CDM and Waste
A Trade or a Fraud?

Civil Society Workshop on CDM and Carbon Markets

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Global Anti-Incinerator Alliance

gaia

THE BUSINESS OF WASTE!

The urban areas of Asia now spend about US$25 billion on solid waste management per year; this figure will increase to at least US$50 billion in 2025. Today's daily waste generation rate is about 760,000 tonnes. By 2025, this rate will be increased to about 1.8 million tonnes per day.

Urban Development Sector Unit, East Asia and Pacific Region, World Bank. May 1999

Waste Management: The Indian Scenario

- Approximately 100,000 TPD of total MSW generation in India.
- Poor implementation of MSW 2000 with little focus on source segregation.
- Globalized waste handling methods is becoming the norm with municipalities.
- Local free-market unfriendly community initiatives being marginalized.
- Shift from small labour with skill intensive private entrepreneurship to large capital investments in waste handling.
- Major shift towards outsourcing and privatization of waste collection and disposal services at huge cost to exchequer.
- Lack of transparency in waste policies.

Privatisation of Waste

- Waste collection traditionally the responsibility of the ULB.
- Privatisation = Outsourcing.
- Privatisation = mechanisation.
- Privatisation on the pretext of efficiency and social justice.
- Citizens as consumers of the “service”.

CDM and waste

AM0025 : CDM framework for waste management proposals

Avoided emissions from organic waste through alternative waste treatment processes

Treatment of municipal solid waste (MSW)

Started in 2005

It presumes that waste would have otherwise been dumped

CDM and waste

Project types under the AM0025

Treatment of municipal solid waste (MSW)

- Aerobic composting
- Landfill gas systems
- Incineration of fresh waste for energy generation

72 projects in CDM pipeline
30 million CERs by 2012

Methane avoidance actually means burning or burying waste

Reduction, re-use, recycling?

Clean energy?

Incineration of MSW

Air Emissions from Municipal Waste Incinerators

phthalic ester
dodecanecarboxylic acid
3,3'-dimethylbiphenyl
3,4'-dimethylbiphenyl
hexadecane
benzophenone
tridecanoic acid
hexachlorobenzene
heptadecane
fluorenone
dibenzothiophene
pentachlorophenol
sulphonic acid m.w. 224
phenanthrene
tetradecanecarboxylic acid
octadecane
phthelic ester
tetradecanoic acid isopropyl ester
caffeine
12-methyltetradecacarboxylic acid
pentadecacarboxylic acid
methylphenanthrene
nonedecane
9-hexadecene carboxylic acid
anthraquinone
dibutylphthalate
hexadecanoic acid
eicosane
methylhexadecanoic acid
fluoroanthene
pentachlorobiphenyl
heptadecanecarboxylic acid
octadecadienal
pentachlorobiphenyl
aliphatic amide
octadecanecarboxylic acid
hexadecane amide
Docosane
2,3,5-trichlorophenol

ethylmethylcyclohexane
2-heptanone
2-butoxyethanol
nonane
isopropyl benzene
propylcyclohexane
dimethyloctane
pentanecarboxylic acid
propyl benzene
benzaldehyde
5-methyl-2-furane carboxaldehyde
1-ethyl-2-methylbenzene
1,3,5-trimethylbenzene
trimethylbenzene
benzonitrile
methylpropylcyclohexane
2-chlorophenol
1,2,4-trimethylbenzene
phenol
1,3-dichlorobenzene
1,4-dichlorobenzene
decane
hexanecarboxylic acid
1-ethyl-4-methylbenzene
2-methylisopropylbenzene
benzyl alcohol
trimethylbenzene
1-methyl-3-propylbenzene
2-ethyl-1,4-dimethylbenzene
2-methylbenzaldehyde
1-methyl-2-propylbenzene
methyl decane
4-methylbenzaldehyde
1-ethyl-3,5-dimethylbenzene
1-methyl-(1-pro-penyl)benzene
2-ethylnaphthalene-1,2,3,4-tetrahydro
2,4,6-trichlorophenol
4-ethylacetophenone

bromochlorobenzene
4-methylphenol
benzoic acid methyl ester
2-chloro-6-methylphenol
ethyldimethylbenzene
undecane
heptanecarboxylic acid
1-(chloromethyl)-4-methylbenzene
1,3-diethylbenzene
1,2,3-trichlorobenzene
4-methylbenzyl alcohol
ethylhex anoic acid
ethyl benzaldehyde
2,4-dichlorophenol
1,2,4-trichlorobenzene
naphthalene
cyclopentasiloxanedecamethyl
methyl acetophenone
ethanol-1-(2-butoxyethoxy)
4-chlorophenol
benzothiazole
benzoic acid
octanoic acid
2-bromo-4-chlorophenol
1,2,5-trichlorobenzene
dodecane
bromochlorophenol
2,4-dichloro-6-methylphenol
dichloromethylphenol
hydroxybenzonitrile
tetrachlorobenzene
methylbenzoic acid
trichlorophenol
2-(hydroxymethyl) benzoic acid
hexachlorobiphenyl
benzylbutylphthalate
aliphatic amide
diisooctylphthalate
hexadecanoic acid hexadecyl ester

