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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO 199/2014

In the matter of :

Almitra H. Patel &Anr.

.... Applicants

//Versus//

Union of India and others.

..... Respondents

AFFIDAVIT ON BEHALF OF THE STATE OF GUJARAT IN
COMPLIANCE OF ORDER DATED 05.02.15.

FOR INDEX: KINDLY SEE INSIDE

PAPER-BOOK

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5735

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AFFIDAVIT ON BEHALF OF STATE OF GUJARAT IN
COMPLIANCE ORDER DATED 05.02.2015

I, Ashoksinh Parmar, Deputy Secretary, Government of Gujarat, Urban Development & Urban Housing Department, Sachivalaya, Gandhinagar, Gujarat, solemnly affirm and state as under :

1. That I have read the order dated 05.02.2015 passed by this tribunal and being acquainted with the subject matter and also duly authorized by the government I am competent to file this affidavit.

That vide order dated 05.02.2015 this Hon'ble Tribunal has directed as under:

"We hereby direct that every status report will specifically indicate if there is even a single district or village in the entire State/UT where the MSW is collected in its entirety segregated and disposed of in accordance with MSW Rules, 2000. It will also be stated as to how the MSW is being converted to an environment friendly beneficial end product, i.e, whether it is totally converted into the useable".

3. That pursuant to an above order, this affidavit is being filed to place on record the steps taken by Government of Gujarat.

- (a) It is stated that Gujarat Urban Development Company Limited (GUDCL) was appointed as the nodal agency vide the resolution dated 13/9/05 to implement the Municipal Solid Waste Management Project for the Urban Local Bodies of the State of Gujarat as per the MSW rules, 2000, since deal with the said subject.
- (b) It is stated that there are 8 Municipal Corporation and 159 ULBS (Urban Local Bodies). 8 Municipal Corporations are Ahmedabad, Vadodara, Surat, Bhavnagar, Jamnagar, Junagadh, Rajkot and Gandhinagar.
- (c) It is stated that Municipalities of Gujarat State are classified into 4 categories (A,B,C and D) on the basis of population. As per the census 2011, total 159 Municipalities are there at present.
- (d) It is stated that Action Plans were prepared for 126 Municipalities in the year 2007 by the State Government. These action Plans were implemented partly, however, since they are more than 7 years old and keeping in view the case of Capt. Mall Singh &Ors. Vs. Punjab PCB &Ors. The Punjab Model of Action plan for solid waste management, the Government would prepare the fresh action plans accordingly.
4. As on date there is not a single City in urban area where the MSW is collected in its entirety suggested and disposed off in accordance with the MSW Rules, 2000. However, the MSW Management in the rural part for the State of Gujarat additional affidavit would be submitted in consultation with Panchayat & Rural Development Department.

5. MSW is being converted to an Environment friendly beneficial end product, efforts are being made by the Municipal Corporations to convert MSW into useable material like RDF(Refuse Derived Fuel), Compost, Fluff, Bricks blocks, Plastic is belled and recycled, rejects like stones, pebbles, sand and inert is sent to the landfill trying to make a "Zero Waste City".
6. That the brief summary of action taken by Government of Gujarat together with relevant documents are annexed herewith and marked as Annexure- GJ/1 to Annexure- GJ/10.

Arhoksinh
DEPONENT

VERIFICATION:

I, the deponent above named do hereby verify that contents of the paras 1 to 6 of the above affidavit are true and correct to the best of my knowledge and belief and nothing material has been concealed there from.

Verified at Gandhinagar in this 25th day of February, 2015.

Arhoksinh
DEPONENT

Solemnly affirmed
by ARHOKSINH PARMAR
who is identified by
Siri PARTH BAPAT
whom I know personally
Dt. 25/02/2015
[Signature]
Executive Magistrate
Gandhinagar

Status and Information of Municipal Solid Waste Management in Municipalities of Gujarat

Background: Municipal Solid Waste Management Project:

- The Government of Gujarat launched in the year 2005, Municipal Solid Waste Management Project (MSWMP) to implement the MSW Rules 2000, enacted by the MoEF, Gol.
- Initially Government of Gujarat felt that ULBs were lacking in technical expertise and financial capability and therefore appointed Directorate of Municipalities for the scientific disposal of Municipal Solid Waste in the State of Gujarat, construction of VCPs and SLFs vide its resolution dated 20/07/05.
- Further to this, Gujarat Urban Development Company Limited (GUDCL) was appointed as the nodal agency vide the resolution dated 13/09/05 to implement the Municipal Solid Waste Management project for the ULBs of the state of Gujarat as per the MSW rules 2000, since the Directorate of Municipalities was not fully equipped to deal with the said subject.
- GUDCL commenced the groundwork for the same and carried out all preparatory activities like land acquisition, hiring of technical consultants, waste characterization studies, other technical studies etc. Action plan for each ULB was got prepared in Dec-2007 through the consultant. A sample copy for one such Municipality is appended herewith and marked as Annexure-I
- In the State of Gujarat we have 8 Municipal Corporations and 159 ULBs (Urban Local Bodies). 8 Municipal Corporations are Ahmedabad, Vadodara, Surat, Bhavnagar, Jamnagar, Junagadh, Rajkot and Gandhinagar.
- Municipalities of Gujarat State are classified into 4 categories on the basis of population. As per the Census 2011, total 159 Municipalities are there in Gujarat State at present which is as under:

Sr. No.	Class	Population	No. of ULBs
1	A-Class	More than 1 Lac	18
2	B-Class	50,000 to 1,00,000	33
3	C-Class	25,000 to 50,000	45
4	D-Class	15,000 to 25,000	63
		Total	159

- Municipal Corporations are well equipped to deal with the management of Solid Waste as per the provisions of MSW Rules.
- Ahmedabad Municipal Corporation (AMC) has prepared its Solid Waste Management Action Plan. A copy of the same is annexed and marked as Annexure-II, the same Action Plan could be replicated in other Municipal Corporations of the State with appropriate modifications as per their requirements wherever applicable.

