

Challenges of Service Delivery In Water and Sanitation

**Government of Punjab
February 20, 2013**

Current Coverage of Water & Sanitation

	Coverage as on 2012
Water Supply	88%
Sewerage	63%
Sewage Treatment Plant	38%

Capital Cost of 100% Coverage of Water & Sanitation

Basic Amenities	Coverage as on 2012	Funds Required for 100% coverage in Cr.
Water Supply	88%	980
Sewerage	63%	2759
Sewage Treatment Plant	38%	2300

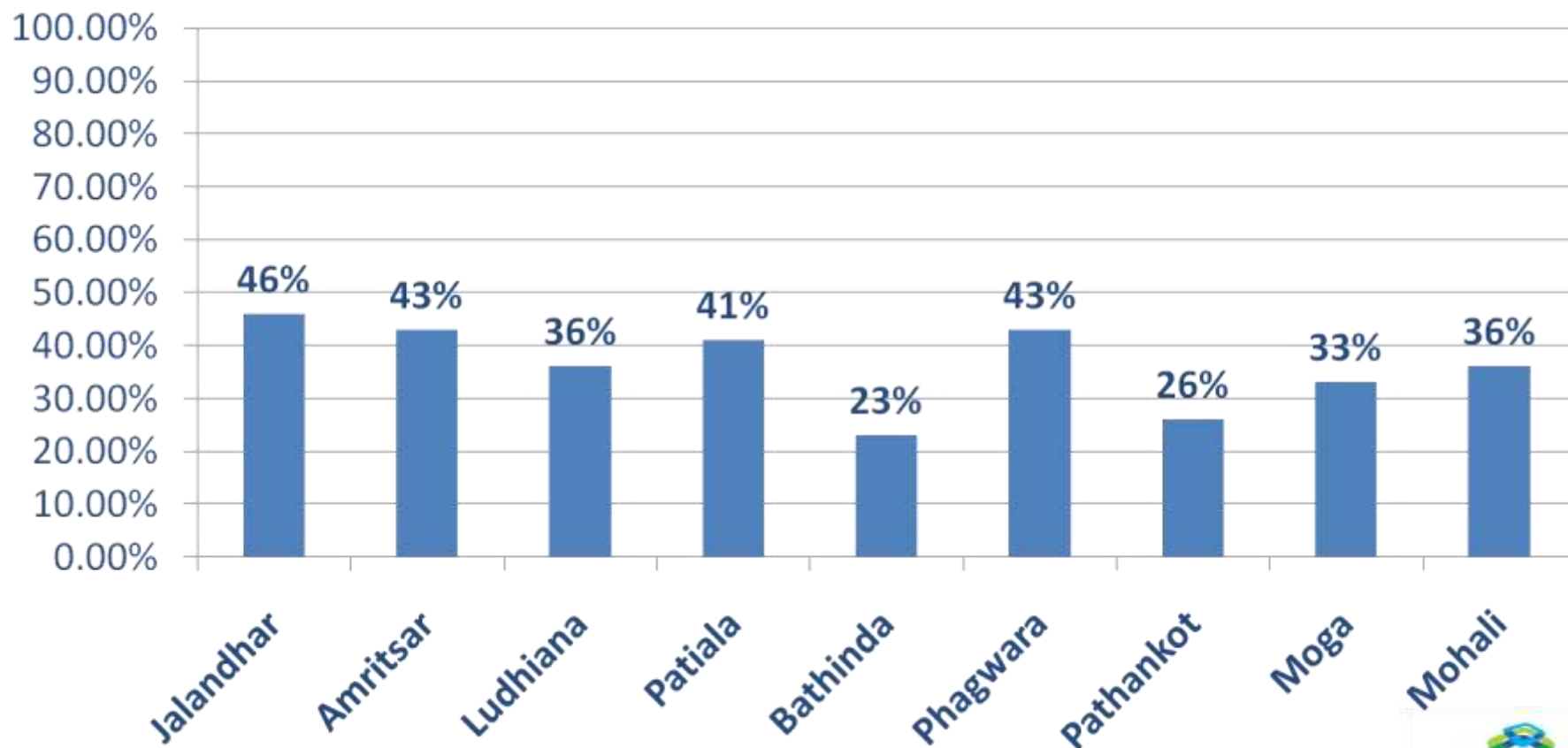
Water Tariff – 2003 Policy

PLOT AREA	DOMESTIC CHARGES/MONTH	COMMERCIAL CHARGES/MONTH
Up to 125 Sq.yard(5M)	nil	Rs 7.60/KL
125 to 250 sq.yard(10M)	Rs 105	same as above
250 upto but< 500 Sq.yard(20M)	Rs 140	same as above
500 sq.yard and above	Rs 3.80/KL	same as above
SEWERAGE CHARGES EQUAL TO WATER CHARGES		

Water Tariff – 2009 Policy

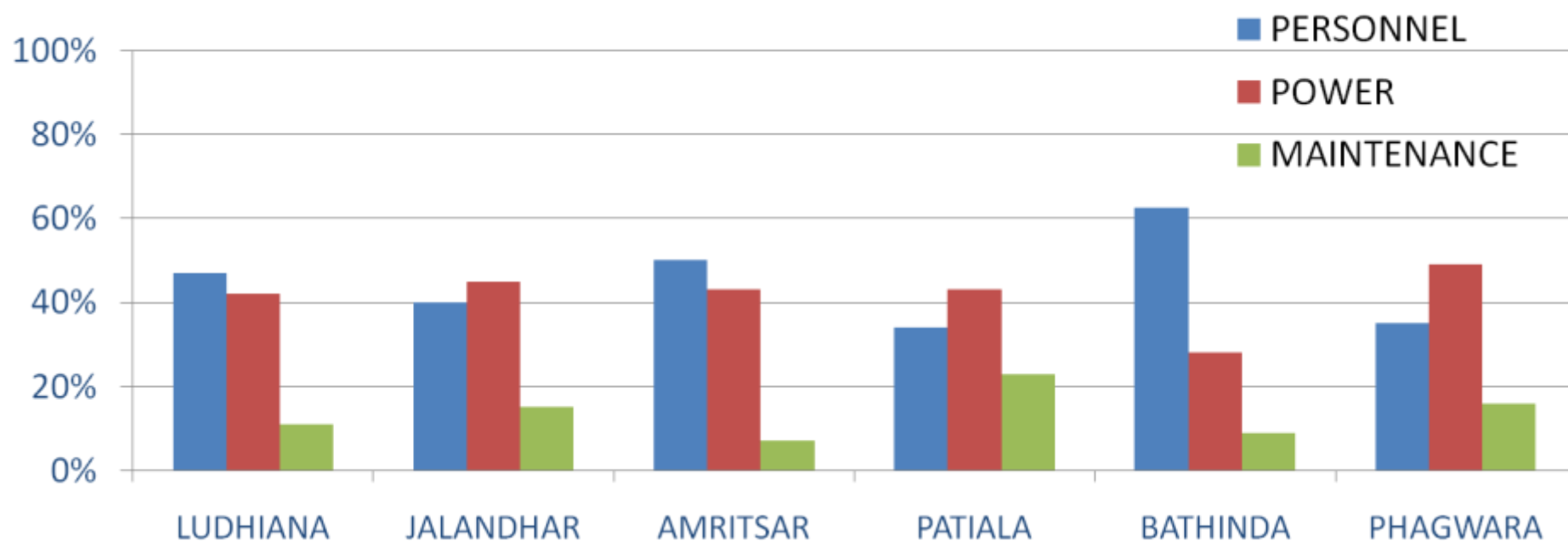
PLOT AREA	DOMESTIC WATER CHARGES/ MONTH	DOMESTIC SEWERAGE CHARGES/ MONTH	COMMERCIAL CHARGES/ MONTH
Up to 125 Sq.yard(5M)	Rs100	Rs 70	Rs 7.60/KL
125 to 250 sq.yard(10M)	Rs 105	Rs105	same as above
250 upto but< 500 Sq.yard(20M)	Rs 140	Rs 140	same as above
500 sq.yard and above	Rs 3.80/KL	Rs 3.80/KL	same as above
COMMERCIAL SEWERAGE CHARGES EQUAL TO WATER CHARGES			