pentane
trichlorofluoromethane
acetonitrile
acetone
iodomethane
dichloromethane
2-methyl-2-propanol
2-methylpentane
chloroform
ethyl acetate
2,2-dimethyl-3-pentanol
cyclohexane
benzene
2-methylhexane
3-methylhexane
1,3-dimethylcyclopentane
1,2-dimethylcyclopentane
trichloroethene
heptane
methylcyclohexane
ethylcyclopentane
2-hexanone
toluene
1,2-dimethylcyclohexane
2-methylpropyl acetate
3-methyleneheptane
paraldehyde
octane
tetrachloroethylene
butanoic acid ethyl ester
butyl acetate
ethylcyclohexane
2-methyloctane
dimethyldioxane
2-furanecarboxaldehyde
chlorobenzene
methyl hexanol
trimethylcyclohexane
ethyl benzene

4-bromo-2,5-dichlorophenol
2-ethylbiphenyl
bromodichlorophenol
1(3H)-isobenzofuranone-5-methyl
dimethylphthalate
2,6-di-tertiary-butyl-p-benzoquinone
3,4,6-trichloro-1-methyl-phenol
2-tertiary-butyl-4-methoxyphenol
2,2'-dimethylbiphenyl
2,3'-dimethylbiphenyl
pentachlorobenzene
bibenzyl
2,4'-dimethylbiphenyl
1-methyl-2-phenylmethylbenzene
benzoic acid phenyl ester
2,3,4,6-tetrachlorophenol
tetrachlorobenzofurane
Fluorene
2-methylbiphenyl
2-nitrostyrene(2-nitroethenylbenzene)
decanecarboxylic acid
hydroxymethoxybenzaldehyde
hydroxychloroacetophenone
ethylbenzoic acid
2,6-dichloro-4-nitrophenol
sulphonic acid
1,1'biphenyl (2-ethenyl-naphthalene)
3,4,5-trichlorophenol
chlorobenzoic acid
2-hydroxy-3,5-dichlorobenzaldehyde
4-chlorobenzoic acid
2,3,4-trichlorophenol
1,2,3,5-tetrachlorobenzene
xylene
acetic acid
aliphatic carbonyl
formic acid

Source: Jay, K., and Stieglitz, L., "Identification and Quantification of Volatile Organic Components in Emissions of Waste Incineration Plants," Chemosphere, vol. 30, no. 7, pp. 1249-1260, 1995.

Incinerator Emissions

- Heavy metals including lead, arsenic, cadmium, chromium, beryllium
- Mercury
- Dioxins, furans and PCBs
- New pollutants: brominated flame retardants
- Nanoparticles

Incinerator Ash

New York State -- 2009

Annual Emissions

Muncipal Waste Combustors - 2009 Data

DEC ID	Facility	Hg (lbs)	Pb (lbs)	Cd (lbs)	CO (tons)	NOx (tons)	SO2 (tons)	HCl (tons)
1282001727	Hempstead Resource Recovery Facility	28.7	16.2	1.4	256.06	625.33	35.17	43.81
1472000777	Babylon Resource Recovery Facility	25.7	15.8	0.92	34.64	181.79	46.22	30.13
1472600790	Huntington Resource Recovery Facility	4.5	21.3	1.5	57.81	359.07	5.25	4.27
1472800185	Islip McArthur Resource Recovery Facility	1.84	0.55	0.14	64.36	198.05	24.53	12.39
3134600019	Dutchess Co. Resource Recovery Facility	7.24	2.49	0.82	85.39	166.78	28.69	26.82
3551200031	Wheelabrator Westchester LP	18	179	9	29.02	674.78	56.61	NA
5534400001	Wheelabrator Hudson Falls	5.8	40.7	3.9	9.6	117.28	14.65	10.1
7314200028	Onondaga Co. Resource Recovery Facility	2.1	26.5	1.7	22.09	539.31	28.86	10.14
7355800013	Oswego Co. Energy Recovery Facility	0.0065	0.0035	0.0055	0.58	161.15	23.06	12.66
9291100113	Covanta Niagara LP	34	80	0	95.55	746.72	136.7	89.95
Average Emissions		**12.79**	**38.25**	**1.94**	**65.51**	**377.03**	**39.97**	**24.03**
Total Emissions		127.88	382.55	19.38	655.10	3770.26	399.74	240.27