Municipalities. Out of 29 remaining clusters 7 clusters have been constructed covering 32 Municipalities. The rest of 22 clusters which would cover 85 municipalities are under consideration for construction.

IEC Activities:

- Provided training to 9200 Safai Kamdars & 395 Sanitary Supervisors
- Training has been given for Capacity Building to all Municipal Sanitation Workers, Local Level Political & Administrative leadership.

Private sector Involvement

The future Processing units necessary for organic waste, secured landfill facilities and also waste to energy projects are being considered to be taken up on a PPP mode.

Mahatma Gandhi Swachhta Mission :

The State Government has established the Mahatma Gandhi Swachhta Mission to clean all Cities and Towns, 100% door to door collection, Proper segregation and transportation of Solid and Liquid Wastes, Scientific Disposal of collected waste and using waste as a source of Green Power generation. To achieve this objective the State Government has decided to make Zero Waste Cities of the State of Gujarat.

Under Mahatma Gandhi Swachhta Mission Government of Gujarat is planning to cover all 159 Urban Local Bodies of Gujarat. The State has launched this Mission in the year 2014.

There are several initiatives which would be taken up under the aegis of MGSM as mentioned below:

Solid Waste:

100% door-to-door collection would be planned and implemented for all cities. All the collected waste would be transported and disposed of scientifically. Waste would be used as a resource for Waste to Energy generation on PPP mode. These would help in improving the city environment.

City Sanitation Plan:

The main objective of the City Sanitation Plans, is to prepare plans for 4 Small Municipal Corporations & 159 ULBs to "Achieve Totally Safe Environmental Sanitation" with a special focus on Hygienic and Affordable Sanitation Facilities for the Urban Citizen.

Public Health Bylaws:

The main objective of preparing the Health Bylaws is to develop a tool for Municipal authorities to regulate the implementation of Municipal Solid Waste Management (MSWM) & Liquid Waste Management which will help improve the services to protect public Health, the environment and natural resources (water, land, air).

It is also proposed to have environmentally sound management of solid & liquid waste in compliance with the principle of the 4Rs: Reduce, Reuse, Recycle and Recover.

Model Action Plan for Municipalities of the State:

Action plans were prepared for 126 Municipalities in the year 2007 by the State Government. These action plans were implemented partly, however, since they are more than 7 years old and keeping in view the Punjab Model of action plan for solid waste management we need to prepare the fresh action plans accordingly.

The model action plan would mainly comprise of the following:

- Procurement of tools and equipments / vehicles for municipalities for primary as well as secondary collection of wastes.
- Construction of Compost Plant for municipalities for composting the organic biodegradable wastes.
- Construction of Regional Landfill sites among the group of Municipalities for final disposal of inorganic and inert wastes.
- Information, Education and Communication (IEC) activities.
- Privatization of such facilities / Private sector involvement for the Processing technology and O & M of the Plants to have easy, fast and workable PPP Model.

Procurement of equipments / vehicles:

Over 70000 vehicles/equipments were supplied to all 159 ULBs at a cost of Rs. 88 Crore in the year 2008-10 for proper Solid Waste Management. Recently, 12 different types of equipments totaling to more than 75800 for Primary & Secondary collection of waste at the cost of approximately Rs. 102 Cr were procured and distributed within a short time of 6 months to 4 Municipal Corporations and 159 Municipalities. Further requirements of the equipments for 4 Municipal Corporations and 159 Municipalities are being assessed, after the assessment the required equipments would be procured and distributed.

Vermi compost Plants(VCP):

- Based on the recommendations and studies conducted by Karnataka Compost Development Corporation, it was decided that Vermi Composting Plants (VCP) would be adopted throughout the State to take care of the organic waste.
- For organic waste, VCPs construction work was completed by the GUDC in 93 ULBs. While the construction of VCPs in the rest of the ULB is under consideration.
 - O&M of VCPs is taken up by GUDC, through NGOs for 'C' and 'D' type of 58 ULBs while remaining 'C' and 'D' type of 8 ULBs O & M is done by ULB themselves;
 - O&M for 'A' and 'B' type of 27 ULBs is done by the ULBs themselves.

Regional Sanitary landfill facility:

Cluster approach was adopted by the State Government to deal with the inert waste being generated. 36 Clusters were identified for 159 Municipalities. Out of these 36 clusters 7 clusters were taken up by 7 Municipal Corporations covering the adjoining 42

IEC Activities:

Public awareness is necessary to make cities cleaner. Public awareness and public participation will include following works. Granting of awards to the Municipalities doign best works in the solid waste management. Penalties would be taken from the people who litters. Advertisement for awareness of Municipal Solid waste management through social media, Hoardings, newspapers, jingles, street plays, video clips etc. would be carried out.

Way Forward:**Government of Gujarat has adopted a fast track approach which is as follows:**

- Additional demand of equipments for Primary & Secondary collection of Municipal Solid waste is under process for procurement.
- Assessment of existing VCPs estimation for Admissible Works of repairing and revamping was carried out in existing 93 VCPs of ULBs by appointing Consultant and the tendering procedure for appointing the Contractor/s is under process. After issuing of the work order to the selected contractor/s, the admissible works for 93 VCPs would be completed within a period of approximately one year.
- Assessment of existing SLFs for Estimation of Admissible Works for the existing 13 SLFs (Sanitary Landfill Facilities) and O & M for the same is done. Development of PPP Model for Solid Waste Management for the remaining SLF clusters in the State of Gujarat is under process. After issuing of the work order to the selected contractor/s, the O & M process for SLF would be completed within a period of approximately one year.
- After awarding of operation and Maintenance work to the Agency the VCPs and the constructed SLFs would be handed over to the respective Nagarpalikas.
- The work related to putting up 66 Processing units for the remaining Nagarpalikas and also remaining SLFs in remaining clusters is being taken up on priority basis and would be completed by the end of 2016.
- Preparation of City Sanitation Plans, Public Health Bye laws and the City Sanitation Policy are under active consideration of the State Government for preparation which when finalized and started being implemented would make cities and towns of the State cleaner, healthier and more liveable.