% COST RECOVERY(O&M) ON EXISTING TARIFF OF CORPORATIONS



AVERAGE OF FIVE YEAR BE TAKEN FROM INCOME & EXPENDITURE STATEMENTS

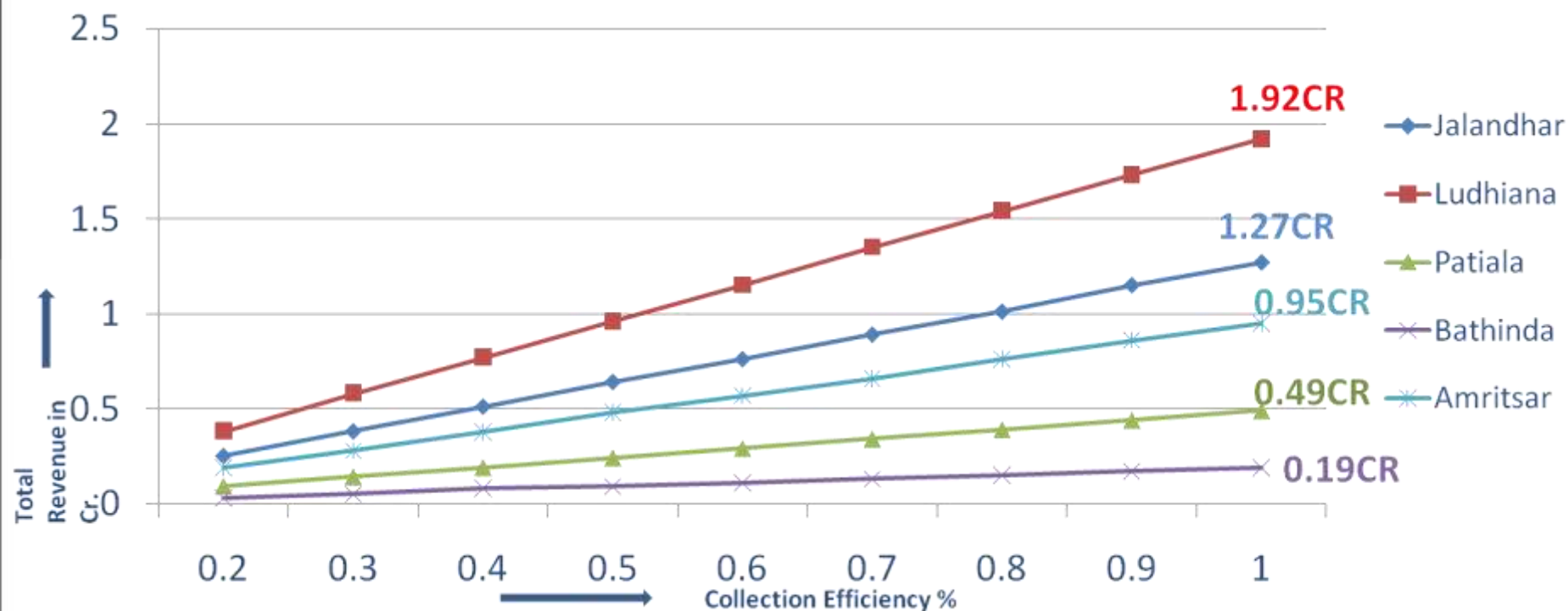
% OF ANNUAL COST ON PERSONNEL, POWER & REPAIR/MAINTENANCE IN CORPORATIONS



		Ludhiana	Jalandhar	Amritsar	Patiala	Bathinda	Phagwara
1	Personnel	47%	40%	50%	34%	63%	35%
2	Power	42%	45%	38%	43%	28%	49%
3	Maintenance	11%	15%	12%	23%	9%	16%

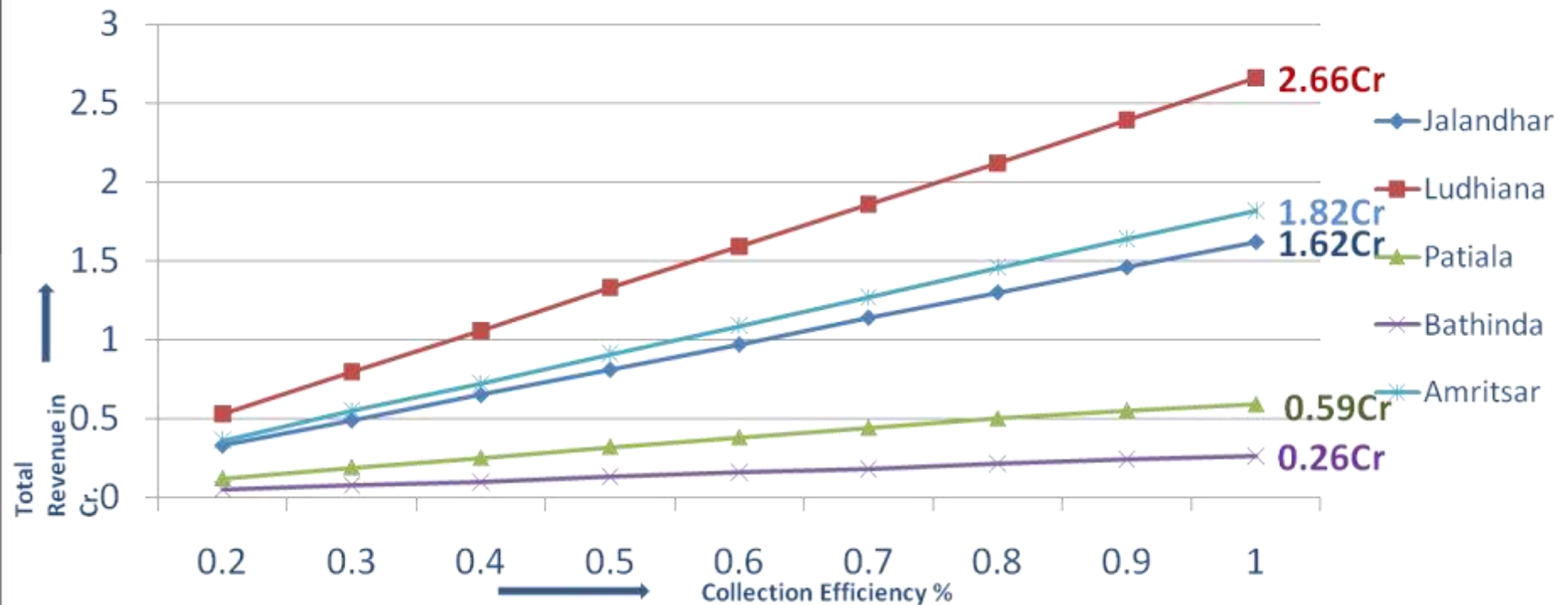
Average of Five Years be taken from Income % Expenditure Statements