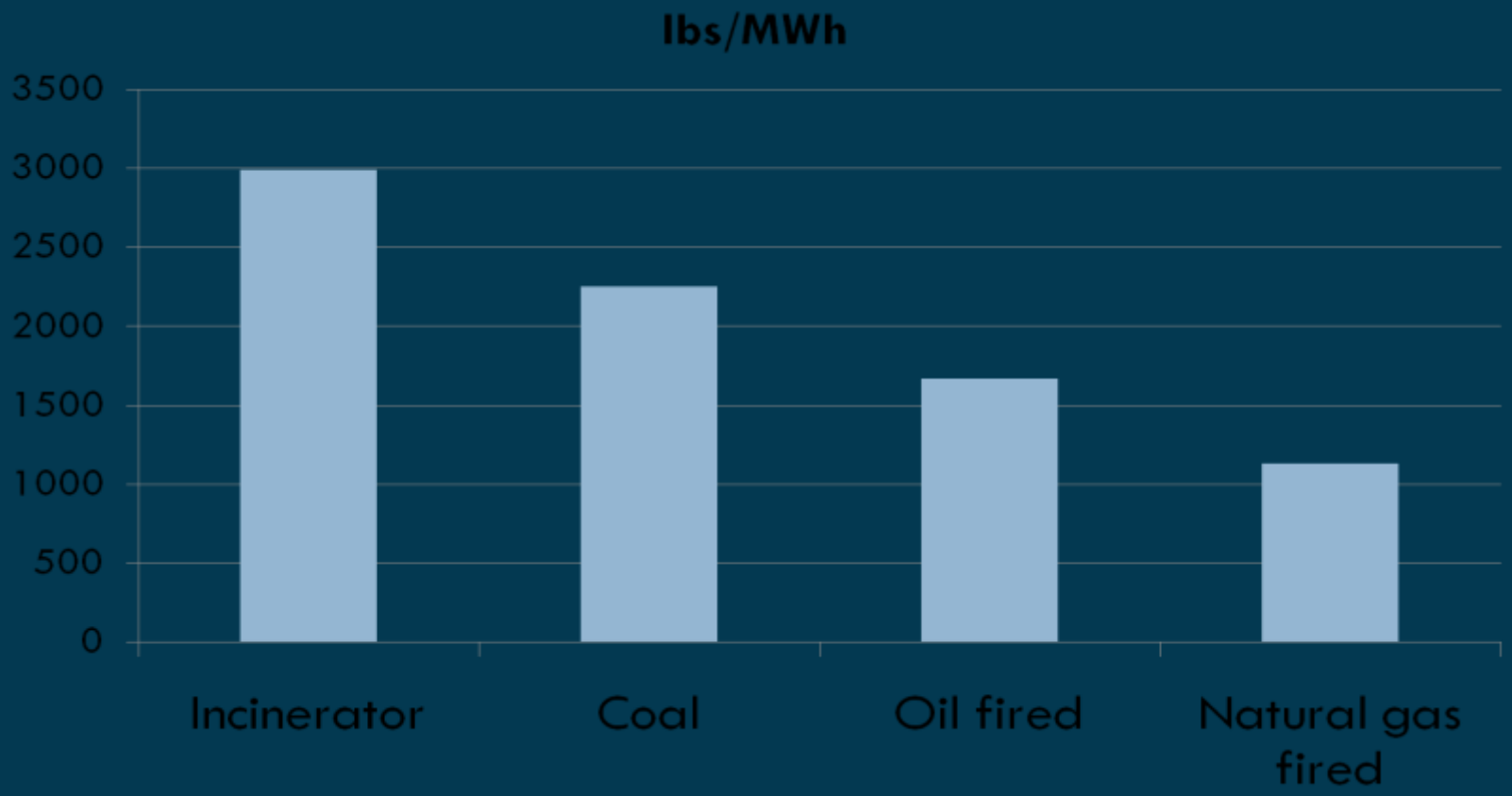
Coal Fired Electric Generating Stations - 2009 Data

DEC ID	Facility	Hg (lbs)	Pb (lbs)	Cd (lbs)	CO (tons)	NOx (tons)	SO_2 (tons)	HCl (tons)
3334600011	Danskammer Generating Station	26	0.013	16	77.69	915.49	3770.73	186.48
7034600045	AES Westover	0.14	112.80	0.38	53.73	714.99	6232.56	128.95
7503200019	AES Cayuga	2.21	784.74	2.62	153.86	2110	2196.4	369.25
8573600004	AES Greenidge LLC	0.015	33.009	0.11	47.76	381.16	427.72	6.41
9060300021	Dunkirk Steam Generating Station	39	101	15	398.85	2270.4	4317.8	26.9
9146400130	Huntley Steam Generating Station	26	30	6	297.03	1541.1	6018	18.35
9291100152	Niagara Generating Facility	0.0094	0.018	0.04	1.53	3.45	0.01	NA
9293800003	AES Somerset LLC	0.15	301.28	1.0058	312	3748.2	5070.1	791.86
Average Emissions		**11.69**	**170.36**	**5.14**	**167.81**	**1460.60**	**3504.17**	**191.03**
Total Emissions		93.52	1362.86	41.15	1342.45	11684.79	28033.32	1528.20

Source: New York Department of Environmental Conservation

Facility & place	Year	Investment
Timarpur, New Delhi	2000	Rs.44 Crore
Hyderabad, (SELCO)	1999	Rs. 50 Crores
Lucknow	2000	Rs.84 Crore
Vijayawada (Shriram)	Dec 2003	Rs. ??? Build, own, operate and transfer(boot)
Chandighar		Rs.60 crores
Bangalore, Srinivas Gayathri Resource Recovery Limited	Ongoing	Rs.100 crores
Timarpur-Okhla New	Ongoing	Rs.200 crores
Hanjer – Pune, Nagpur and Rajkot	Ongoing	Total Rs.500 crores