Financial Outlay

Since the year 2007 the State Government has expended Rs 286 Crores till now, as mentioned below:

Sr. No.	Activity	Expenditure Rs in Crore
1	Construction of VCPs	43
2	Equipments for Solid Waste Management	190
3	Secured Landfill Facility	50
4	Information, Education and Communication.	3
	Total	286

The State Government has also provided the budget outlay of Rupees _____ under the Mahatma Gandhi Swachhta Mission for taking up the following activities, for the year 2015-16.

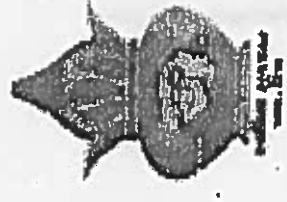


Municipal Solid Waste Management Programme

Way Ahead -- Operationlising the clusters

GUJARAT URBAN DEVELOPMENT COMPANY LIMITED, GANDHINAGAR

January 2012



- Background
- Technical Support and Knowledge Partners
- Current status of programme components at GUDC
- Gujarat Situation
- Objectives
- Strategies
- Budgetary Provision
- Earlier Planning and Actions Taken (36 Clusters)
- SLF/ Clusters construction taken up by GUDC
- Latest Planning and Actions Taken (05 Regional Clusters)
- General Action points
- State Level Scenario
- 05 Regional Clusters on PPP Mode
- Clusters Linked to existing facilities (04 + 03 Clusters)
- Criteria for RFP on PPP Mode
- Draft Concession Agreement

BACKGROUND

- The Govt. of Gujarat has launched the MSWM Programme to develop the Solid Waste Management (SWM) sector in Gujarat and to implement the MSW Rules enacted by the MoEF, GoI
- The project mainly looks at Class A, B, C and D municipalities and ensures that they implement the MSW Rules in an efficient manner.
- GUDC has been appointed as the nodal agency for the implementation of the Project
- In order to implement the MSWMP, GUDC has undertaken all the activities such as.....
 - land acquisition
 - Appointment of technical consultants to carry out waste characterization, clustering and other technical studies
 - Appointment of technical consultants to design the treatment facilities, construction of Vermi Compost Plants and Engineered Landfill sites, Supply of Equipments, IEC, etc
 - Appointment of transaction advisor for project structuring with private participation
 - Constitution of Technical Committee to review and approve RFQ, RFP, etc.

TECHNICAL SUPPORT AND KNOWLEDGE PARTNERS

- Transaction Advisors
 - M/s Crisil Infrastructure Ltd
- Design & Supervision Consultants
 - Vermi Compost Plants - M/s. KCDC Ltd
 - SLFs - M/s Mahindra Consulting Engineers for Saurashtra and North Gujarat.
 - SLFs - M/s SENES and Feedback ventures for central and South Gujarat.
- Design Vetting Consultant
 - Shri Arun Purandare, Member of Supreme Court Committee for MSW Rules
- Third Party Inspection Agencies for VCPs
 - M/s MaRS Planning & Engineers P Ltd
 - M/s SGS (I) Pvt Ltd
- Review of Proposals, BOQs, RFQ, RFP and its Evaluations
 - Technical Committee for MSWMP
 - Committee of Experts for Supply of Equipments

CURRENT STATUS OF PROGRAMME AT GUDC

- **Vermi Compost Plants (VCPs):**
 - Awarded 15 Tenders covering construction for 96 ULBs
 - Out of which construction for 83 ULBs has been completed
 - O & M activities for 73 ULBs have been taken up
- **Sanitary Landfill Facilities (SLFs):**
 - Awarded 07 Tenders covering construction for 07 SLFs
 - The works are under progress as per terms & conditions of contract
- **Equipments:**
 - Completed Supply of 70544 nos of Equipments for primary & secondary collection of waste to all ULBs
 - Supply of 679 nos of Equipments for secondary collection of waste is under progress
- **IEC Activities:**
 - Given Training to 9207 Safai Kamdars & 395 Sanitary Supervisors
 - Training have been given for Capacity Building for all Municipal Sanitation Workers, Local Level Political & Administrative leadership
- In order to expedite the implementation of the programme, planning of the whole programme has been revised
 - 05 Regional Clusters covering all balance 117 ULBs have been identified for its implementation thru' PPP Mode
 - The estimated cost of all 05 Regional Clusters is to be more than Rs. 150.00 Crores

Action Taken/ present status of PPP proposals

During the VGGIS' 2011, many new developers from private sector came out and executed MoUs in respect of MSWM Sector.

Two options were reviewed to take further appropriate actions in respect of the implementation of the programme on PPP Mode.

