



Methane to Markets

**The International Landfill Database
Landfill Gas to Energy Workshop
Delhi, India
9 March 2006**

**Nimmi Damodaran
Stratus Consulting Inc.**



Overview

- Key features
 - Central data depository
 - Project-oriented
- Applications
 - M2M project assistance: Candidate landfills
- India information
 - Preliminary results

Key Features

- Central data depository
- Transparent
- Online data entry – cost effective and sustainable
- Control of data entry – authorized users only
- Protection of data – authorized users can change only data provided by themselves
- Data quality – data entered by authorized users will be examined by database administrator before posting to website

Applications

- M2M project assistance
 - Selection of potential landfill gas project sites
 - Quantification of methane emissions at landfill level
 - Calculation of methane recovery potential
 - Identification of private and public sector contacts at the national and local level
- National and international cross-comparison

Potential Landfill Gas Project Sites

- Factors affecting a site's potential for landfill gas utilization:
 - Site location
 - Waste quantity and composition
 - Waste disposal rates
 - Climate and moisture
 - Other considerations

➔ International Landfill Database

Landfill Database



February 16, 2006

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International Solid Waste Database

The International Solid Waste Database was designed and developed by the U.S. Environmental Protection Agency (EPA) to address the lack of a centralized and comprehensive collection of data on solid waste generation and management practices in developing countries. [Learn More >>>](#)



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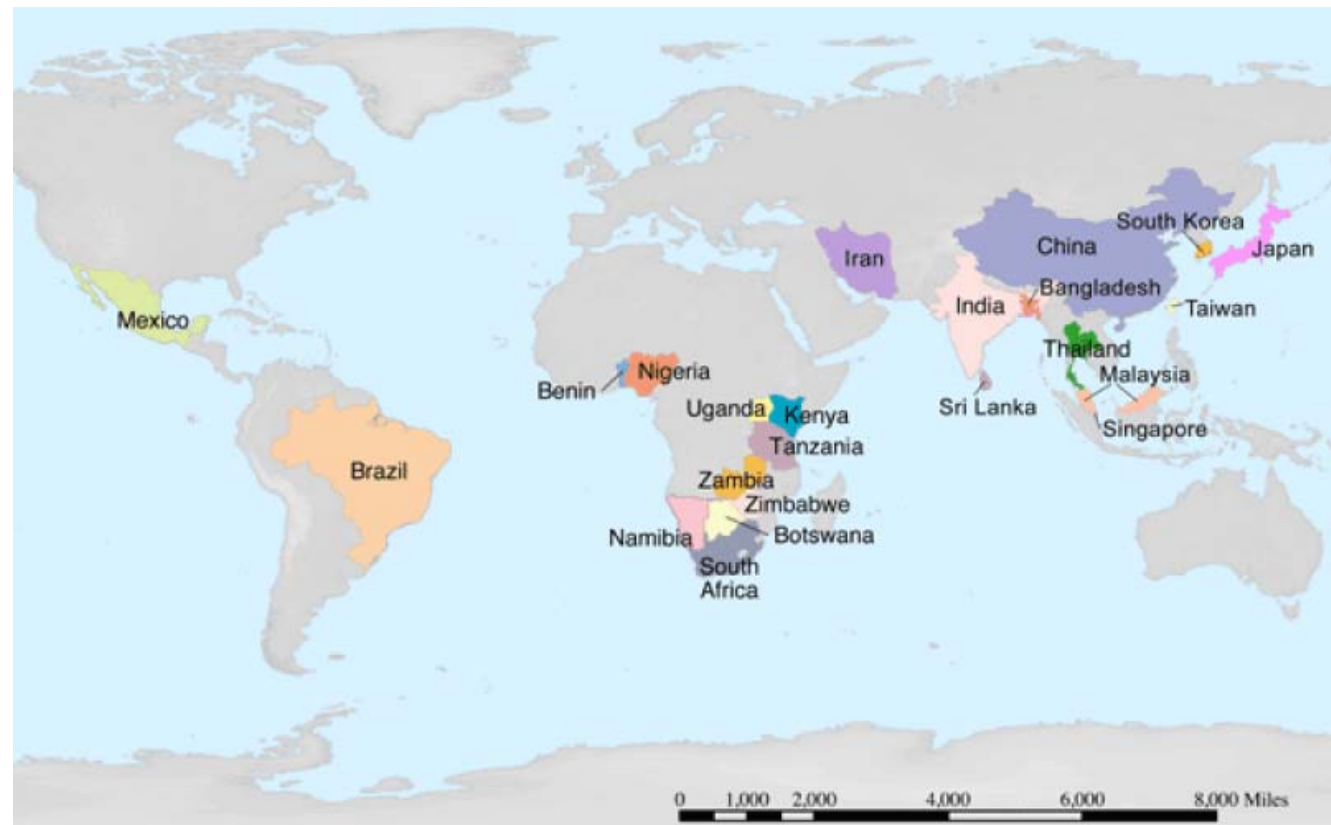
User Name:

Password:

Login

Interactive Map

- Countries for which data has been collected to date



Country Level Data

National Level Information			
Name of Country:	<input type="text" value="India"/>	Population:	<input type="text" value="1,027,015,247"/>
Contact Person:	<input type="text" value="Avinash Akolkar"/>	Title / Function of Contact Person:	<input type="text" value="Senior Scientist"/>
Address:	<input type="text" value="Central Pollution Control Board
Ministry of Environment and Forests"/>		
Phone Number:	<input type="text" value="011-91-11-22307863"/>	E-mail:	<input type="text" value="avinashakolkar@yahoo"/>
National level agencies / departments / ministries responsible for Solid Waste Management:			
1.	<input type="text" value="Ministry of Urban Develp"/>		
2.	<input type="text" value="Ministry of Environment"/>		
3.	<input type="text" value="Ministry for Nonconvent"/>		
4.	<input type="text"/>		
5.	<input type="text"/>		
Total Waste Generated Per Annum (Metric Tons):	<input type="text" value="38,000,000"/>	Total Waste Collected Per Annum (Metric Tons):	<input type="text" value="30,400,000"/>
Total Waste Disposed in Landfills (Metric Tons):	<input type="text" value="30,400,000"/>	Average Quantity of Waste Generated Per Capita Per Day (Kilograms):	<input type="text" value="0.5"/>

City Level Data

City Details	
Country: India	City: Delhi
Name of City: Delhi	Population (e.g. 1,234,567): 12,500,000
Contact Person: Uttam Vaswani	Title / Function of Contact Person: Joint Director
Address: Municipal Corporation Room 85 Town Hall Delhi 110005	Phone Number: 91-11-3979716 E-mail:
Average Annual Temp. (C): 23.6	Precipitation (mm annually): 797.3
Municipal Solid Waste Generation Information	
Quantity of Waste Generated Per Day (Metric Tons): 6,250	Quantity of Waste Collected Per Day (Metric Tons): 4,300
Quantity of Waste Generated Per Capita Per Day (Kilograms): 0.5	
Waste Composition Information (Percent)	
Whether percentage by weight or volume: <input checked="" type="radio"/> % by Weight <input type="radio"/> % by Volume	
Vegetative matter: 38.6 %	Paper & Cardboard: 5.57 %
Plastics: 6.03 %	Metal: 0.23 %
Glass & Crockery: 0.99 %	Bioresistant (Leather, rubber): 13.89 %
Inert (Stone, ash, fine earth): 34.71 %	Any Other (please specify):

