Status Review of Health Care Waste Management in Karachi

by

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IEP Seminar,
22 April 2014

Introduction and Background

- Health care waste is an important hazard that needs to be appropriately dealt by municipalities

- In Karachi, status of health care waste management is below desirable level

- A mega polis of about 19 million, city faces several issues in urban infrastructure, including health care waste management

- About 650 tones of infectious waste was generated per day as per 2005 estimates. This shall escalate to 1120 by 2020.

Table-1: Karachi: Health Sector Fact Sheet

Facilities	Number
Hospitals (in public sector)	33
Hospitals (in private sector)	356
Health Centre (public sector)	271
Dispensaries (public sector)	152
Dispensaries (private sector)	2347
Maternity Homes (private sector)	391
No. of beds (2005 estimates)	21600
No. of beds (2020 requirements)	52000

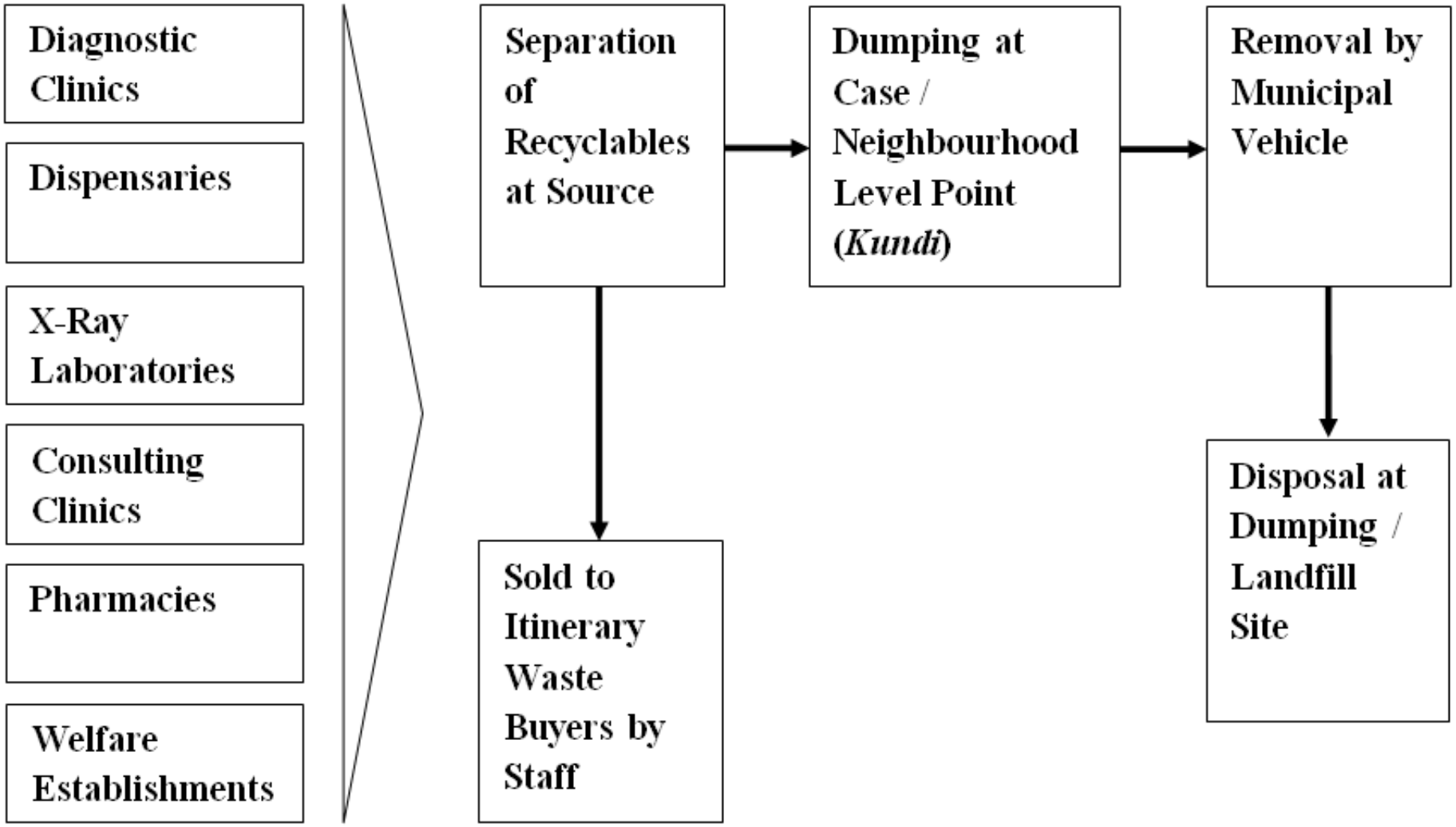
Source: Based on Karachi Strategic Development Plan 2020 (Prepared in 2007)