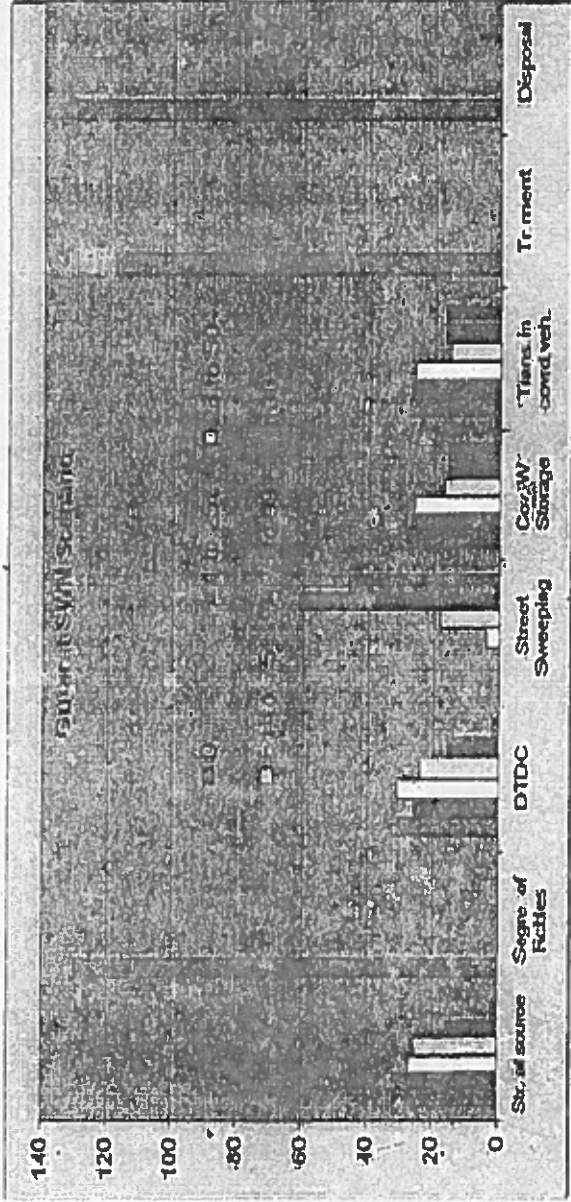
Option (I) : GUDC may allow the new developers who have recently executed MoUs in the VGGIS' 2011 to enter in to the existing proposals and issue RFQs to them, so as to get more competitive proposals for all 05 Regional Clusters; for which last date of submission of RFPs may be extended for indefinite time.

Option (II): GUDC may withdraw all 05 existing RFPs and invite Fresh RFQs, so as to create clear competitions in the process.

Present Status: The Option (II) has been adopted in regard of the implementation of MSWMP throughout the state. The Final PPP Tender Documents have been prepared and online Tender Notices shall be published shortly for the selection of PPP Developer for the Programme.

GUJARAT SITUATION

- Magnitude of waste
 - 7 municipal corporations - 3929 TPD
 - 161 municipalities - 1503 TPD
 - An average of 5500 TPD
- Lack of technical know how
- Lack of Compliance
- Lack of Institutional and Financial Capacity of ULBs
- At ULB Level:



- Waste Segregation of recyclables, Treatment facility and disposal facility are not available in any Municipality

OBJECTIVES

- Build Sustainable SWM Infrastructure
- Build Capacities at the ULB, SPV & Community Level
- Try to realise a Revenue Positive Model for O&M
- Try to build capacity within the State Sector & Retain it
- Build strong partnerships with the Private Sector

STRATEGIES

- Training-Enhance Awareness & Capacity at ULB Level
- Appropriate Equipment-Build Capacities at the ULB for Waste Segregation & Transportation
- Innovative Maintenance Contracts for equipment & Inventory Management
- Waste Treatment:
 - Vermi Composting at the ULB Level itself
 - Landfills at a Regional Level
- Capacity for Design, Supervision & Contract Management
- Explore alternate revenue models for Financial Sustainability: Carbon Credits
- Formation of a SPV-The Gujarat Waste Management Co. Ltd

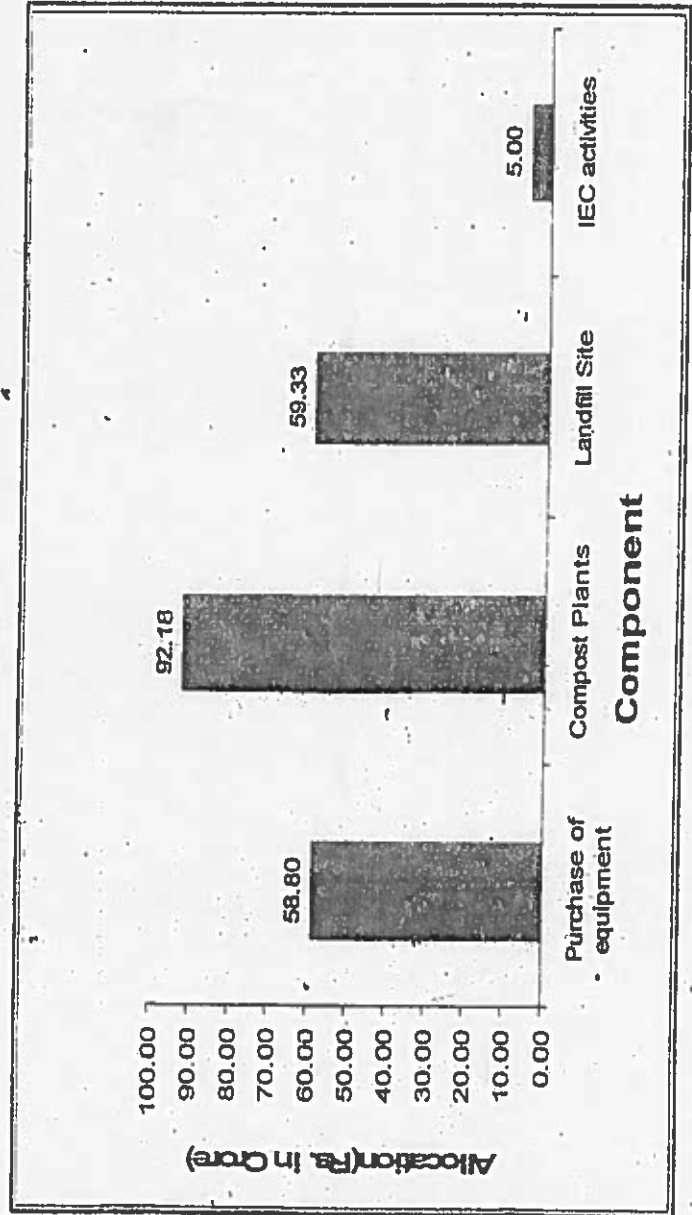
Development strategy:

- Development of waste treatment plants by GWMC at ULB locations
- PPP for financially viable clusters
- Regular contracts for non-viable clusters
- Leveraging on assets created by municipal corporations – Rajkot, Surat, Ahmedabad etc

BUDGET PROVISION

- PROCUREMENT OF EQUIPMENTS FOR PRIMARY AND SECONDARY COLLECTION OF WASTE (COLLECTION)
- VERMI COMPOST PLANTS (PROCESSING)
- SANITARY LANDFILL FACILITY (DISPOSAL)
- IEC AND CAPACITY BUILDING

BUDGET PROVISION : TOTAL RS. 453 CRORE



ACHIEVEMENTS SO FAR

(A) COMPOSTING

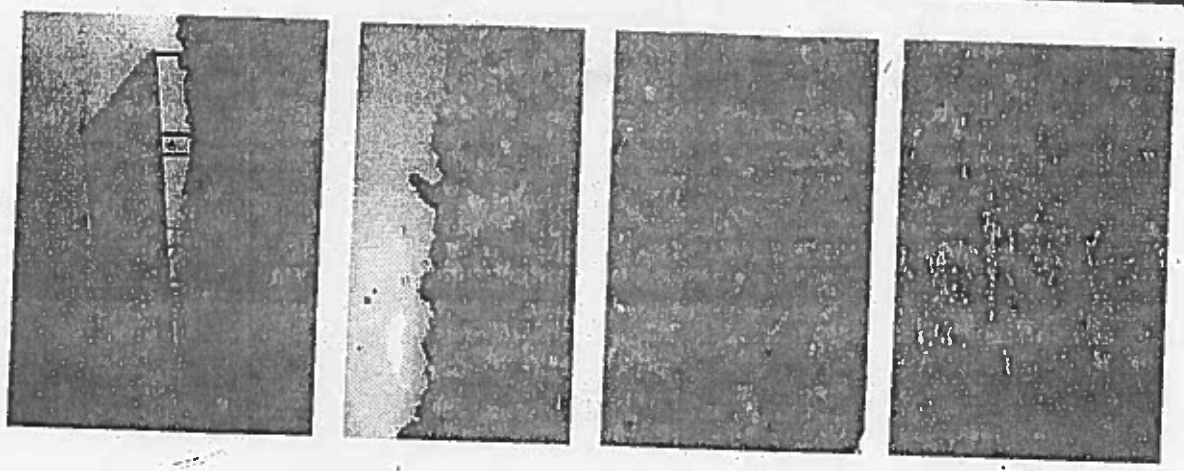
Composting plants for all ULBs of GUJARAT

- Vermi composting plants:
- For 118 ULBs having population less than 1 lakh
- Four Models based on Population:

1.	15000	to	25000	2.5 TPD
2.	25000	to	35000	5.0 TPD
3.	35000	to	45000	7.5 TPD
4.	45000	to	60000	10 TPD

> 60000 combination of above prototype models

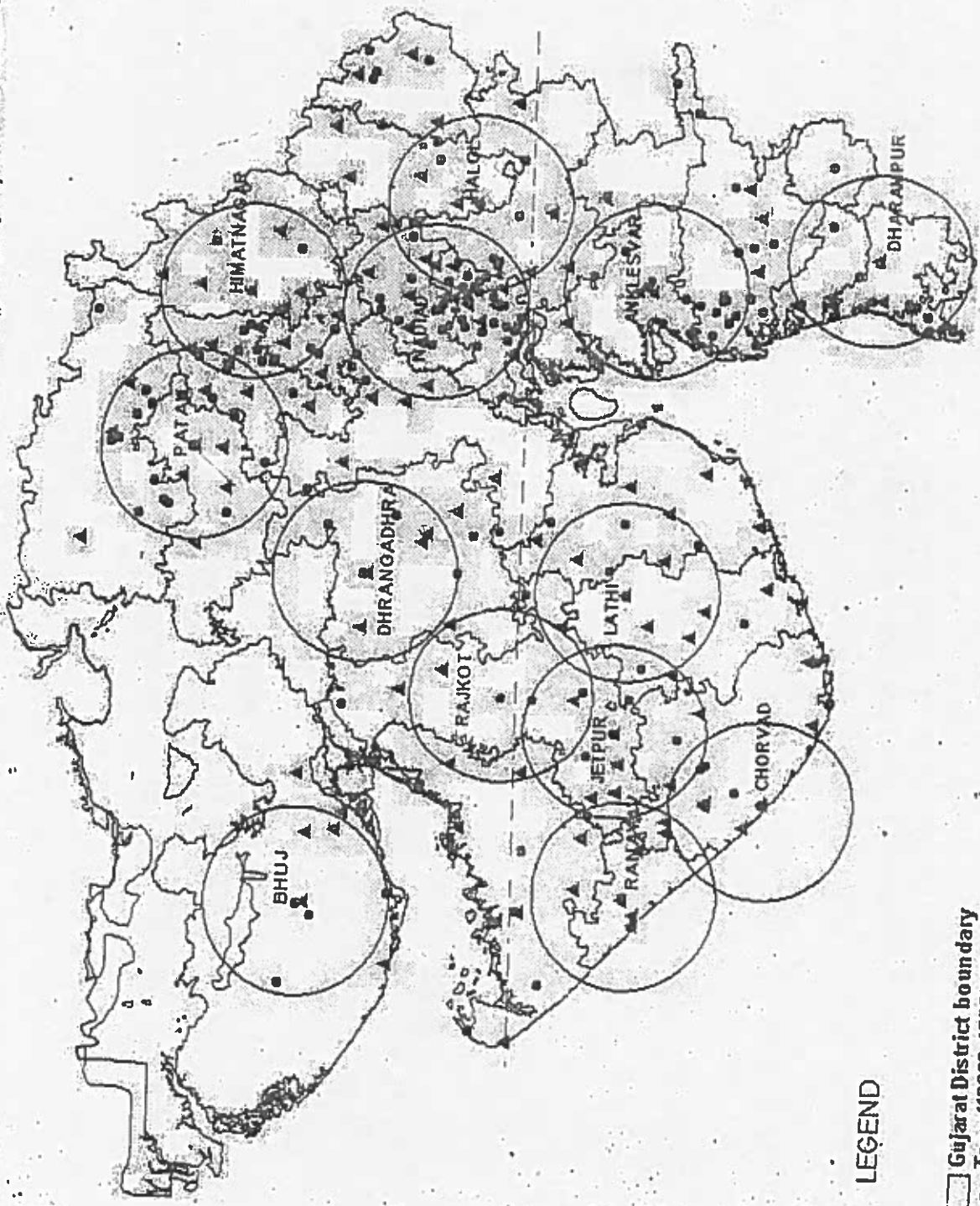
- Vermi Compost Plant : in 70 ULBs completed and processing started
- Rest 10 towns.. Microbial composting plant under planning
- Complete participation of ULBs
- Implementation -- GUDC
- State level consultant -- KCDC
- Third party inspection by Consultants