CO2 emissions from incineration



Source: U.S. EPA, 2007, epa.gov/cleanenergy/energy-and-you/affect/airemissions.html

Including biogenic emissions, according to the IPCC

Incineration and fossil fuels

World Bank review of calorific value of waste in China

- low calorific value, mostly organic, so wet
- need to use supplemental fuel to burn solid waste

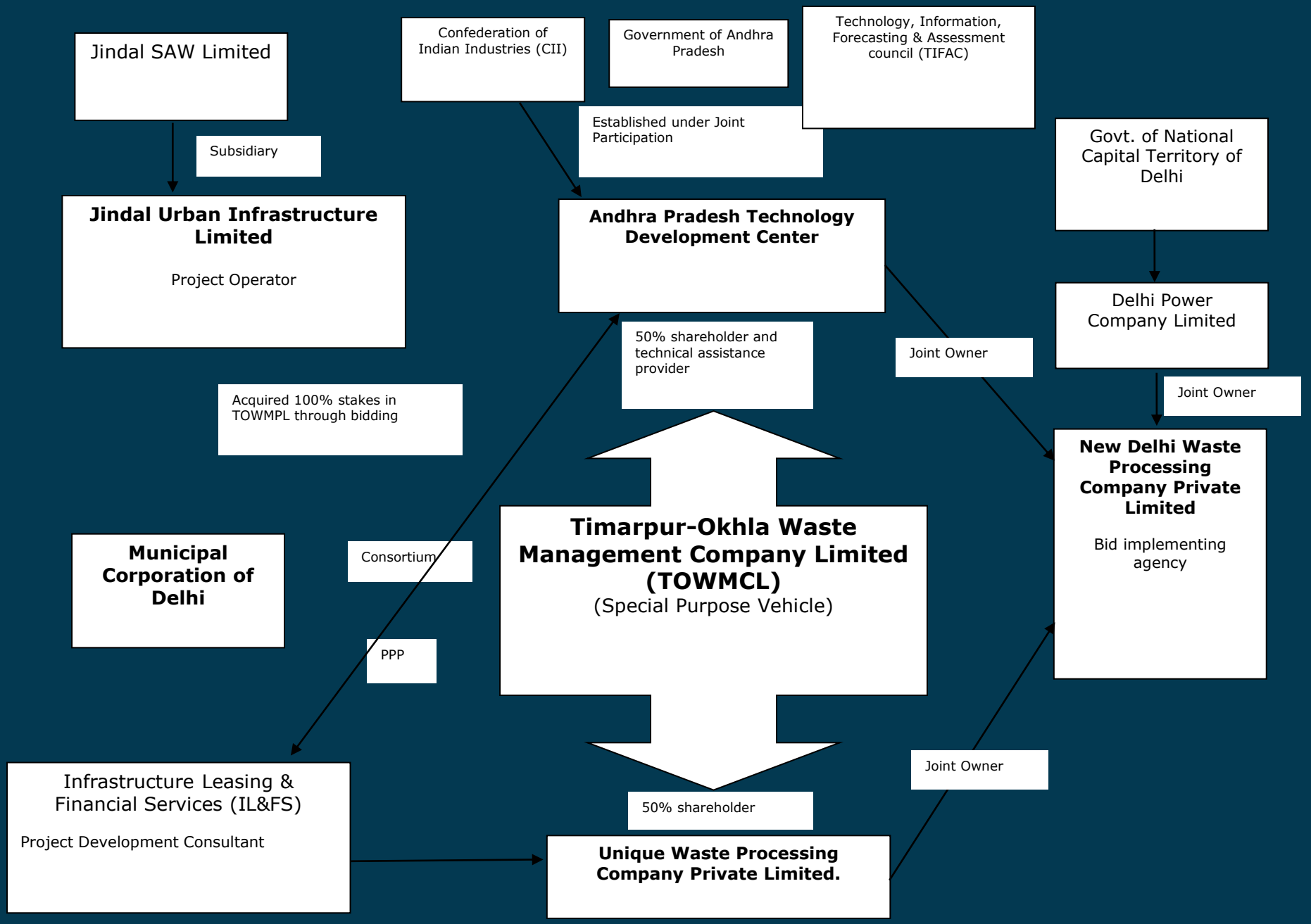
Reports on this situation say:

Normally, Chinese municipal waste incinerators cannot be operated without support firing (Solenthaler and Rainer, 2004)

Some incinerators may only operate if diesel fuel is added to waste, which defeats arguments that waste-to-energy is energy efficient (Forsyth, 2006)

TIMARPUR-OKHLA WTE

- Huge public and WP opposition
- Questionable technology.
- Representation at the Public Hearing.
- Missing EIA??
- No standards for incinerator emissions in India.
- Deviations from the approved proposal.
- Paved way for two more incinerators in Delhi