PROJECTED REVENUE FROM EXISTING TARIFF STRUCTURE V/S COLLECTION EFFICIENCY



NAME OF MC	TOTAL (O&M) EXPENDATURE IN CR.	100% COST RECOVERY(O&M) ACHIEVED BY %ACHIEVING OF COLLECTION EFFICIENCY
JALANDHAR	1.64 Cr./Month	Not even after 100%.
LUDHIANA	3.37 Cr./Month	Not even after 100%.
PATIALA	0.62Cr./Month	Not even after 100%.
AMRITSAR	1.58Cr./Month	Not even after 100%.
BATHINDA	0.52Cr./Month	Not even after 100%.

PROJECTED REVENUE FROM EXISTING TARIFF STRUCTURE WITHOUT EXEMPTION V/S COLLECTION EFFICIENCY



NAME OF M.C	TOTAL (O&M) EXPENDITURE IN CR.	100% COST RECOVERY(O&M) ACHIEVED BY % ACHIEVING OF COLLECTION EFFICIENCY
JALANDHAR	1.64 Cr./Month	Not even after 100%.
LUDHIANA	3.37 Cr./Month	Not even after 100%.
PATIALA	0.62Cr./Month	Not even after 100%
AMRITSAR	1.58Cr./Month	90%
BATHINDA	0.52Cr./Month	Not even after 100%.

PRODUCTION COST OF WATER & UNIT COST OF WATER TO COVER O&M COST

- ❖ UNIT PRODUCTION COST = Rs 4/KL ❖ COST RECOVERY=Rs1.50/KL
- ❖ UNIT COST OF WATER TO COVER UP THE COST OF O & M WITH EXISTING TARIFF (with **Exempted 5 Marla category**) =Rs 9/KL ❖ NRW=56%
- ❖ UNIT COST OF WATER TO COVER UP THE COST OF O & M WITH EXISTING TARIFF (without **Exempted 5 Marla category**). =Rs 6/KL ❖ NRW=34%

KEY ASSUMPTIONS		SOURCE
Avg.5 Marla plot Area water Consumption.	36KL/Month	1.PUDA DATA. 2. COST RECOVERY IN URBAN SERVICES, SELECT EXPERIENCES IN INDIAN CITIES,MARCH 2011.
Avg.5 to 10 Marla plot Area water Consumption.	40KL/Month	
Avg.above 10 Marla plot area water Consumption	45KL/Month	
Avg.Commercial unit water Consumption	60KL/Month	
NOTE===THE ABOVE COST IS BASED ON O&M COST ONLY.		

The Performance of Urban Water Utilities in PUNJAB is POOR

Unaccounted-for water often is around 50% to 58%.

Collection efficiency too low is around 30% to 40%.

Computerization of billing is not up to mark.

Operation and maintenance costs are not recovered.

Production & Consumption of water are not metered

PROPOSED WATER SUPPLY TARIFF

Cost Recovery

Production cost other
O&M Expenses

Tariff Structure

IBT (Increasing Block tariff).

1. Two part Tariff.
2. Fixed + Volumetric charges.

PROPOSED TARIFF STRUCTURE

1. IBT (Increase block Tariff).

- a. Domestic & Commercial slabs to 4 slabs.
- b. Life line Consumption to 10KL.
- c. Progressive Increase between consumption slab

TARIFF MODEL(FIXED+IBT)

PLOT AREA (DOMESTIC)	SERVICE/FIXED CHARGES	CONSUMPTION CHARGES	SEWERAGE CHARGES
Up to 50 sq.Yard.(2.5M)	Rs 50/-	NIL	NIL
50 TO 250 sq.Yard(10M)	Rs 50/- +	Volumetric Charges	Equal To Water Charges
Above 250 sq.Yard	Rs 100 +	Volumetric charges	Same as Above

PLOT AREA (COMMERCIAL & OTHER CATEGORIES)	SERVICE/FIXED CHARGES	CONSUMPTION CHARGES	SEWERAGE CHARGES
Up to 50 sq.yard.	Rs 50/-	Volumetric charges	Equal To water Charges
50 TO 250 sq.yard(10M)	Rs 100/- +	Volumetric Charges	Same as above
Above 250 sq.Yard	Rs 200 /- +	Volumetric charges	Same as above

TARIFF MODEL(FIXED+IBT)

Monthly Consumption (Kilolitre)	Volumetric Charge (Rs per Kilolitre)
Domestic Category	
0-10	2/-
10-25	4/-
25-50	6/-
>50	8/-
Commercial/Industrial/Institutional etc.	
Shall be charged @Rs 12.00 Per Kilolitre	

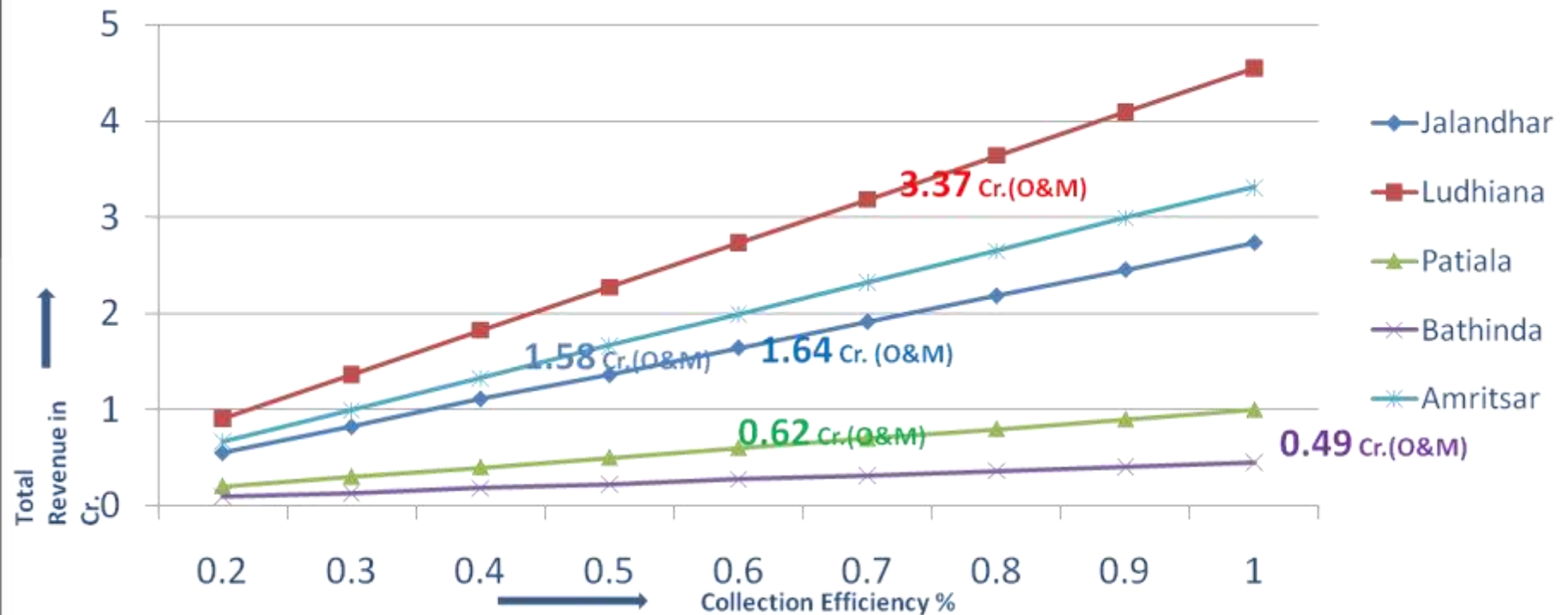
TARIFF MODEL(FIXED+IBT)