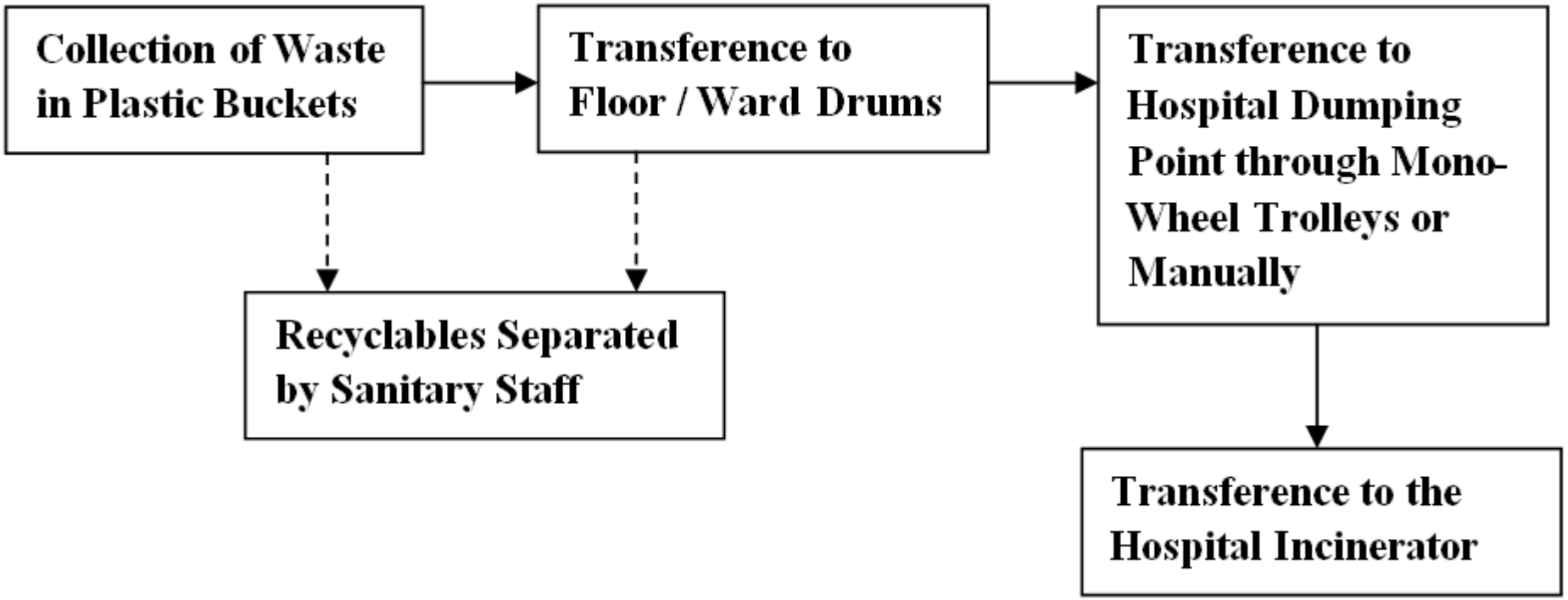
Table-2: Health Care Waste in Karachi: Main Categories