Jindal SAW Limited
Subsidiary
Jindal Urban Infrastructure Limited
Project Operator
Confederation of Indian Industries (CII)
Government of Andhra Pradesh
Technology, Information, Forecasting & Assessment council (TIFAC)
Established under Joint Participation
Andhra Pradesh Technology Development Center
50% shareholder and technical assistance provider
Govt. of National Capital Territory of Delhi
Delhi Power Company Limited
Joint Owner
Joint Owner
New Delhi Waste Processing Company Private Limited
Bid implementing agency
Acquired 100% stakes in TOWMPL through bidding
Municipal Corporation of Delhi
Consortium
PPP
Timarpur-Okhla Waste Management Company Limited (TOWMCL)
(Special Purpose Vehicle)
Infrastructure Leasing & Financial Services (IL&FS)
Project Development Consultant
50% shareholder
Unique Waste Processing Company Private Limited.
Joint Owner

Landfill gas collection of MSW

Municipal Waste Dump or Landfill

Sanitary Landfill with Landfill Gas Collection System under Construction (dwells and plumbing to collect the gas)

Key issues of LFG system

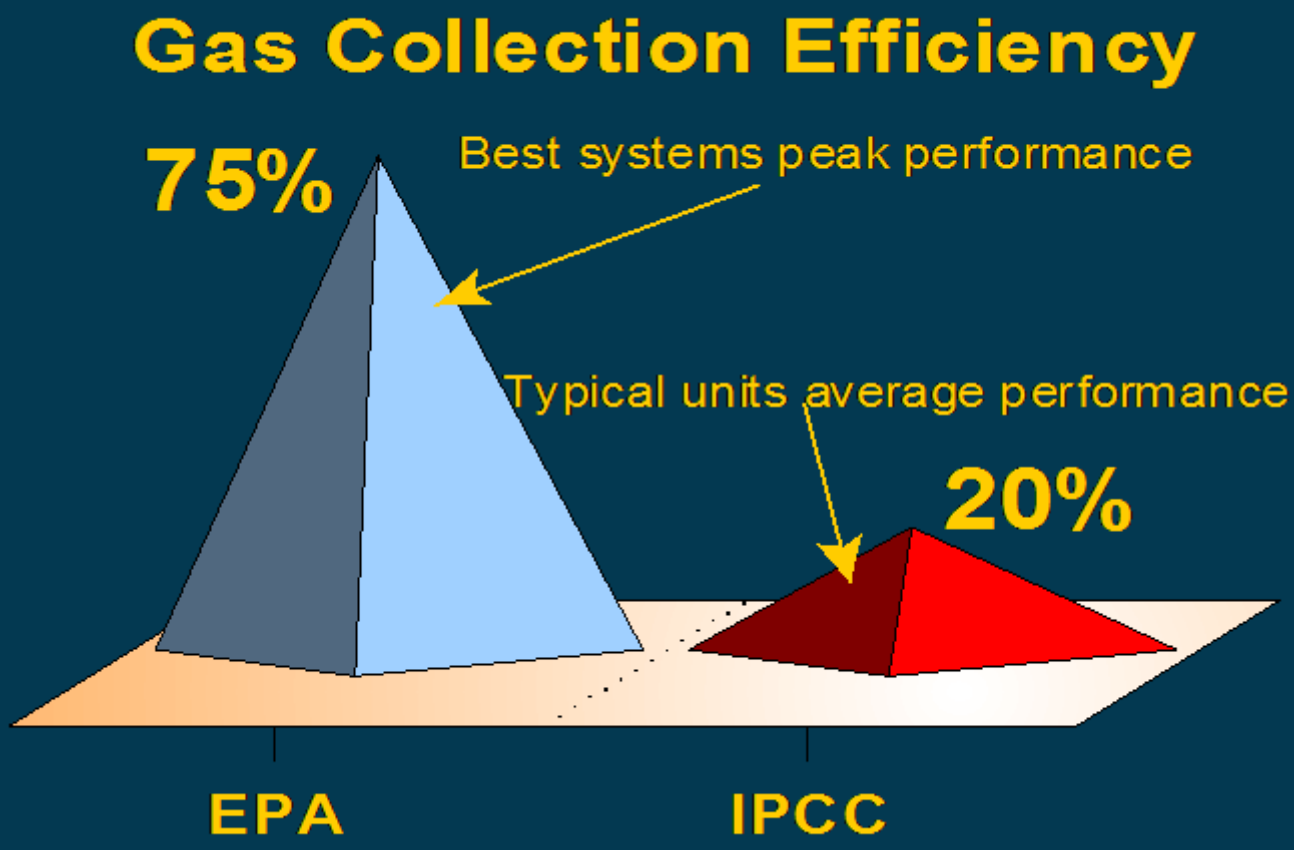
Consume vast quantities of resources, it's a waste-of-energy

Undermine sustainable alternatives like recycling and composting

Exaggerated methane recovery, no energy efficiency

Perverse incentives to methane production

Landfills gas capture systems do not work as expected



GORAI CAPPING PROJECT

- 35 years or about 2.7million tons of waste.
- Expected to generate 300,000 CERs worth $5.2 million.
- Displaced 300 wastepickers
- Toxic legacy !
- No emphasis on remediation.
- Encourages business as usual

Other CDM-backed waste projects

Mixed waste processing for compost and RDF

Mixed waste stream (plastics, paper, glass, metals, cardboard, organics) are processed to extract compost and RDF.