CATEGORY	VOLUMETRIC CHARGES (Rs per Kilolitre)
Mixed	Shall be charged@ Rs8.00/KL
Multistory Residential Apartment Complex	Shall be charged on rates as applicable under Domestic Category.

➤ **Sewerage Charges**= 100% of Water Volumetric Charges

➤ The volumetric consumption rate proposed shall be increased 5% every financial year.

PROJECTED REVENUE FROM PROPOSED TARIFF STRUCTURE V/S COLLECTION EFFICIENCY FOR WATER BILLS



NAME OF MC	TOTAL (O&M) EXPENDATURE IN CR.	100% COST RECOVERY(O&M) ACHIEVED BY ACHIEVING % OF COLLECTION EFFICIENCY
JALANDHAR	1.64 Cr./Month	61%
LUDHIANA	3.37 Cr./Month	75%
PATIALA	0.62Cr./Month	62%
AMRITSAR	1.58Cr./Month	47%
BATHINDA	0.52Cr./Month	Not even after 100%.AT 60% C.E COST RECOVERY WILL BE 55%

Proposals

Implementation of water connection Meter policy

Outsourcing meter reading and door to door billing to third parties

Outsourcing to conduct door to door property survey to build customer Data base of each utility/ULBs.

Implementation of SCADA at Tubewells to increase operational efficiency

Introducing the VDS scheme for regularization of water connection with incentive.

Installation of water meter on Production side to know the potential of Revenue requirement.

Proper computerization of water & sewerage billing section.

Integrated Municipal Solid Waste (MSW) Management Project

**for the State of Punjab on
Public Private Partnership (PPP) Basis**

Project Background

Regional Level “Cluster approach ” has been followed for this project.

Cluster approach is preferable because all ULBs in Punjab are being covered. Ignoring smaller ULBs in MSW management may put their systems under pressure in near future.

Each cluster have one/two processing plant(s) at central location(s) to cater all ULBs in that Cluster.

Project Background

For cost-effective and efficient MSW management, each cluster have a number of waste collection centres (Transfer Stations) which will cover nearby small towns; and will in-turn feed the processing plant(s)

Entire State of Punjab has been divided into 8 MSW Clusters on scientific basis to ensure 100% coverage of all urban areas keeping the following key parameters in view :

- Availability of land, thus reducing land cost
- Distance of cluster cities from central processing plant and sanitary landfill site
- Population and quantity of waste to achieve minimum economic size thereby ensuring viability
- Possibility of attracting established players which cities individually may not be able to attract, etc parameters.

S. No.	Name of MSW Cluster Project	Capacity (Tonnage /Day)	Estimated Project Cost (in INR Crore)
1	Ludhiana	1100	104.53
2	Bathinda	300	66.46
3	Ferozpur	270	68.61
4	Jalandhar	750	133.34
5	GMADA	330	72.73
6	Amritsar	650	95.88
7	Pathankot	230	48.90
8	Patiala	435	84.56
	Total	4065	675.01

