21	Anulia, beside Ranaghat
32			Ranaghat	0.77	
33			Chakdah	0.95	
34			Coopers Camp	0.19	
35	North 24 Parganas	Cluster IX	Taki	0.43	Ward No.5 of Taki ULB area near Mankundu Rd.
36			Baduria	0.52	
37			Basirhat	1.25	
38	Nadia	Cluster X	Krishnanagar	1.56	Beside KrishnaNagar Highway, nearer from PanthaTirtha Bus Stand
39			Nabadwip	1.35	
40			Santipur	1.55	
41	Midnapore (W)	Cluster XI	Kharagpur	2.75	Hashnabad/near IIT Kharagpur
42			Midnapore	1.79	
43	Burdwan	Cluster XII	Burdwan	3.22	To be identified shortly
44			Gushkara	0.39	
45	Burdwan	Stand-alone	Kalna	0.58	
46		Stand alone	Memari	0.46	
47	Coochbehar	Stand alone	Dinhata	0.41	
48	Midnapore (W)	Stand-alone	Jhargram	0.62	
49	Midnapore (E)	Stand-alone	Haldia	2.00	
50		Stand-alone	Contai	0.78	
51		Stand-alone	Egra	0.30	
52	Murshidabad	Stand-alone	Beldanga	0.29	
53		Stand-alone	Jiaganj- Azimganj	0.55	
54		Stand-alone	Kandi	0.75	
55	North 24 Parganas	Stand-alone	Bongaon	1.08	
56		Stand-alone	Gobardanga	0.54	
57	Nadia	Stand-alone	Birnagar	0.29	
58		Stand-alone	Haringhata	0.46	

59	Midnapore (E)	Cluster XIII	Tamluk	0.65	Near Rupnarayan River
60			Panskura	0.58	
61	Midnapore (W)	Cluster XIV	Chandrakona	0.23	Near Ward No. 7, Khirpai / Near ward No. 2, RamNagar
62			Ghatal	0.64	
63			Ramjibanpur	0.21	
64			Kharar	0.13	
65			Khirpai	0.16	
66	Birbhum	Cluster XV	Rampurhat	0.60	Jhanjhania, near Rampurhat
67			Nalhati	0.38	
68		Cluster XVI	Suri	0.70	Khatanga, near Suri/Ward No 16 near Dubrajpur
69			Dubrajpur	0.38	
Sl. No.	**Name of District**	**Cluster/ Stand-alone mode**	**Name of ULBs**	**Population as on 2011 (Lakh)**	**Location of landfill site**
70	Burdwan	Cluster XVII	Dainhat	0.41	Near Katwa
71			Katwa	0.82	
72	Dakshin Dinajpur	Cluster XVIII	Gangarampur	0.56	To be identified shortly
73			Buniyadpur	0.32	
74	Birbhum	Stand-alone	Sainthia	0.45	
75	Purulia	Stand-alone	Jhalda	0.17	
76		Stand-alone	Purulia	1.21	
77		Stand-alone	Raghunathpur	0.25	
78	South 24 Parganas	Stand-alone	Diamond Harbour	0.42	
79		Stand-alone	Joynagar-Mazilpur	0.26	
80	Uttar Dinajpur	Stand-alone	Islampur	0.61	
81		Stand-alone	Dalkhola	0.37	
82	Dakshin Dinajpur	Stand-alone	Balurghat	1.54	

It is further proposed that the activities associated with ISWM from the point of generation to final disposal will be grouped into the six functional elements: (a) waste generation; (b) waste handling and sorting, storage, and processing at the source; (c) collection; (d) sorting, processing and transformation; (e) transfer and transport; and (f) disposal. The highest rank of the ISWM hierarchy will waste minimization or reduction at source, followed by recycling, followed by waste processing to recover conversion products and energy, followed by Landfilling.

Proposed Unit Processes of ISWM under Action Plan:

1. Collection of MSW

It is proposed that:

- Duly segregated recyclable / non – biodegradable, organic and domestic hazardous waste be collected from households separately
- Collection of waste from slums and squatter areas/localities including hotels/restaurants/office complexes and commercial areas will be devised
- Wastes from slaughterhouses, fruits and vegetables markets, which are bio- degradable in nature be managed properly
- Bio-medical wastes and such wastes follow proper rules
- Collected waste from residential and other areas be transferred to community bins
- Horticultural and construction/demolition wasters/debris be separately collected and disposed off following proper norms. Similarly, activities relating to dairies be regulated in accordance with state laws
- In no case waste be burnt

- Stray animals not to be allowed to move around waste storage facilities or at any other place in city/town and will be managed as per State laws
- Collection of Waste from Shops and other establishments.