Other CDM-backed waste projects

Burning agriculture waste for fuel

Coconut shells, rice husks,
sugarcane leftovers, palm oil remains

Produce of unsustainable large-scale, intensive, monoculture plantations

Burning biomass for fuel

”Waste" from forestry operations (sawdust, sawmill chips, etc)

Perverse incentive from not counting biogenic emissions

CDM and Cement

Methodologies supporting Cement Kilns

- AMC 0003: Partial Substitution of fossil fuels.
- AMC0005: Feedstock replacement, use of fly ash/slag to replace clinker
- AMC0015: Feedstock replacement with low carbonates
- AM0024: Waste heat recovery

Waste Categories for which Co-Incineration is permitted

1. **Hazardous**
   Paint Sludge from automobile sector
   Refinery Sludge
   TDI Tar Waste
   ETP Sludge from pesticide and pharma
2. **Other waste**
   Plastic waste
   Tyres
   RDF from Municipal waste


INDIA
N
Jammu and Kashmir
Himachal Pradesh
Punjab
Uttarakhand
Haryana
Delhi
Rajasthan
Uttar Pradesh
Bihar
Sikkim
Arunachal Pradesh
Assam
Nagaland
Meghalaya
West Bengal
Manipur
Tripura
Mizoram
Gujarat
Madhya Pradesh
Jharkhand
Chhattisgarh
Orissa
Maharashtra
Andhra Pradesh
Goa
Karnataka
Tamil Nadu
Kerala
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
Cement Plant
Steel Plant
Thermal Power Plant
Map not to Scale

Issues and Concerns

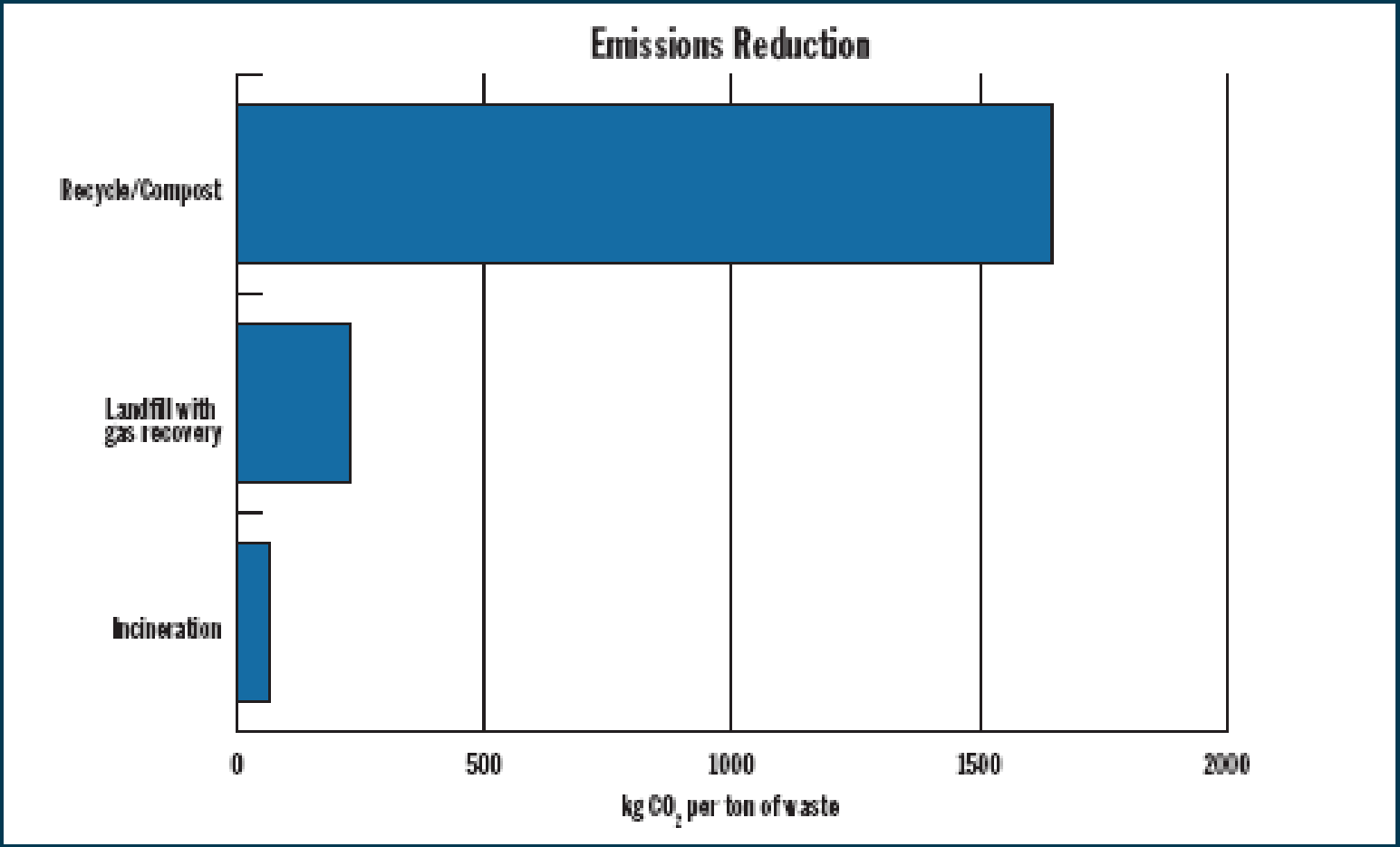
- No regular monitoring mechanism in place by regulatory authorities.
- No heavy metal monitoring.
- Clearance granted based on trial runs.
- GIZ is playing a major role in facilitating co-incineration without considering ground realities in countries like India.
- The cement industry is insisting on outlining the emission parameters and monitoring protocols with little state intervention.
- Indian Railways to be roped in for transportation of Hazardous Waste to cement plants. This is proposed considering cost effectiveness of this method.