PUNJAB

Municipal Solid Waste Project Clusters

Legend



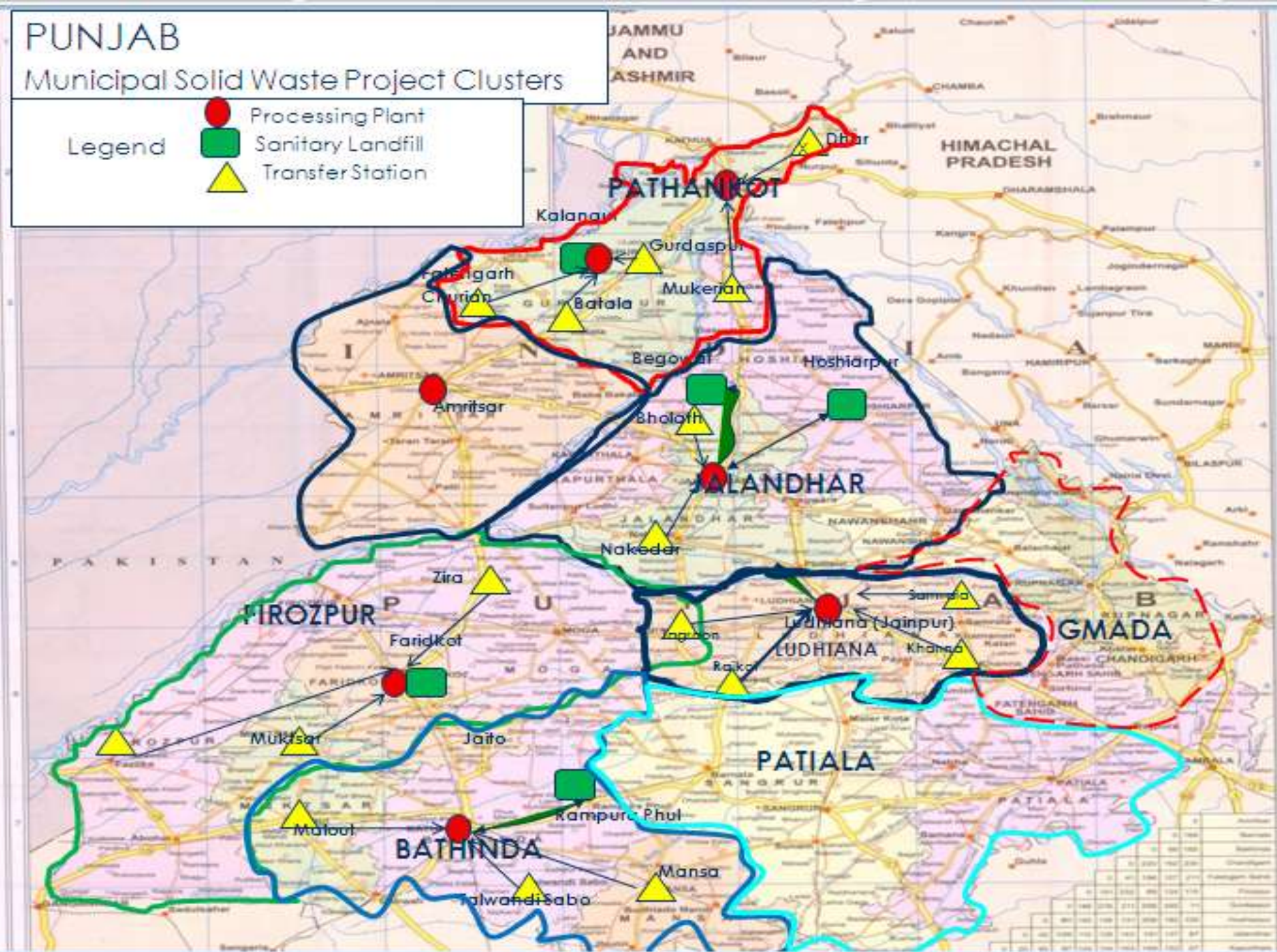
Processing Plant



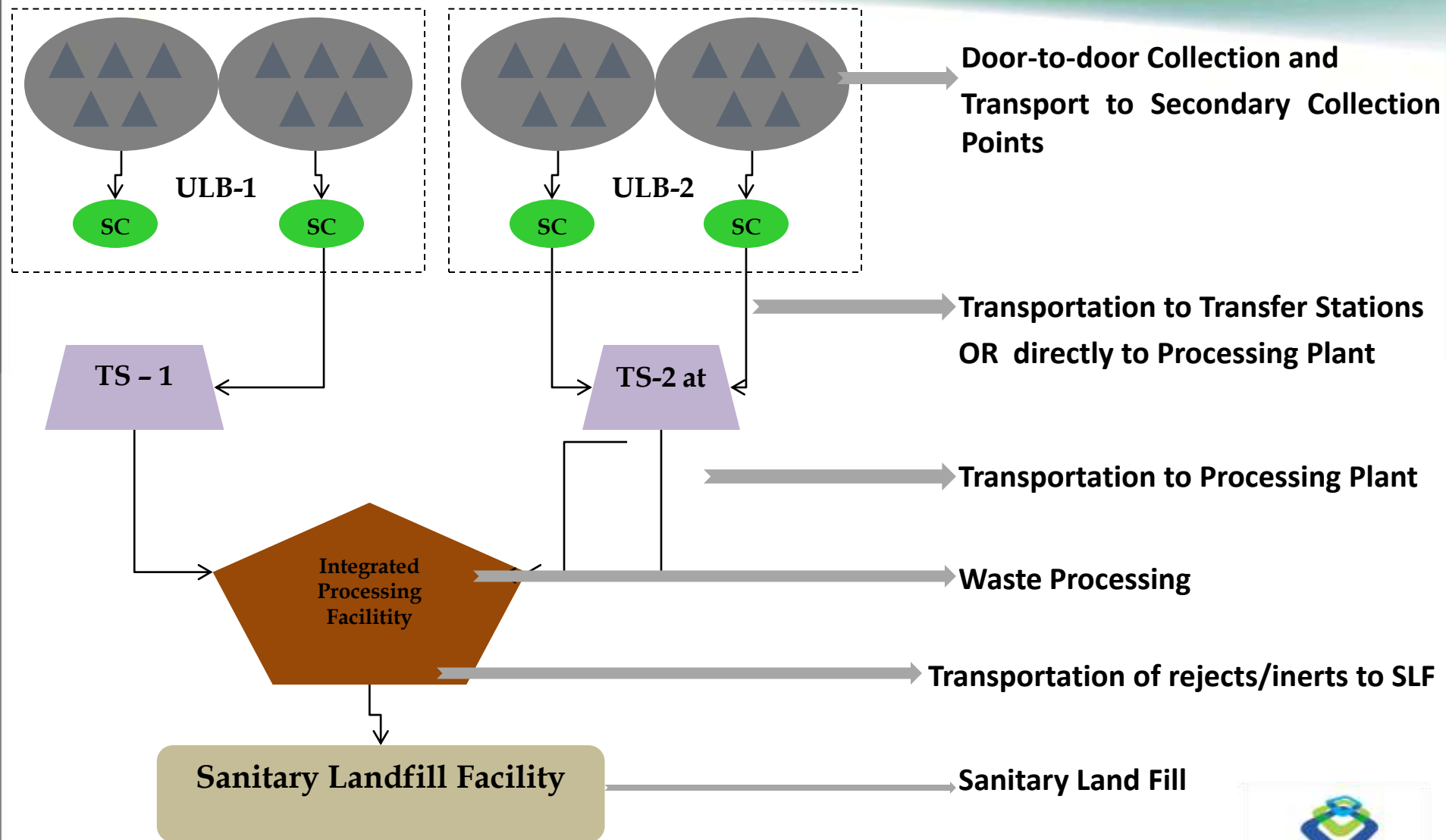
Sanitary Landfill



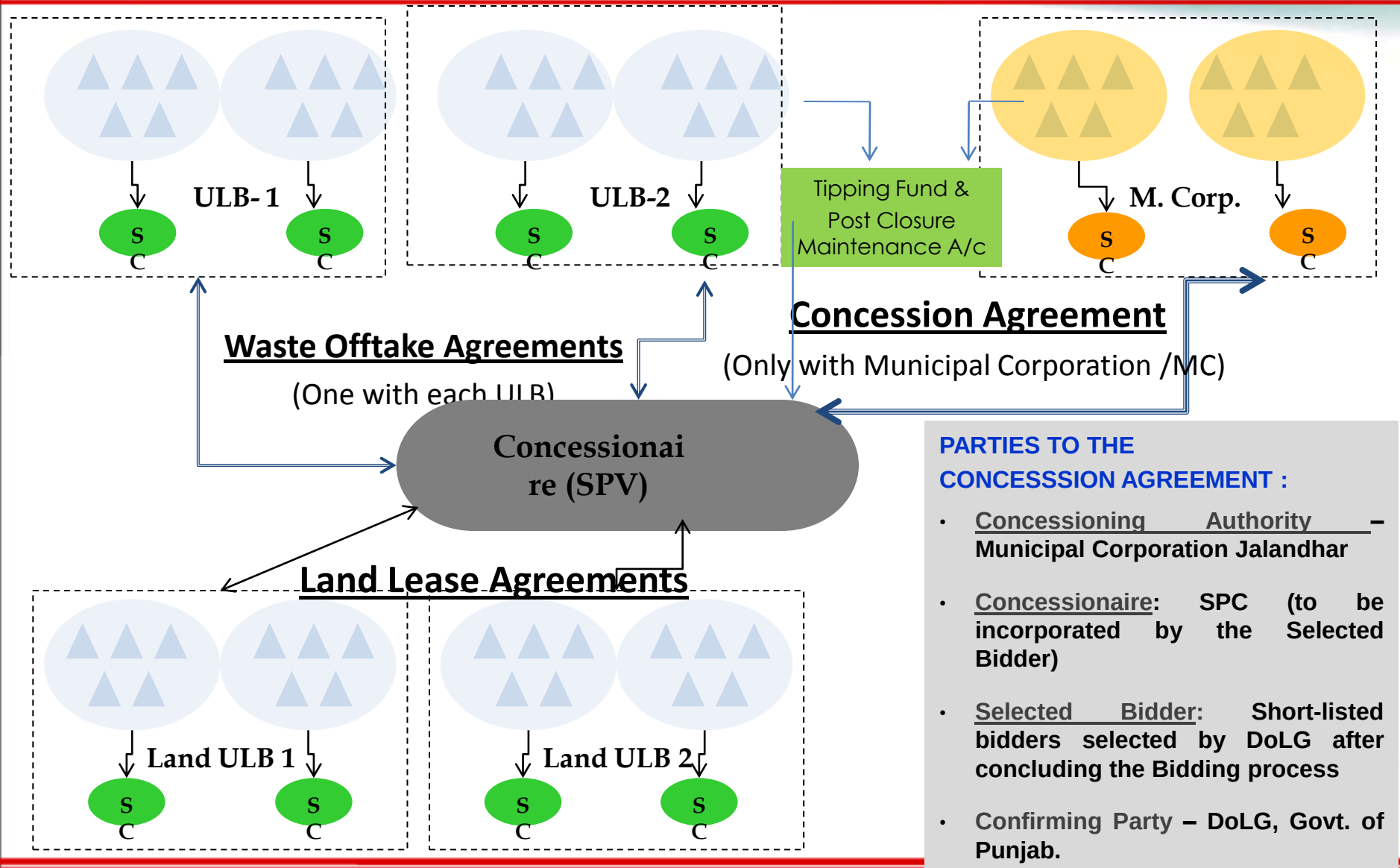
Transfer Station



Proposed Integrated Facility- Flow of MSW



MSW Cluster – Contractual Framework



Status of Punjab MSW Project

Project Activities/ Project Dates	Jalandhar (750 TPD)	Ludhiana (1100 TPD)	Ferozepur (350 TPD)	Bathinda (350 TPD)	Amritsar (650 TPD)	GMADA (350 TPD)	Pathankot (250 TPD)	Patiala (500TPD)
Signing of Concession Agreement	24.01.12	30.11.11	23.11.11	02.12.11	-	31.03.2013	-	-
Door to Door Collection & Transportation	Work to be started soon.	Work Started.	Work Started	Work Started	-	30.06.2013	-	-
Construction of processing facilities/ Sanitary Landfill Facility	EIA Clearance obtained. Const. shall be started shortly.	EIA Clearance obtained. Const. shall be started shortly.	