(B) CLUSTERISATION OF SANITARY LANDFILL FACILITY

- Land Identification through Satellite Imagery & GIS
- Clusterisation
 - Primarily for Municipalities
 - 7 Municipal Corporations being kept on a separate track
- Advantages
 - Generates economies of Scale
 - Enables appropriate planning
 - Enables pooling of financial resources and technical know how
 - Can manage the continuous growth in quantities of wastes generated
 - Effective Management

50 Km Buffer of 13 Proposed sites & town(10000-15000 popn) and Existing 130 ULB



LEGEND

- Gujarat District boundary
- Town(10000-15000 Popn.)
- ▲ 130 Existing ULB
- 13 ULB
- Buffer (50 km)

(C) PROCUREMENT AND SUPPLY OF EQUIPMENTS

- Primary collection :
 - Type of Equipment :
 - PE Bucket, 6 Bucket Hand Cart, 8 Bucket Tricycle and 4.5 cum container Green/Black
 - Status :
 - Contract is awarded to the agencies and the supply is under progress

- Secondary collection :
 - Type of Equipment :
 - Container lifting device, Tractor – 50 HP plus and Front end dozing cum loading attachment
 - Status :
 - Award of contract is under process.

(D) CAPACITY BUILDING AND IEC ACTIVITIES (Information, Education and Communication)

- Capacity Building:
 - Different level of trainings like
 - ToT (training of trainers) for top level ULB officers
 - Training for Sanitary supervisors and Sanitary Inspectors
 - Training for Sanitary workers and sakhi mandals

- IEC Activities:
 - Generating awareness among the citizens for not litter and store the segregated waste (segregation at source), for efficient solid waste management.

CAPACITY BUILDING PROGRAMME

- Objective
 - Handholding with ULBs and building their capacity to comply with supreme court standards for MSWM through training intervention at different levels.
- Training Resource Group
 - TRG was initiated on 11/4/2007 under the leadership of Mr. P. U. Asnani.
 - Institutes/NGOs working in the field of SWM were invited to participate as a member.
 - TRG members
 - Unnati
 - Environment and Sanitation Institute (ESI)
 - Institute of Solid Waste Management (ISWM)
- Capacity Building Plan
 - SWM learning programme has been initiated in coordination with World Bank Institute. 15 ULBs of Himmatnagar and Gandhinagar clusters were imparted the training.
 - ToT was also organized for Training Resource Group members for effective implementation of training programme.
 - Modules are developed for standardization of training content.

IEC ACTIVITIES (Information, Education and Communication)

➤ Objective

- To bring about a positive change in habits and practices by mobilizing and sensitizing people and bridging the information and knowledge gaps by using various forms of media.

▪ Target Group

- Primary – Citizens, ULBs, Safai Kamdars, Women, SHGs, School children
- Secondary – Teachers, Influencers at community level, Youth club