The solution is not techno-enthusiasm

Trashing the planet

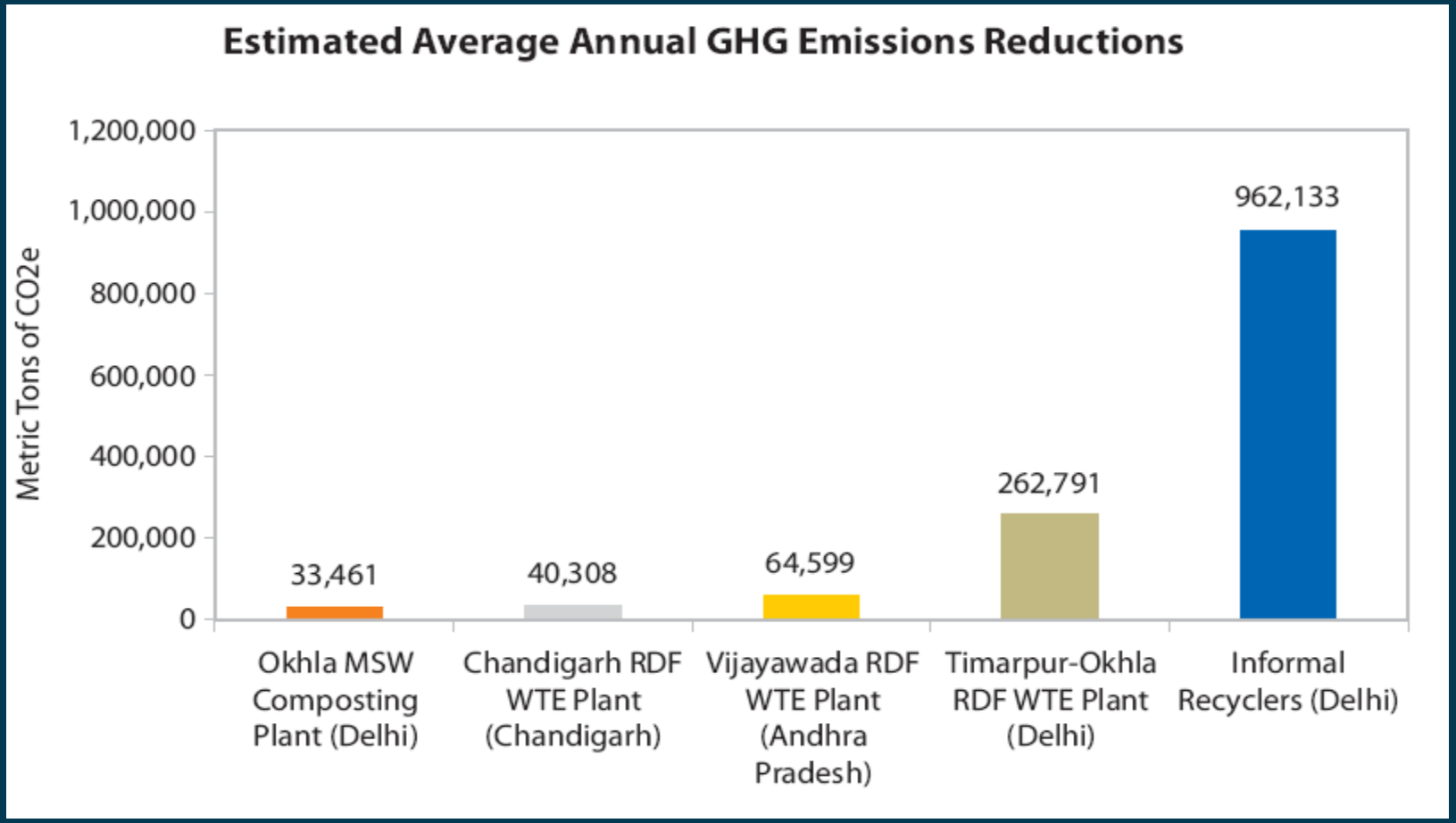
By David Seavey, USA TY

CDM ignores the real alternatives



Source: “Assessment of Materials Management Options for the Massachusetts Solid Waste Master Plan Review,” Tellus Institute December 2008, p.2.