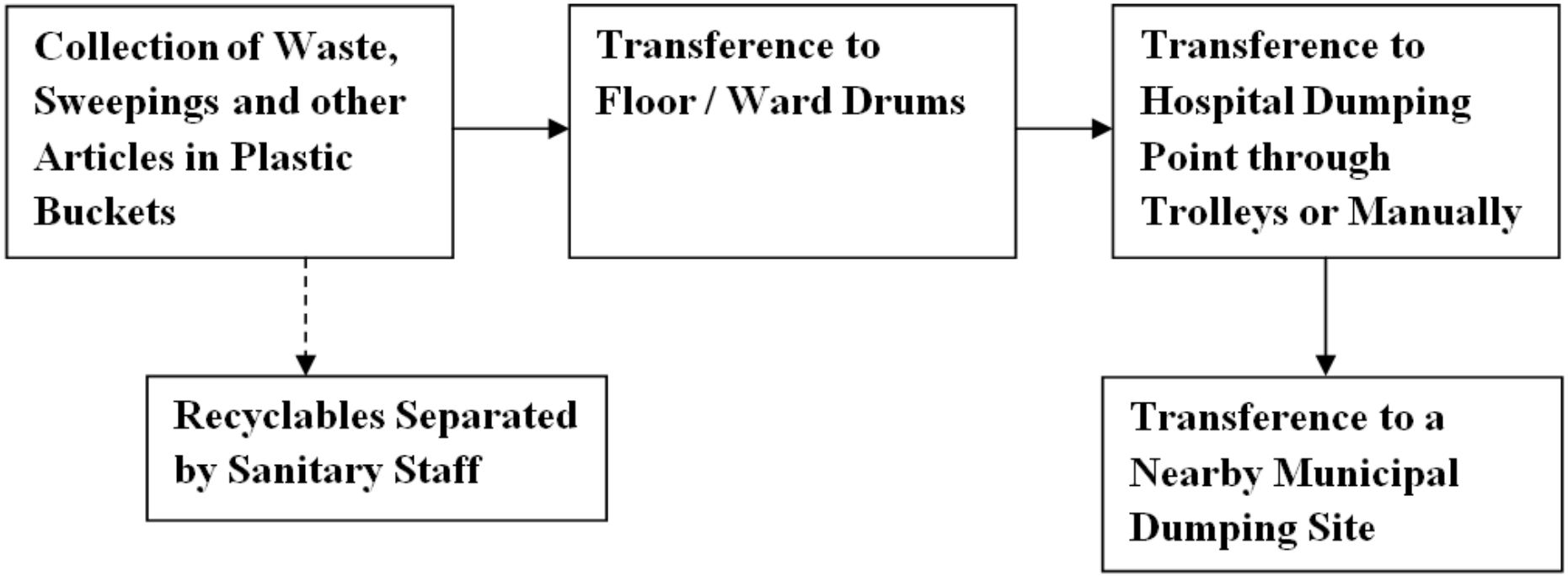
No.	Category of Waste	Characteristics
1.	Communal	Non infectious, non-radioactive and chemical free
2.	Infectious	Discarded materials and objects from experimental or health care activities pertinent to humans and animals
3.	Anatomic	Comprises identifiable parts of body
4.	Pharmaceutical	Pharmaceutical objects or matter affected by pharmaceutical products
5.	Genotoxic	Objects or substances with genotoxic chemicals

Continue…

No.	Category of Waste	Characteristics
6.	Chemical	Discarded chemical substances of various kinds
7.	Heavy metals	Material, devices and equipment containing heavy metals (batteries, thermometers …..)
8.	Pressurized containers	Filled or empty containers with pressurized liquid or gas
9.	Radioactive material	Comprises unused solutions from radio therapy or laboratory research, excreta of affected patients, glassware and / or sealed sources


Diagnostic Clinics
Dispensaries
X-Ray Laboratories
Consulting Clinics
Pharmacies
Welfare Establishments
Separation of Recyclables at Source
Sold to Itinerary Waste Buyers by Staff
Dumping at Case / Neighbourhood Level Point (*Kundi*)
Removal by Municipal Vehicle
Disposal at Dumping / Landfill Site


Collection of Waste in Plastic Buckets
Transference to Floor / Ward Drums
Transference to Hospital Dumping Point through Mono-Wheel Trolleys or Manually
Recyclables Separated by Sanitary Staff
Transference to the Hospital Incinerator


Collection of Waste, Sweepings and other Articles in Plastic Buckets
Transference to Floor / Ward Drums
Transference to Hospital Dumping Point through Trolleys or Manually
Recyclables Separated by Sanitary Staff
Transference to a Nearby Municipal Dumping Site