Construction shall be started after obtaining project clearances by the bidder.	EIA Clearance obtained. Const. shall be started shortly.	-	01.01.2013 (EIA Clearance obtained)	-	-



Ludhiana MSW Project

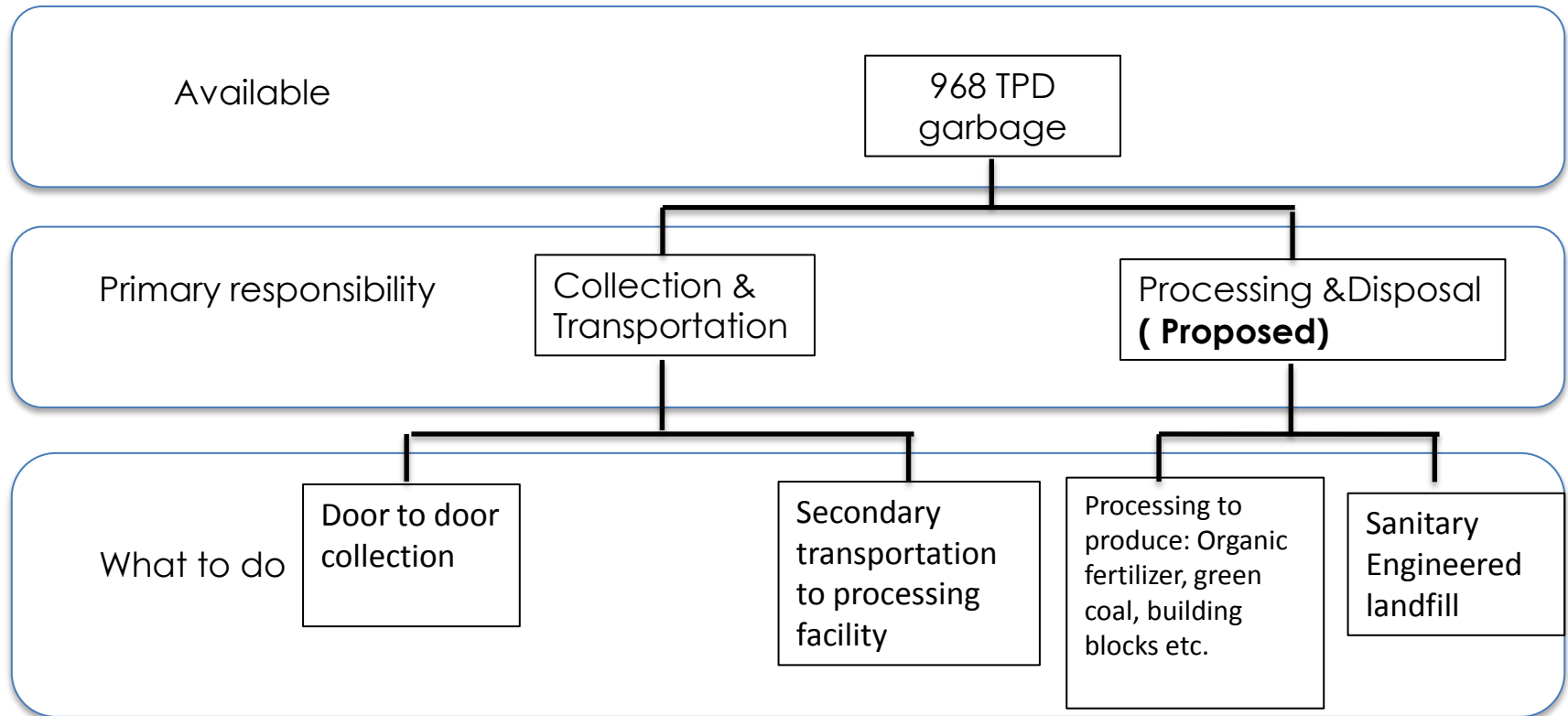
Integrated Solid waste Management

- ❖ Door To Door Collection
- ❖ Primary Transportation of Waste to Dump Site.
- ❖ Secondary Transportation of Waste to Dump Site
- ❖ Recovery Of Recourses like Compost, Fuel, Plastic Derivatives, Metal, Glass, Eco-Brick etc.
- ❖ Disposal of Remnants in SLF

Ludhiana project: A factsheet

1. Population: 16,13,878
2. Quantity of MSW: 968 MT/day
3. Per capita waste generation: 500g(apx)/person/day
4. Project Life-cycle period: 25 years
5. Land: 83 Acers (50+33)
6. Employee strength: 350
7. Project running for last 1 years
8. C&T Charges paid by LDH: Rs. 395/MT
9. Tipping fee for Processing & Disposal: ZERO
10. Collection of User Charges: By A2Z.