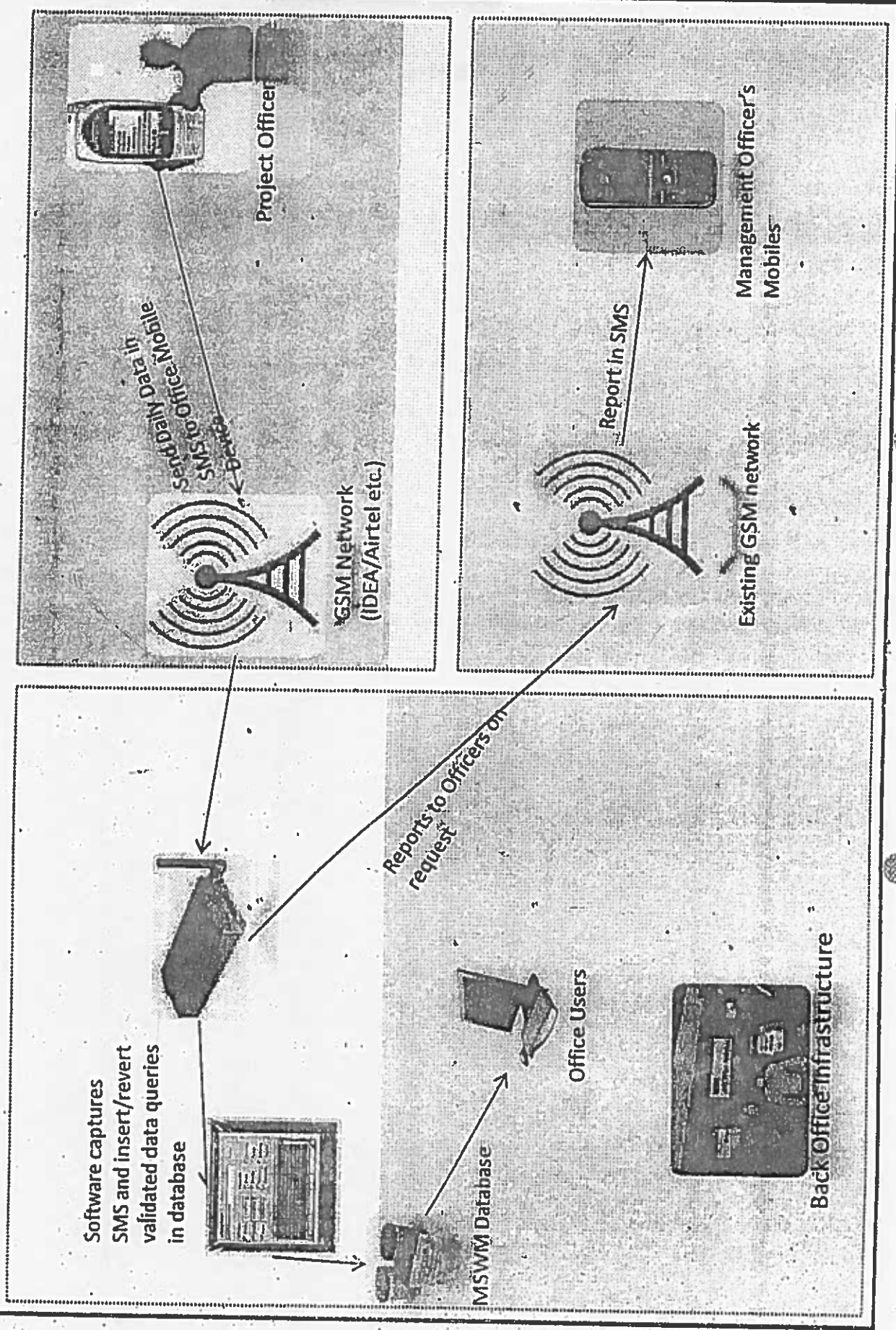
➤ Strategy

- To cater varied groups with different entry levels, use of multiple media should be envisaged which can be broadly seen in following categories to disseminate messages related to Storage and segregation of waste at source and its proper delivery to ULBs;
- Print – feature services, posters, flex, modules, ST stand hoardings
- Audio-Visuals – Cinema slides, animated film, cable, radio jingles-talk-feature, Television quickies
- Folk media – rally, Street play, Bhavai, Mela, tableau etc.

(E) SOFTWARE MODULE FOR MSWM PROGRAMME DAILY OPERATIONS

- Challenge: Data Gathering and Availability
- Cost: Optimized minimum cost using existing GSM mobile network for data gathering and nil operational cost
- Description:
 - Data Gateway (Software for gathering information from sites and making it available for project officers and management as a part of MIS)

Software Module for MSWM Project Daily Operations



5262

Top level information Schema (With Illustration)

District		Municipality		SiteType		Location		Project Officers		Vehicle				
Code	Name	Code	Name	Code	Name	Code	Name	Code	Name	Code	Cell No	Code	Vendor	Ref No
SK	Prantij	PR		VC		SK PR VC	01	Mr. A	9904481450	01		Escorts Ltd.	GJ-8-E-2548	
SK	Idar	ID		VC		SK ID VC	02	Mr. B	9824554016	02		Mahindra & Mahindra	GJ-8-E-2549	
SK	Himmat Nagar	HM		VC		SK HM VC	03	Mr. C	9355452114	03		TAFE	GJ-8-E-2550	
SK	Vadali	VD		VC		SK VD VC	04	Mr. D	9924233833	04		Escorts Ltd.	GJ-8-E-2551	
SK	Khedbhama	KH		VC		SK KH VC	05	Mr. E	9825456875	05		Mahindra & Mahindra	GJ-8-E-2552	
MS	Vijapur	VJ		VC		MS VJ VC	06	Mr. F	9825012365	06		TAFE	GJ-8-E-2553	
MS	Kheralu	KR		VG		MS KR VC	07	Mr. G	9898001548	07		Escorts Ltd.	GJ-8-E-2554	
MS	Vadnagar	VD		VC		MS VD VC	08	Mr. H	9901545204	08		Mahindra & Mahindra	GJ-8-E-2555	
PT	Siddhpur	SD		VC		PT SD VC	09	Mr. I	9878452451	09		TAFE	GJ-8-E-2556	
MS	Unjha	UJ		VC		MS UJ VC	10	Mr. J	9855263251	10		Escorts Ltd.	GJ-8-E-2557	
SK	Himmat Nagar	HM		SL		SK HM SL	11	Mr. K	9879585680	11		Mahindra & Mahindra	GJ-8-E-2558	

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SMS Illustrations	
Parameter (SMS)	Template
Dumped Waste	<location> <officer> <vehicle> <qty>
Daily Processing Output	<location> <officer> <OW> <qty> <RW> <qty> <IN> <qty>
	SKPRVC 01 04 3.55
	SKPRVC 01 OW 1.8 RW 2.2 IN 1.5

Transaction Schema (With Illustration)