Views of the municipal incinerator when it was in use in 2010 – now it is out of order

A public sector hospital staff dumping the hospital waste in an open truck

View of an open truck used for transportation of garbage

A staff dumping garbage in an open truck

Waste from hospitals – a heterogeneous mix

Waste collection from a pharmaceutical facility

Table-3: Actors

No.	Actor	Objective	Concerns
1.	Private Hospital Owners	• To profitably run hospitals. • To invest in such services / avenues which generate instant financial returns. • To reduce operational expenses to the optimum possible extent.	• Consider hospital waste management as an unimportant and non-profitable area to invest. • Find the municipal authorities and regulatory bodies as corrupt and inactive. • Consider hospital waste management as some one else's business.

Continue…

No.	Actor	Objective	Concerns
2.	Medical Superintend--ents of Large Public Hospital	• Wish to manage hospitals 'smoothly' without government or media criticism on lapses such as poor sanitary conditions / HCWM.	• Shortage of staff, funds and equipment. • Very low efficiency of sanitary staff. • Limited realization about the gravity of situation related to HCWM. • Very few options / systems to choose from.

Continue…

No.	Actor	Objective	Concerns
3.	Medical Practitioners (Doctors)	• Treatment of patients according to available facilities.	• Do not consider HCWM as their responsibility. • Have little sensitivity about the seriousness of the issue.
4.	Sanitary Workers / Sweepers	• Cleaning / sweeping of wards, offices, waiting spaces and the other areas in the hospitals. • Removal of saleable articles from the waste stream for sale to itinerary waste buyers.	• Maximum exposure to contagious / infectious waste. • Inavailability of protective gear, proper tools and equipment. • Being poorly paid, they adopt risky methods to raise incomes by picking, sorting and selling re-cyclable material to junk dealers.

Continue…

No.	Actor	Objective	Concerns
5.	Store Keepers / Hospital Staff	• Remove both hazardous / non-hazardous recyclable material from hospital operations / supply chains.	• Low salaries force them to adopt these hazardous / unethical methods of waste management.
6.	Municipal Staff / Inspectors of Hospitals	• Safe disposal of waste (including HCW). • Enhance income through various operations in HCW.	• Resort to corrupt practices to earn illegal income from stakeholders by unlawful use of authority. • Allow potential clients of HCWM not to link up with the system due to petty interests in bribery.

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No.	Actor	Objective	Concerns
7.	Service Provision Firms	Extend HCWM service to CDGK(now KMC) and government / private hospitals. Help procure equipment and expertise.	• Acutely affected by the corruption of municipal staff, non-cooperation of hospital management and limited awareness about HCWM services.

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Issues

- ***Contracting mechanism***

  Administrative and regulatory support not existing to sustain proper contracting mechanism for this service

- ***Cost benefit factor***

  General non-cooperation from public and private hospitals to regularly pay user charges

- ***Handling of HCW***

  Mixing of HCW with municipal waste is a normal practice and a huge hazard for public health