A holistic approach



One Stop Solution for MSW by A2Z

S. No.	Problem	A2Z Solution
1	Hills of waste	Reclamation of land by remediation of legacy waste
2	Open Dump	Door to door collection / Bins
3	Ineffective primary collection system	Door to door collection system of garbage
4	The present operations yet to become self-sustainable	A2Z ops sustainable by selling compost and RDF
5	Ragpickers rehabilitation	Ragpickers moved out of dump to mainstream job with the concessionaire
6	Non-collection of user charges	Collection of user charge through GPRS enabled devices
7	No Service in Slum Areas	Slum Areas Covered

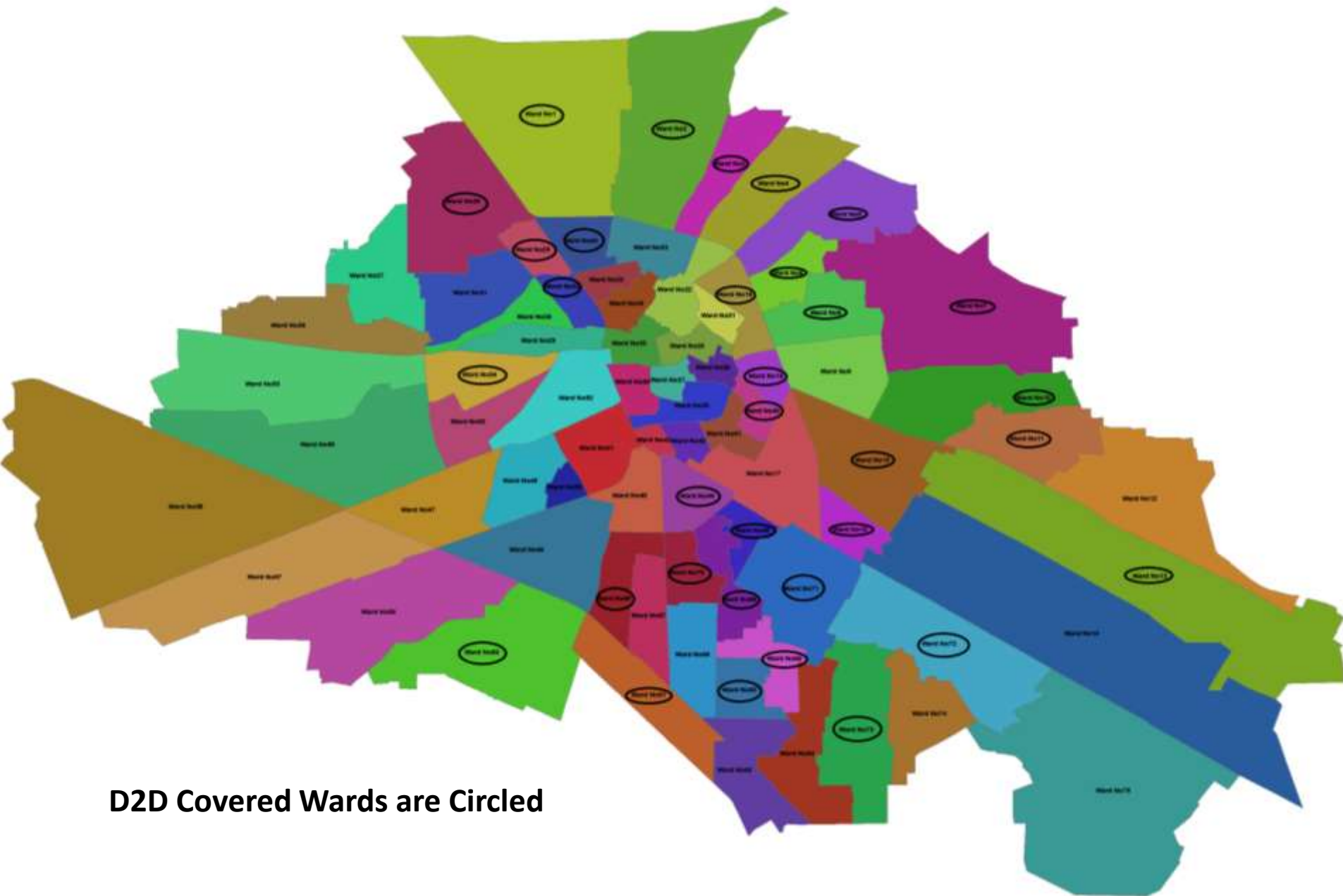
Door to Door Collection



Transfer of waste from Bins/Tata Ace to compactor



Door to Door Coverage



Door to Door Collection

Wards Covered	33 Wards
Households Covered	1.40 Lac Approx
Machinery Deployed	Tata Ace:- 65 & Rickshaw Redas:- 110
Total Garbage Collection	200 MT – 250 MT Per Day

To start with there was resistance from private garbage collectors and till date 33 wards have been covered and MC has planned to cover whole of city within 20 days. Garbage collected is transferred directly to the Dump Station. The daily Collection of Garbage at secondary points has come down by approximately 200 MT.