India: Recyclers are the Real Climate Heroes



Source: *Cooling Agents*. Chintan, 2008.

WIKI-LEAKS

- The cable notes that these companies "conceded that no Indian project could meet the '**additionality** in investment criteria' to be eligible for carbon credits."

WIKI-LEAKS

- “National CDM Authority "takes the 'project developer at his word' for clearing the ‘additionality' barriers.“

  ---R K Sethi, Member Secretary of the National CDM Authority.

WIKI-LEAKS

- "project developers prepare two balance sheets to secure funding: one showing the viability of the project without the CDM benefit (which is what the bank looks at) and another demonstrating the non-viability of the project without the CDM benefit. No bank would finance a project which is viable only with carbon revenues because of the uncertainty of the registration process, unclear guidelines on qualifying CDM projects and because carbon revenue is only a by-product revenue stream of the main operations of the company."

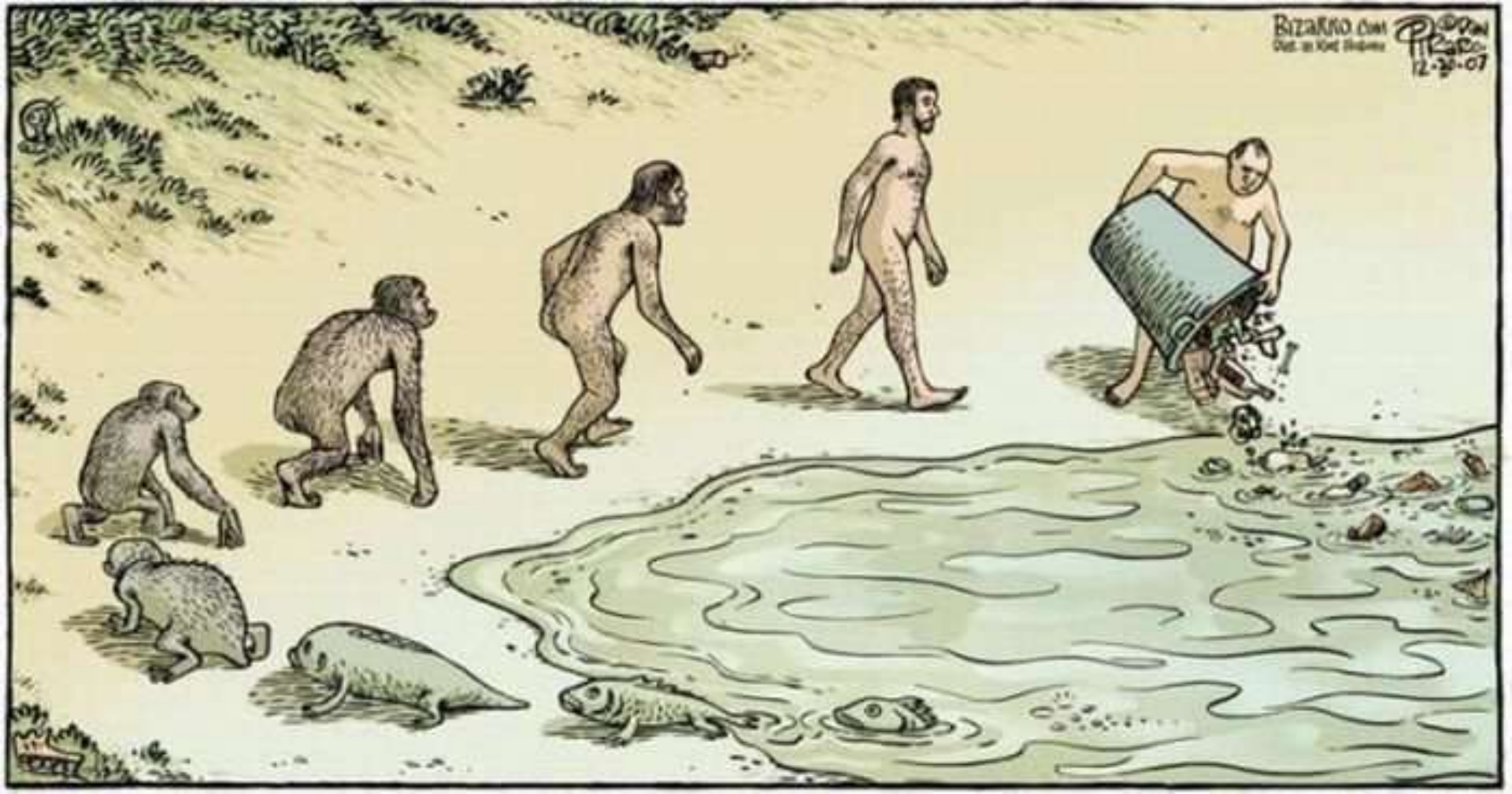
  – --- Somak Ghosh, Yes Bank

ISSUES!!

a. No scrutiny mechanism for DNA.
b. CDM violates other UN treaties
c. Green tagging toxic technologies

Challenges !!

- Market based limitations
- Complex process designed to keep communities out.
- Limitations of local monitoring authorities
- Communities engagement limitations



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