2. Segregation of MSW

It is proposed that ULB will encourage and create awareness among its citizen to segregate wastes organic and inorganic separately in two separate bins and should encourage recycling / reuse of segregated materials. ULBauthorities will undertake phased programme to ensure that community is fully involved in waste segregation process. ULB authorities will provide sufficient number of dust – bins (2 different colours) of appropriate sizes in the jhuggies / colonies in different locations and insist / educate the residents to use those properly.

3. Storage of MSW

It is proposed that ULB authorities shall establish and maintain storage facilities in such a manner to avoid unhygienic/ insanitary conditions around it. Storage facilities will be created/established based on quantities of waste generation in a given area and the population densities. A storage facility should be easy to access within the walking ranges of public.Storage facilities will not be exposed to open atmosphere and should be aesthetically acceptable and user-friendly.Manual handling of waste should be prohibited as far as possible. In unavoidable circumstances, manual handling may be carried out under proper precaution with proper health and safety of waste workers.

4. Transportation of MSW

It is proposedMSW transportation vehicleswill be covered properly in order to prevent scattering of waste on roads etc. Also MSW should neither be visible to public nor exposed to open environment. The storage facilities will be daily attended for cleaning of wastes.Collection and transportation vehicles will be so designed that multiple handling of wastes, prior to final disposal is avoided.The steps involved in the process transportation of waste should be: (i) Moving the wastes from households to collection points, (ii) Transportation of street sweepings to collection points, (iii). Moving the wastes from various collection points to large collection bins, (iv).The movement of waste from collection points to the nearby disposal ground, (v). Transport of drain silt from wards to collection point, (vi).Transport of building rubbish to selected sites and or at the dumping ground.

It is proposed that the total system is broadly divided into two levels:

(a) **Primary level Transport:**Primary collection will be done by manual collection at households by the safai-karmacharis.In this leveldifferent types of wastewill be kept un-segregated in household or establishment in separate household bins and unloaded into separate designated vats.

(b) **Secondary Level Transport** (from collection point to dumping ground)

This will be done by the SWM Transport Department with a fleet of vehicles consisting of:a). Tractor Trailer, b). Mini Trucks etc. Mechanical loading and unloading is recommended. The timing of MSW carrier vehicles 'movement is proposed to be fixed by avoiding the peak periods of city traffic in the morning half as well in the evening half. But in general, fleet movement should start once the daily household collections are deposited to the collection points. All the vehicles will strictly follow scheduled zone/routes. From collection point to dumping ground more economic routes may be established. Route optimization to save fuel cost and increase number of trips may be introduced.

5. Processing of Organic Portion of MSW

ULBs will adopt suitable technology or combination of such technologies to make use of a portion of MSW so as to minimize burden on landfill. The bio degradable wasteswill be processed by means of composting, vermi-composting, anaerobic digestion or any other appropriate biological processing for stabilization of waste while the waste containing recoverable material will follow the route of recycling.

5.1 Treatment

There are various methods of processing MSW to get useful products out of the waste in the form of manure and energy recovery. Option for incineration process would not be feasible as the capital cost of incinerator and its O&M cost would be too high to be borne. In the existing conditionas biological processing of MSWis cost effective, for Non-KMA ULBs in West Bengal the said processis proposed in the form of composting.

5.2 Biological Processing: Composting

Composting is the process of bio-chemical conversion of organic matter into humus (lignoprotiens) by Mesophilic and Thermophilic organisms. A composting process seeks to harness the natural forces of decomposition to secure conversion of organic waste into organic manure. Organic matter and various microbes together hold the key for soil productivity. Following factors affect the rate of successful composting:

(i).Moisture content (20 to 30%) and temperature maintenance (65-700C), (ii).Regular turning of the heap to ensure uniform moisture content, Inoculate content and proper aeration, (iii). Carbon-to-Nitrogen(C/N) ratio (20-25)

5.2.1 Windrow Composting Method

Windrow Composting is proposed for ULBs having population more than 50,000.

5.2.2 Vermi Composting

It is proposed for ULBs having small population (<50,000).

5.2.3 Bio – Digestor

ULB will encourage installation of bio – gas plant to produce bio gas and organic manure by converting bio – degradable waste.