Daily Dumped Waste

Daily Processed Waste

Daily Dumped Waste		Daily Processed Waste								
Date	Location	Vehicle	Waste Qty	Date	Location	Officer	OW	RW	IN	SMS
01/02/2008	SKPRVC	01	5.25	01/02/2008	SKPRVC	01	2.50	2.00	1.50	SKPRVC0100525
02/02/2008	SKDVC	02	6.40	02/02/2008	SKDVC	02	2.20	1.80	1.50	SKDVC0202640
03/02/2008	SKHMVC	03	4.80	03/02/2008	SKHMVC	03	2.40	1.30	1.50	SKHMVC0303480
04/02/2008	SKDVC	04	2.90	04/02/2008	SKDVC	04	5.10	3.20	2.80	SKDVC0404290
05/02/2008	SKHRVC	05	2.65	05/02/2008	SKHRVC	05	2.90	1.50	1.95	SKHRVC050265
06/02/2008	MSDVC	06	1.81	06/02/2008	MSDVC	06	1.50	1.70	1.70	MSDVC0606181
07/02/2008	MSKRVC	07	0.94	07/02/2008	MSKRVC	07	1.80	2.00	2.20	MSKRVC0707094
08/02/2008	MSDVC	08	0.81	08/02/2008	MSDVC	08	2.60	2.00	2.00	MSDVC0808081
09/02/2008	PTSDVC	09	7.20	09/02/2008	PTSDVC	09	3.10	2.10	2.10	PTSDVC0909720
10/02/2008	MSUJVC	10	1.50	10/02/2008	MSUJVC	10	3.00	1.50	1.50	MSUJVC1010150
11/02/2008	SKHMSL	11	2.15	11/02/2008	SKHMSL	11	2.00	1.20	1.10	SKHMSL1111215

Reports

Registers

- Dumped Waste
- Location Wise
- Officer Wise
- Date Wise
- Vehicle Wise

- Daily Processing
- Location Wise
- Date Wise
- Inert /Organic
- Waste/Recyclable Waste

MIS

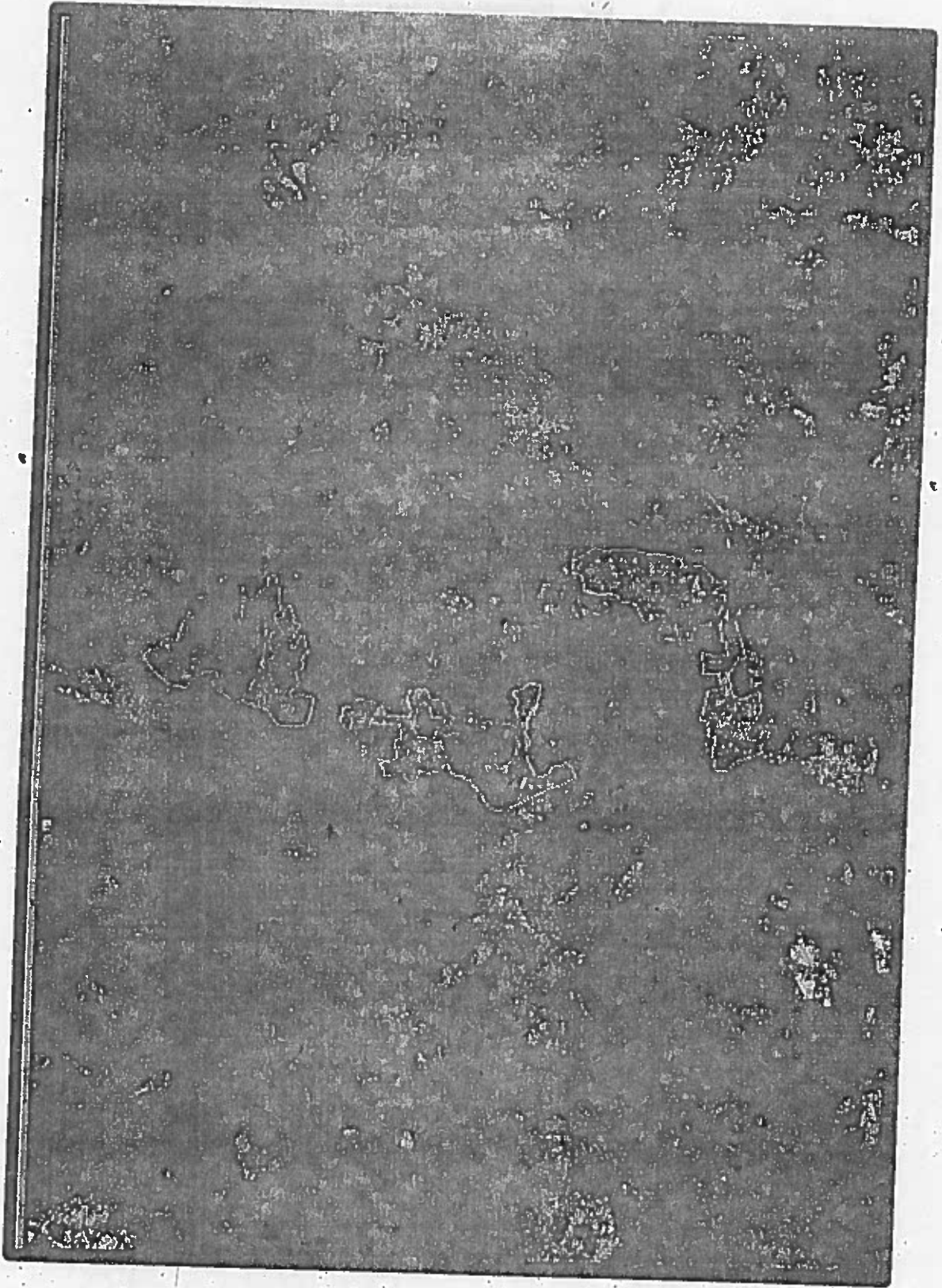
- Region Wise
- District Wise
- ULB Wise
- Location Wise Daily or Monthly Summary

LAND IDENTIFICATIONS – ISSUES (Partly solved)

- Limited availability of waste land
- Long procedure in allocation of land
- Lack of sincerity by municipalities for taking PCB authorization for waste land
- Rapid Urbanization has increased unit cost of land in Urban areas
- Slow response for mapping as reported by municipalities
- Encroachments in many lands
- Incapability of municipalities for site clearing

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PRIORTISATION OF WASTELANDS FOR LANDFILL SITES - BASED ON FIELD VERIFICATION



Clusterization

Gujarat
(District Map)