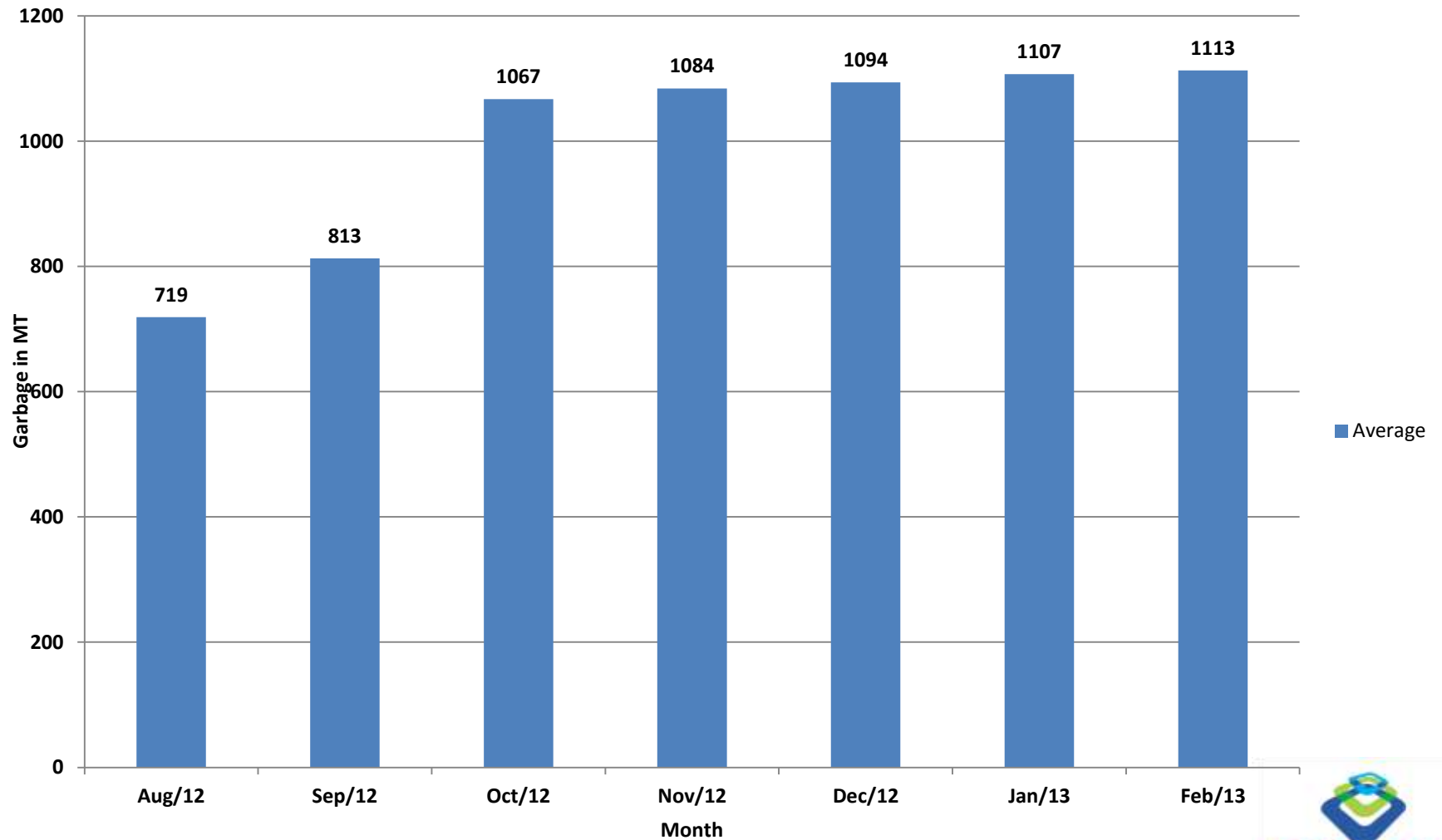
SECONDARY COLLECTION

Total Number Collection Points	Open Dump:- 102 & Metal Bins:- 164
Garbage from Open Dumps	650 MT to 700 MT Per Day
Vehicles Deployed	JCB :- 11 , Tipper:- 24 & Dumper Placer:- 4
Garbage from Metal Bins (551 No.)	200 MT to 250 MT Per Day
Vehicle Deployed	Compactors :- 10



All Points are cleaned daily and 30 heavy collection points are cleaned again in night operation. Daily Approx 1050 TPD is Transferred to Main Dump Station at Jamalpur.

Average Lifting of MSW



COMPLAINT CENTRE



Complaint Centre No. 18001200117

IT BASED APPLICATIONS IN MSW



Vehicle Tracking System

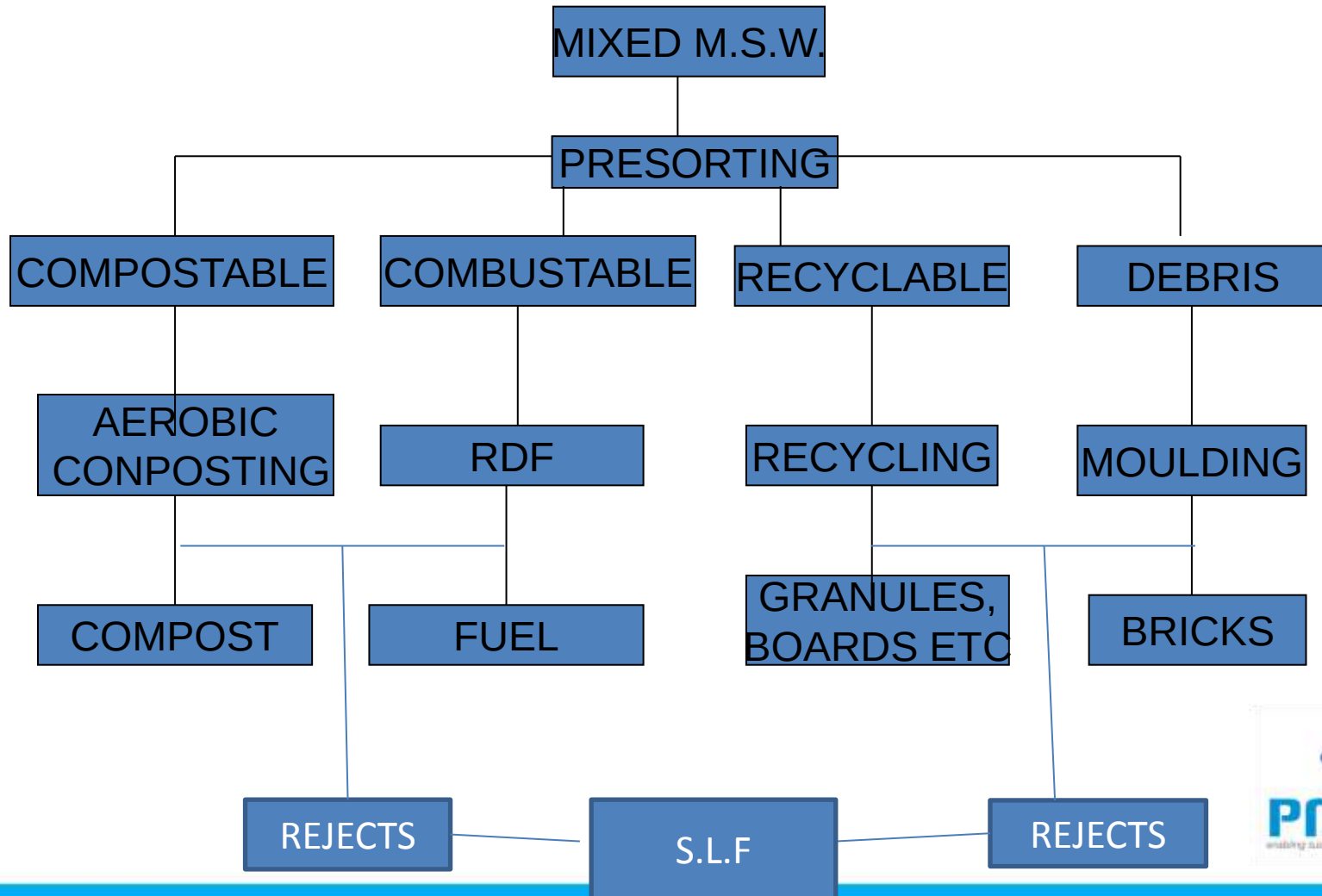
➤ Each & every lane of each ward and each bin location are mapped, marked and tabulated.

➤ Each of the vehicles is equipped with GPS system and every incidence of the compactor halting at every bin is monitored and recorded.



GIS Based Waste Collection System

MSW PROCESSING & DISPOSAL



MCL has got Environmental Clearance from MoEF (GOI) for setting up of MSWM Plant at Jamalpur



Windrow Formation



Monsoon Shed



Coarse Segregation



Packing



End Product



Refinement

MSW PROCESSING PLANT (PROPOSED)

Thank You