- ***Process of collection and disposal***

  Inadequate coverage and absence of a proper regulatory framework major hurdles

- ***Awareness of stakeholders***

  Incomplete and inadequate awareness about hazards and implications of HCW

- ***Low priority***

  Hospitals and other stakeholders assign it a low priority

A Private Hospital that Practices Appropriate Waste Management

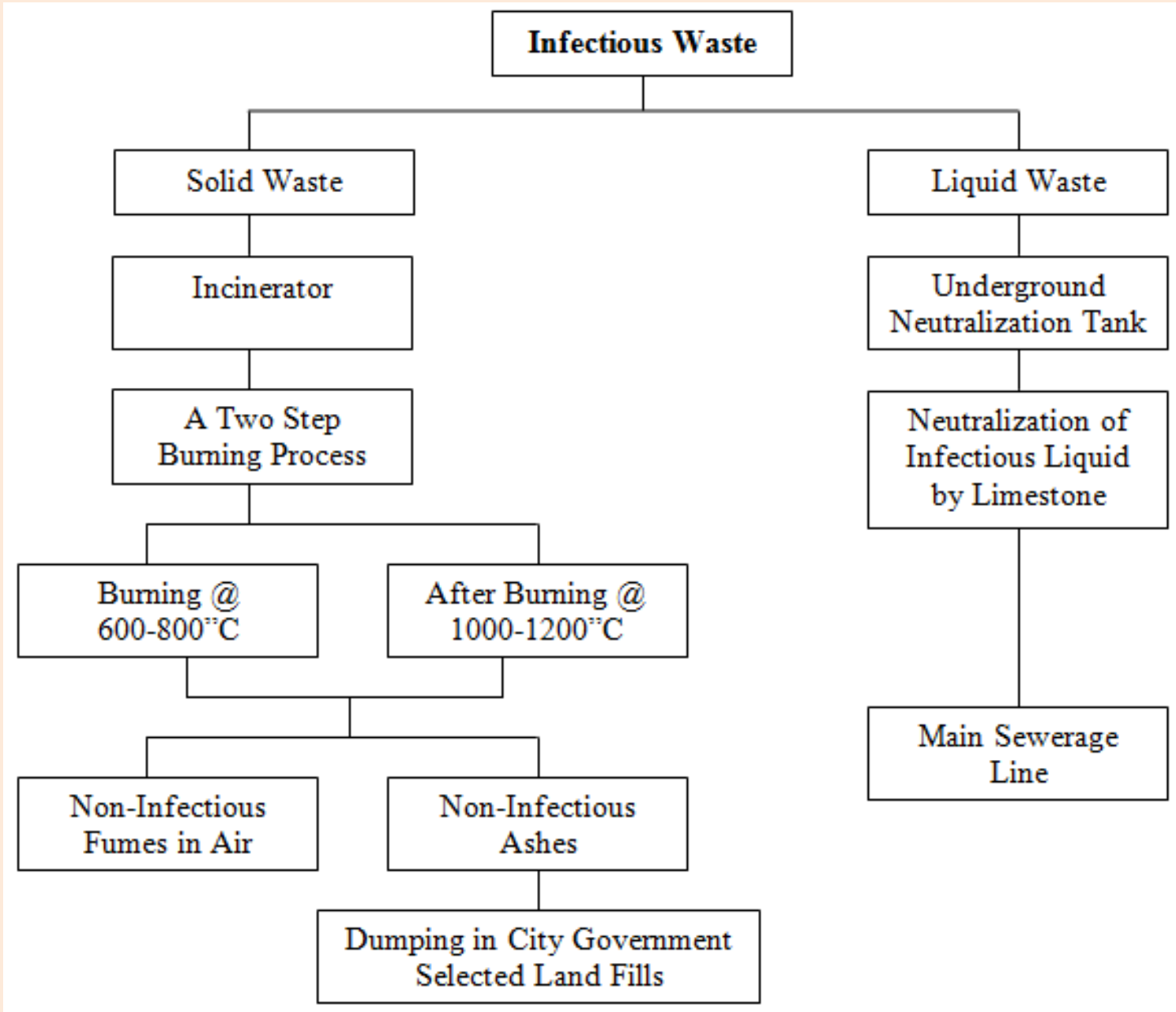

Table-4: Schedule of Charges (Per Month)

Category of Hospitals	No. of Beds in Hospitals	Incarnation Charges	Transportation Charges	Total Charges
A	1-10	2200.00	1100.00	3300.00
B	11-25	4400.00	2100.00	6500.00
C	26-50	6500.00	3200.00	9700.00
D	51-100	11000.00	5300.00	16300.00
E	101-200	17200.00	8800.00	26000.00
F	201-400	21600.00	10700.00	32300.00
G	401 and above	32200.00	16200.00	48400.00
Category PL	Pathological Labs	4400.00	2100.00	6500.00
Category GP	General Practitioner (Clinics)	1400.00	600.00	2000.00

Conclusions & Recommendations

- Working understanding amongst different associated stakeholders

- Status and priority of HCWM in overall municipal and public health objectives and operations

- Communication approach and strategy for sensitization and operationalization of plans

- Targeted capacity building – pilot scale experimentation for scaling up

- Testing local engineering knowledge for devising systems and hardware

- Regulatory framework for HCW Recycling industry and practices

- Effective relationship with urban zoning, hospital management, pharma industry and municipal infrastructure planning