Landfill Level Data

Landfill Details			
Country: India	City: Delhi		
Name: Gazipur Site	Location: Gazipur Dairy Farm		
Type of Landfill:	<input type="radio"/> Sanitary Landfill <input type="radio"/> Controlled Landfill <input type="radio"/> Open Dump		
Owner: Municipal Corporation	Phone Number: 011-23913228		
Address: Room 85 Town Hall New Delhi-110006	E-mail:		
Type of Ownership:	<input type="radio"/> Public <input type="radio"/> Private		
Operator of Site:	<input type="radio"/> Same as owner <input type="radio"/> Other		
Address:	Mr. Uttam Vaswani, Director, Municipal Corporation of Delhi Room No. 85 Town Hall Delhi – 110006	Phone Number: 397-9716	E-mail:
Waste Quantity & Technical Information			
Designed Area (Hectares): 28	Current Area Used (Hectares): 24		
Designed Depth (Meters): 28	Current Depth (Meters): 20		
Designed Capacity (Volume and/or weight): 6,800,000	<input type="radio"/> Volume (m3) <input type="radio"/> Weight (Metric Tons)		
Existing Waste (Volume and/or weight): 4,000,000	<input type="radio"/> Volume (m3) <input type="radio"/> Weight (Metric Tons)		
Quantity Accepted Annually (Metric Tons): 730,000			
Landfill Opening Year: 1984	Projected Closing Year: 2008		
Liner	<input type="radio"/> Yes <input type="radio"/> No	Daily Cover	<input type="radio"/> Yes <input type="radio"/> No
Leachate Collection	<input type="radio"/> Yes <input type="radio"/> No	Leachate Recirculation	<input type="radio"/> Yes <input type="radio"/> No
Gas Management	<input type="radio"/> Yes <input type="radio"/> No	Regulatory Framework for Methane	<input type="radio"/> Yes <input type="radio"/> No
Waste Pickers	<input type="radio"/> Yes <input type="radio"/> No	Fence	<input type="radio"/> Yes <input type="radio"/> No
Compacting	<input type="radio"/> Yes <input type="radio"/> No		

India: Data Collection Summary

- M2M landfill subcommittee contacts:
 - 2 from Ministry of Urban Development
 - 1 from Central Electricity Authority
- Bangalore to have India's first sanitary landfill
- Interest from FICCI and NEERI in landfill gas projects
- Opportunities in Delhi, Chennai, Bangalore, Pune, and Mumbai, based on current data

Sources of Information

- Local municipalities
- Central Pollution Control Board
- Ministry of Urban Development
- Ministry for Non-Conventional Energy Sources
- Survey of Tamil Nadu Municipal Commissioners

India: Comparative Analysis

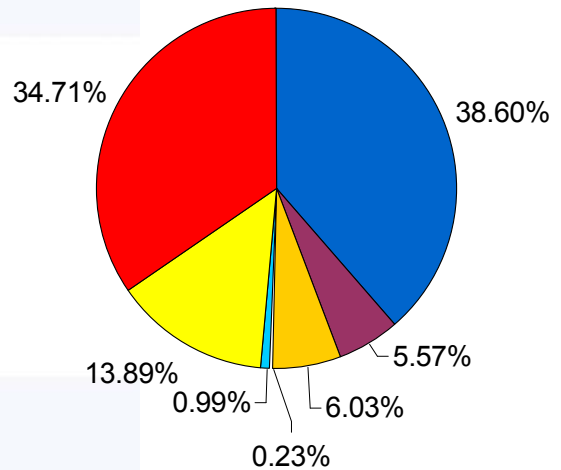
National Level

	Delhi	Mumbai	Chennai	Bangalore
Average daily waste (tons)	4,557	5,500	3,200	1,716
Population (millions)	13.7	16.4	6.4	4.5
Daily per capita waste (grams)	333	336	498	381

India: Comparative Analysis (cont.)