5.3 Disposal of Inert Portion of MSW

It is proposed that Land filling will be restricted only to non-biodegradable, inert waste and other waste that are not suitable either to recycling or for biological processing. Landfill Sites will be classified based on available areas for landfilling as follows:

Small size landfill	:	**less than 5 hectare area**
Medium size landfill	:	**5 to 20 hectare area**
Large size landfill	:	**greater than 20 hectare area.**

Attempt is being made to reduce the landfill area in phases due to scarcity of land.**Adequate green cover will be created at landfill sites during operational phase as well as post – closure.**

<u>Other Wastes – Special wastes from non-confirming areas or special units</u>

All waste streams must be managed by their own waste management systems. Attempts will be made so that **construction &demolition waste are not be mixed with the ULB Solid Waste.** They should be collected separately and can be either used as fillers or can be filled up in a separate site.

Expenditure Layout (for 82 Non-KMA ULBs)

8370

Capital Expenditure(INR)	:	**2768 Crore**
O&M Cost(INR) per year	:	**120 Crore**

Awareness Generation: Involvement of NGOs

It is proposed that NGOs may be involved in large scale to bring about a change in public behaviour regarding MSW. They are supposed to change public behaviour and attitude by organising variousmass awareness and motivation programs, should advocate for promoting3 R's Principles(Reduce, Re-use and Re-cycleof Waste), form SWM committee to look after the smooth operation of various unit processes of MSW service.

Public Information, Education, Communication Program (IEC)

For the successful implementation of any program involving public at large in MSW system, it is essential to spell out clearly and make user known the manner in which local body proposes to tackle the problem of waste management and extent to which public participation in Solid Waste Management is expected to keep the city clean and improve the quality of life in the city.

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Annexure-'D'

PART IV

HOWRAH MUNICIPAL CORPORATION

- Howrah Municipal Corporation, the twin city of Kolkata, situated on the western bank of river Hooghly has a 2011 population of around 11 lakh and an area of 52 sq.km. Presently, solid waste is collected from door-to-door by conservancy staff twice a day and the primary transportation is done by hand carts.
- In the absence of any segregation system at source, the waste as it is, is presently dumped in Belgachia trenching ground which had an initial area of about 16 acres. The trenching ground has outlived its life with waste height reaching about 50 metres and is at risk of collapse any time. Moreover, about 6 acres area of the original trenching ground has been taken over by KMDA for construction of an Under Ground Reservoir and also for bio-medical waste plant.

To tide over this situation and to have a permanent solution of management of MSW, Howrah Municipal Corporation authorities entered into a MoU with the foreign partner M/S SOWAREEN Solutions AG. The project envisages constructing an emission-free waste to energy plant with patented technology of the foreign partner for treatment of any type of garbage or waste for which they need about 91 acres of land. Howrah Municipal Corporation authorities have found a suitable land of the required area in Domjur about 16 kms from the existing Trenching Ground and if funds are available , project will be completed by end of 2019.

The estimated investments as per the comprehensive proposal prepared for the project and obligations of Howrah Municipal Corporation are as follows:

• **Total Capital Cost including Plant, Substation and Infrastructure asper the following break-up**	**Rs. 2888 Cr.**
➢ Gas/Power Plant	Rs 2478 Cr.
➢ Sub-station	Rs 74.64 Cr.
➢ Halls and infrastructure	Rs 197.10Cr.
➢ Finance and Structuring Cost	Rs 138.42Cr.
• **Obligations of HMC**	
➢ 10% of capital expenditure	Rs 289 Cr.
➢ Cost of land	Rs 11 Cr.
➢ Gate-in fee for new as well as old waste to be used in the plant	Rs 8.60 Cr. per month
• **Obligation of joint venture partner -**	**Rs. 2600 Cr. (90% of Capital Cost)**

The benefits that are likely to accrue to Howrah Municipal Corporation on implementation of the project are:

- HMC's Present Garbage collection of 500 M.T./day can be totally utilized in the plant. So, HMC will not need for a separate land fill/Trenching Ground for next few years under the successful operation plant
- The plant will also consume about 400-500 M.T. of old garbage to be collected from the existing Belgachia Trenching Ground. This will help to reduce the substantial quantum of old garbage and the enormous height of the Trenching Ground will be reduced.
- In fact the total quantum can be made free from the Trenching Ground are within a span of 10 years.

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