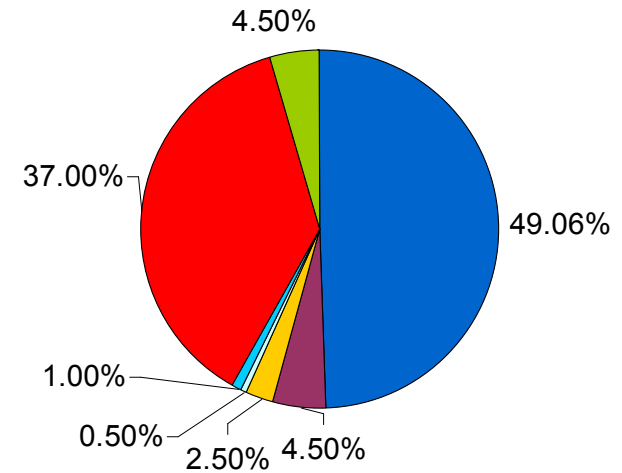
National Level

Waste composition in Delhi



- Vegetative matter
- Paper and Cardboard
- Plastics
- Metal

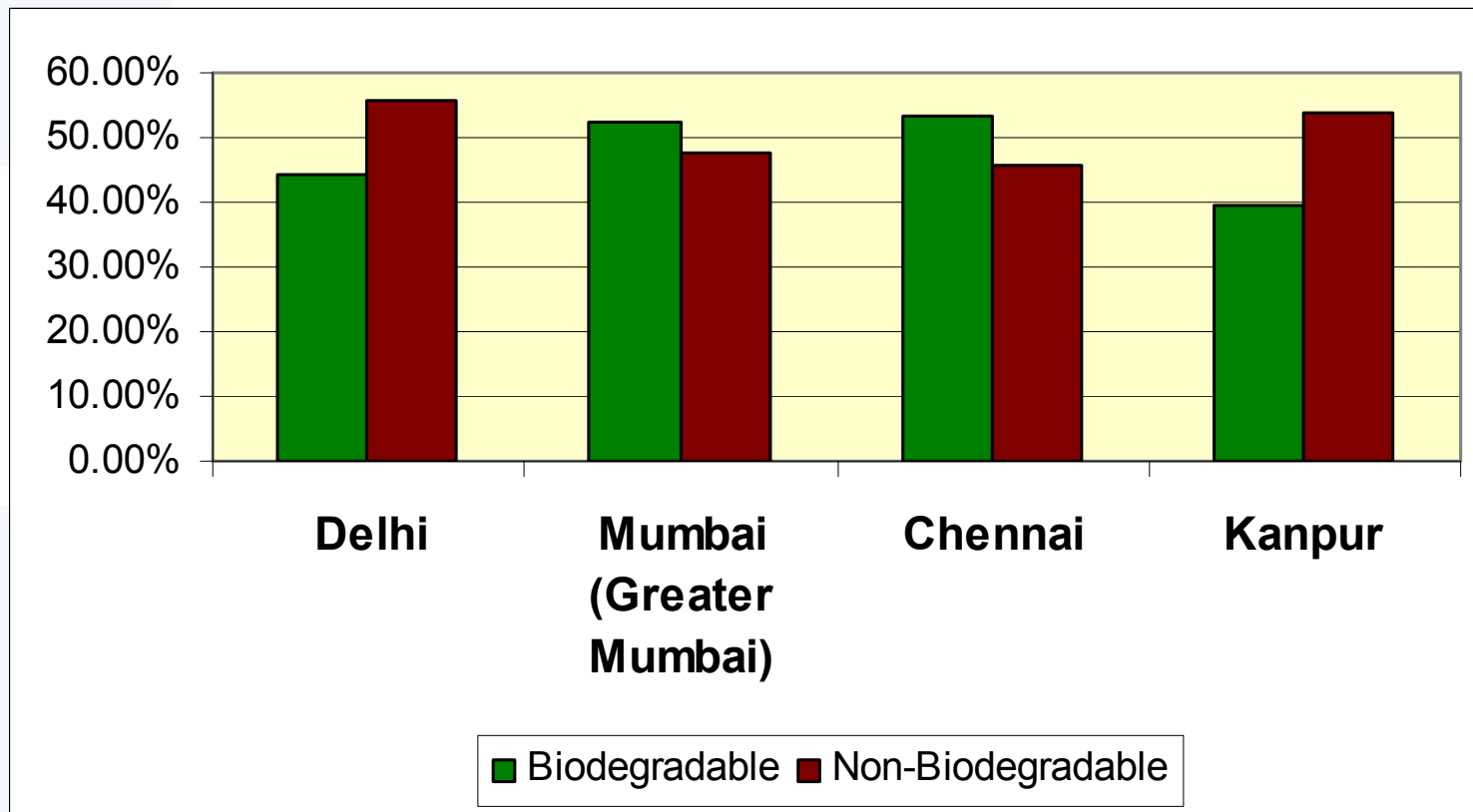
Waste composition in Chennai



- Glass and Crockery
- Bioresistant
- Inert
- Other

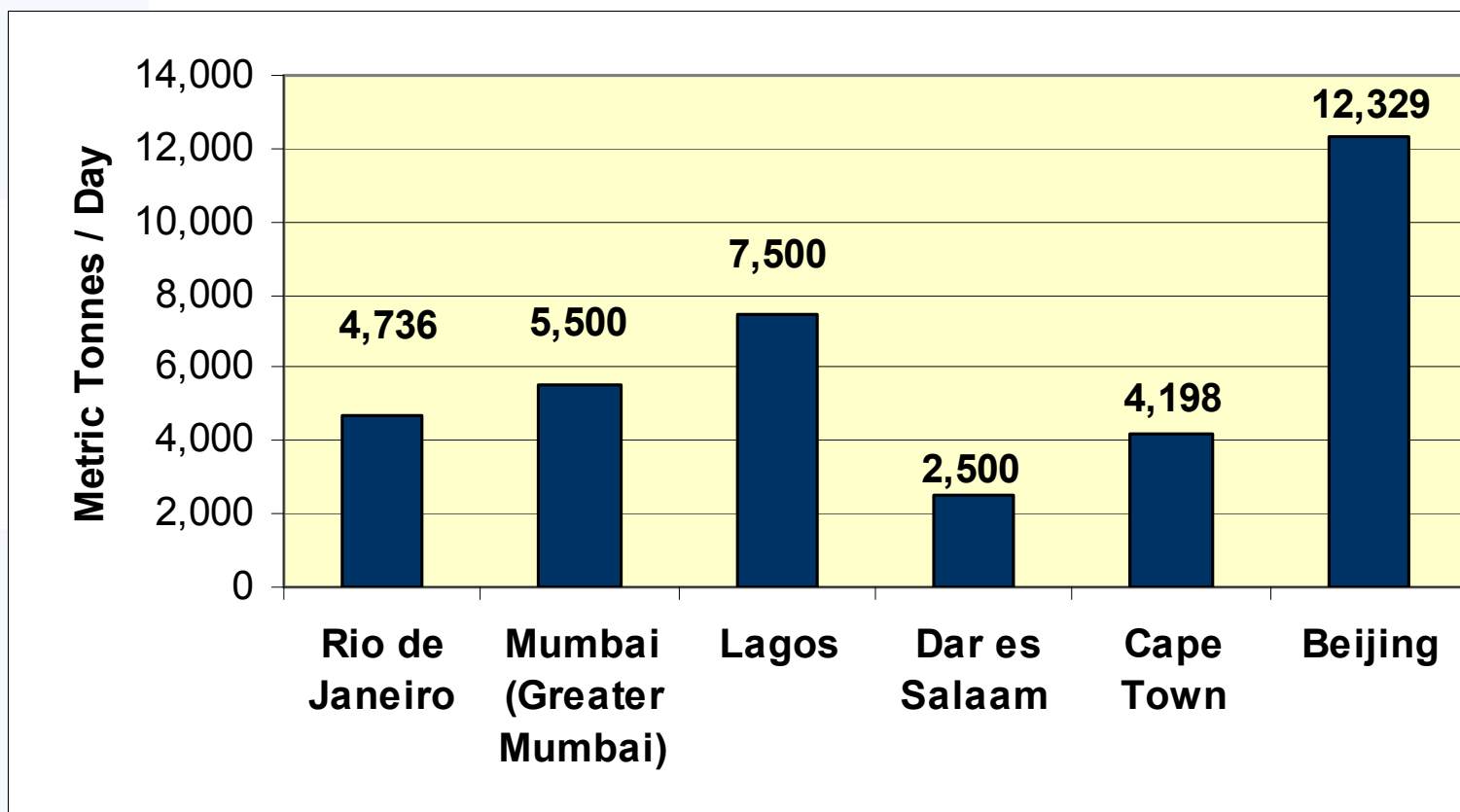
India: Comparative Analysis (cont.)

Biodegradable and Non-Biodegradable Waste Proportions



India: Comparative Analysis (cont.)

International Level



Next Steps

- Beta testing
 - Input of new data by M2M partners
 - Update existing data
- Demo of database at Carbon Expo 2006 (Cologne, Germany, May 10-12, 2006)
- QA/QC
 - Solicit input from M2M landfill committee members
- Identification of project candidates